



CALCULATION OF THE CAPACITY OF A RETAIL CLOTHING STORE

Capstone Project

Murat Türkođlu

İSTANBUL, 2021

MEF UNIVERSITY

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CLOTHING STORE**

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Name of the project: Calculation of the capacity of a retail clothing store

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I understand that all resources in print or on the web must be explicitly cited.

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EXECUTIVE SUMMARY

CALCULATION OF THE CAPACITY OF A RETAIL CLOTHING STORE

Murat Türkođlu

Advisor: Asst. Prof. Dr. Tuna Cakar

JANUARY, 2021, 49 pages

The purpose of this study is to define and improve the capacity calculation for clothing store companies.

It is important to know how many products need to be sent to the relevant store in order to sell more products, whether more or less products will be sent to the stores, how much the product can sell and how much capacity the stores will have for the relevant products during the season. Planning and producing more products than necessary may also cause insufficient capacity to consume the stocks of that product in the relevant season.

For these reasons, a detailed capacity management system is needed. The capacity of certain product groups in the stores in certain seasons can be determined by calculating the capacities of the relevant units in the stores and the relations of these units with the product groups. The relevant system will produce output for both planning and allocation units.

At the same time, converting the capacity of products and store display units into a common unit (LCM) will be one of the factors that facilitate our work in capacity calculation.

A short version of the LC Waikiki capacity system platform is used to obtain the data. ASP.Net Core Web API, ADO.NET, T-SQL, C # programming were used as program

tools. Azure Microsoft SQL Server was used as a database server. Azure App Services has been used to keep the business codes.

Key Words: Store, Clothing, Capacity, LCM, LCM Multiplier, Merch Group, Unit, Unit Types, Service Oriented Architecture, Merchandising, Retail

ÖZET

BİR PERAKENDE GİYİM MAĞAZASININ KAPASİTESİNİN HESAPLANMASI

Murat Türkođlu

Proje Danışmanı: Dr. Öğr. Üyesi Tuna Cakar

OCAK, 2021, 49 sayfa

Bu çalışmanın amacı, giyim mağazası şirketleri için kapasite hesaplamasını tanımlamak ve geliştirmektir.

Gönderilen ürünlerin daha çok satılabilmesi için ilgili mağazaya kaç adet ürün gönderilmesi gerektiđi ve mağazalara az veya çok ürün gönderilip gönderilmeyeceđi, gelecek için ürün planlarken hem ürünün ne kadar satabileceđini hem de sezon boyunca mağazaların ilgili ürünler için ne kadar kapasiteye sahip olacağını bilmek önemlidir. Gerektiğinden fazla ürün planlamak ve üretmek, ilgili sezonda o ürünün stoklarını tüketecek yeterli kapasite olmamasına da neden olabilir.

Bu nedenlerden dolayı detaylı bir kapasite yönetim sistemine ihtiyaç vardır. Belirli ürün gruplarının belirli sezonlarda mağazalarda ne kadar kapasiteye sahip olduđu, mağazalardaki ilgili birimlerin kapasitelerinin hesaplanması bu birimlerin ürün grupları ile olan ilişkileri sayesinde bulunabilmektedir. İlgili sistem hem planlama hem de alokasyon birimleri için çıktı üretecektir.

Aynı zamanda ürünlerin ve mağaza sergileme ünitelerinin kapasitesini ortak bir birime çevrilmesi (LCM) kapasite hesaplamasında işimizi kolaylaştıran etkenlerden biri olacaktır.

Verileri elde etmek için LC Waikiki kapasite sistemi platformunun kısa bir versiyonu kullanılır. Program araçları olarak ASP.Net Core Web API, ADO.NET, T-SQL, C # programlama kullanılmıştır. Veritabanı sunucusu olarak Azure Microsoft SQL Server kullanıldı. Business kodları yayınlamak için Azure App Services kullanılmıştır.

Anahtar Kelimeler: Mağaza, Giyim, Kapasite, LCM, LCM Çarpanı, Merch Group, Birim, Birim Tipleri, Servis Odaklı Mimari, Perakende, Mağazacılık

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1.INTRODUCTION

1.1 Overview

Suppose there is a company with a group of stores that works with a central management system and that company has stores. There are many products exhibited in each store, product groups to which these products are connected (adults, youth, children, etc.) After the customers buy the products by going to the relevant departments in the store, what we see at the end of the day is a partially filled and partially empty store. The spaces with purchased products must be fed continuously. There are many products exhibited in each store, product groups to which these products are connected (adults, youth, children, etc.) After the customers buy the products by going to the relevant departments in the store, what we see at the end of the day is a partially filled and partially empty store. The spaces with purchased products must be fed continuously.[6]

Knowing the amount of products that can be displayed in the store at "t" instantly ensures that healthy plans are made for that store, prevents problems such as out of stock or planning more products than can be displayed.[5]

In case the capacity cannot be filled with the required stock amount; Problems such as product-based sales losses, decreased customer satisfaction, and the targeted profitability may be encountered. In case the capacity is filled with excess stock; products may not be exhibited in accordance with the standards, and therefore problems such as possible sales losses, decreased customer satisfaction due to narrowing of the shopping area, product-based turnover reduction and targeted profitability cannot be achieved. For these reasons, a detailed capacity management system is needed.

1.2 Retail

The retailing sector has an important place in a country's economy in terms of employment and income it creates.

Stores, where producers and consumers meet, have also entered a mandatory process of change and development with changes in consumer trends. In addition to the

product offered, the stores have become the target of meeting a wide range of other needs of customers. With this understanding, it is seen that the spaces have grown in m² and the multi-store merchandising has developed.

Retail stores, which have an important place in our lives, are organizations that try to meet our various needs. Retail stores, which are at the last stage of the distribution process, can be defined as sales points where products and services are offered to consumers.

The fact that a product produced in accordance with the expectations of the consumer, with an affordable price and introduced to the consumers is not found by the consumer at the desired sales points, immediately wipes out all previous successful works. The saying “The worst product is the product that is not on the shelf” explains this in the best way.

Providing time and space benefits to consumers is the most important goal of the physical distribution channel. Aiming to have the right products at the right time, at the right price, in the right quantities and in the right places. Perhaps the most important link in the distribution channel is the retailers where the product comes across with the consumer.

Retail is the last stage of any economic activity. Therefore, it has an important place in the world economy. If there is a sale to the final consumer in any organization, it means retailing. Retailing is intermediary services that allow the flow of goods between the producer and the consumer. In other words, it is the totality of activities related to the marketing of goods and services directly to the end consumer, provided that they are not used for commercial purposes and are not resold.[1]

In our age, the rapidly increasing competition, constantly changing technological developments and consumer demands force businesses to develop more intense and customer-oriented strategies. All these developments and efforts in the sectors noticeably show their sense in the retailing field.

1.3 Merchandising

It is the management of the product planning and allocation process so that the right product mix in the stores is also according to the sales potential.

In the retail sector, merchandise is a category professionals use to categorize the industry by the types of goods and services offered. Merchandising is both an activity and a strategy that contributes to the sale of goods and services by stimulating interest or otherwise enticing customers to make a purchase. Retail merchandising attracts customers to particular goods and services in various ways. The goal of retail merchandising activity is to support a retail strategy that generates revenue for the retailer and value for the customer. The selection of retail merchandise and the type of goods and services a retailer decides to stock are key retail strategies. [1]

It consists of

- Right Product
- Right Price
- Right time
- Right Place
- The Right Amount

1.4 Capacity

The amount of stock to be kept in stores should not be too much to make operational activities difficult, nor too low to cause the store to lose sales. Maintaining this balance is only possible by measuring how many products the store can display and how many products it can store outside of the display areas. By making these measurements, standards were developed to calculate the capacity of each store and this system was named capacity.

To understand why capacity management has such an important effect on stock management, let's go from the front of the store to the back. Retailers generally buy their collection based on budget and didn't consider the available space at all. They allocated the same product collections and quantity to each store. The effect was that some stores were extremely full where others looked too empty. The stores that were full of products that simply didn't get sold led to them needing to mark down the products when it came to the end of the line in various sales. Whereas the other more empty stores simply didn't have the required stock on hand to turn over the required sales numbers. [2]

One of the importance of capacity for planning is the stores we will open in the future while we are planning for the future, or we can increase or decrease the existing store capacities in m2, or there will be a change in capacity among the merch groups. We can reflect these in the future planning projection and see the future capacity and plan on the basis of that capacity.

For example, we currently have 100 stores, there are plans to open 10 more stores in one year. A better product plan can be made with the foresight of these 10 stores. We can predict what the future store capacity changes will be and try to produce the amount of product suitable for this anticipated capacity. How many weeks will this product be finished? If we can finish the product, which we normally plan to finish in 4 weeks, in 3 weeks with the relevant capacity increases, we can determine an order accordingly.

By determining the future capacity on the basis of merchgroups beforehand and presenting them to the relevant merch group managers before budget and planning, we can also enable the relevant managers to make better planning.

1.5 Capacity of a store

The capacity of a store can be called the ability of that store to display products in total and, if necessary, to store products. This capability differs according to the size of the stores and the units it contains.



Figure 1 : Sample capacity view of the store

The capacities of the stores are formed by placing the unit and unit units in accordance with the visual standards of the stores.

In Figure 1, you see the segmented merch groups, their units, common areas, other (cabin, warehouse) information. The capacities of the stores are created by placing the unit and unit types in accordance with the visual standards of the stores.

Designing a clothing store does not only involve a systematic merchandise display, but rather creating a unique customer experience while delivering value to the system. A strategic use of the retailing space and proper store layout will forge a special bond with the target audience and affect their purchase behavior. [3]

1.6 Capacity of a Store Warehouse

Store warehouse is the area where product acceptance-dispatch operations that are not included in the store sales area are carried out and stored.

1.7 Display Units

In today's clothing retailing, it is no longer enough not only to have a good use value of the product, but also to connect the customer to the space with the importance given to the interior of the store. While paying attention to this point, the customer will pay attention as soon as they enter the store, the selection of display elements in the store and positioning can be considered as one of the most important tools. At the same time, these display elements are used when determining the capacity of the store. These are called display units.

Units such as wall, table, fixture are called display units, while units such as hangers, side hangers and shelves that form these units are also called display units.

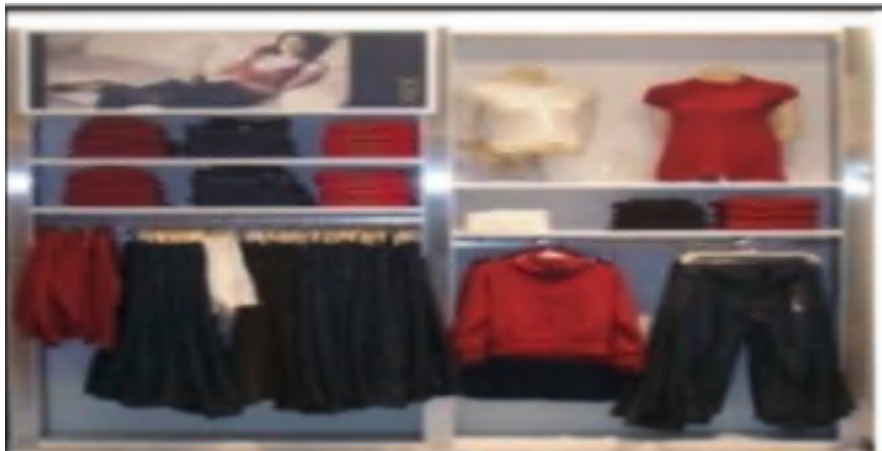


Figure 2: A unit in a retail store

Inside the display units, the parts that make up the units and where the products are physically placed (Wall shelf, table shelf, cane hanger, side hanger, fixture etc.). The smallest part where products are exhibited is called display unit type.

1.8 Season

It is the definition used for seasonal separation of models. Season starts are determined by Merchandising Management. It depends on the current year and season. There are two season groups, Winter and Summer. Winter seasons generally start with the

first week of August and end in the last week of February. Summer seasons generally start in the first week of March and end in the last week of July.

1.9 Merch Group

Merch Groups are high-level categories that the design categories (Child 6, newborn, men, women, teenage etc.) fall under. They make it easier for other departments to organize information and reports about design categories.

Merch Groups are the foundation unit that is used to manage merchandise in a retail environment. Retailers group merchandises into categories in order to classify and structure every single item sold in a store. Merchandise categories focus on considering how customers approach buying, how they shop in-store, and their needs. Merchandise categories determine what stores will and will not carry. [5]

1.10 Merch Calendar

The merch calendar allows you to compare sales, planning, allocation etc. across different time periods. Retail calendars do this by creating four quarters with 91 days in each, in either a 4-5-4 or a 4-4-4 format (i.e. a month with 4 weeks followed by a month with 5 weeks and finally a month with 4 weeks). This ensures that every month has the same number of weekends as the same month in the prior year, so that sales for the same comparable time period have the same number of weekdays and weekends. Additionally, the National Retail Federation (NRF) uses a 4-5-4 calendar and adjusts the start of the calendar year to ensure that major holidays are reflected in the same time period for proper comparisons. [6]

1.11 Items Forming Capacity

The physical capacity of a store is made up of units such as wall, fixture, table and warehouse shelf and warehouse hanger units in the storage area.

Product display areas in the stores are standardized. The smallest part where products are exhibited is called display unit type. It has been determined how many options will be displayed in the unit. It can also be determined how many options can be displayed

in each store on a merch group basis. In order to carry out planning activities, stores are grouped separately for each season according to their option capacity and customer profile.[5]



Figure 3: A unit with unit type hangers.

Table 1: Unit Types related with Figure 3.

Unit Type	Dimension	Quantity
Side hanger	84 cm	3
Horizontal Hanger	33 cm	14

1.12 LCM (Linear Centimeters)

A common capacity definition is needed to determine the capacities of the different display units. To meet this need, the LCM (Linear Centimeter) definition is used. It is converted to a common unit by calculating how many centimeters of product all units can have on a linear plane. With a simpler definition, the area where the product can be

displayed is determined by turning all the table and shelf blocks into the hanger unit. Here 1cm hanger = 1LCM is accepted. Store LCM Capacity is found by adding the LCM capacities of all units in the store that can be displayed.[5]

One of the most important attributes that links visual merchandising departments between their buying and planning departments is the size of the stores. Maximizing the profitability per square centimeters is something both departments are measured on: visual merchandising looks to mostly maximize in-store product density, whilst planning aims to minimize costs. So capacity management is the natural choice. [2]

Linear centimeters is the best way to measure how many products can actually fit on the fixture. It's also important to consider that the available linear space is also defined by the way. [2]

1.13 Capacity in Allocation

Capacity is also used to track store occupancy. It is used in the allocation process, taking into account information such as store occupancy, approximate number of reserves and empty lcm capacity.

Allocators need capacity and capacity occupancy to effectively manage the inventory in stores (Reserved, Transfer-Return studies) or to determine the needs of the stores. Allocation managements use the capacity and capacity occupancy to manage the stores at reference occupancy and to make the necessary tactical decisions.

The use of technology in retailing is critical to gaining competitive advantage.

Retailers use capacity management intensively for the following purposes;

- To be able to solve the planning problems caused by the variety of goods and high volumes,
- Stock needs to be sent to stores in the right amounts. When you send too much it won't all fit and you risk underselling. You also have to increase the amount of products you mark down in sales. Too little and you run the risk of lost sales by not having the products available to purchase. [2]
- To be able to show customers the right product
- To be able to successfully perform shipping operations.

Store Occupancy Rate: It is the estimated occupancy rate that will occur in the store.

Store Occupancy Ratio = Store Occupancy LCM / Total Capacity LCM

Store Occupancy LCM = Store Stock LCM + Route Stock LCM + TransferIN LCM
- TransferOut LCM – Sales Forecast LCM

The sample of capacity process in allocation is in the results section.

1.14 Setting Planning and Capacity Standards

Leaving retailing practices to the free will of store managers is not a preferred method. So the merchandising model must be standardized. Satisfying the customer is possible in a small number of stores, but it is risky, in a non-standard-no-rule retailing order, or in other words, in a "store environment where everyone tries the right commercial methods". Because in these cases, the degree of commitment to the skill and dedication of the store manager and team is high. With the relatively low wages paid for the job, the extraordinary performance to be expected from the store staff is unfair to them, and it is almost impossible to realize in the chains with many stores.[6]

Standards not only define the process of work to be done, but also create an organized retail culture within the organization. This culture is quite different from the commercial culture. Thanks to the new corporate culture created by standards, complex systems are reduced to simplicity and comprehensibility. Growing retail systems become manageable.

Planning in its most general definition; It can be defined as the process of determining the objectives and the ways, means and possibilities that will achieve these goals and selecting the most appropriate ones among them. At the end of the planning process, what, by whom, why, when, where, how and with which possibilities are revealed. Naturally, this process requires management to make forward-looking decisions and to implement those decisions. One of the main benefits of planning to management is to increase productivity by saving time, effort and money. [7]

In addition, planning ensures that all efforts are directed towards the goal and a criterion is created to check whether the available facilities are directed to the goal or not.

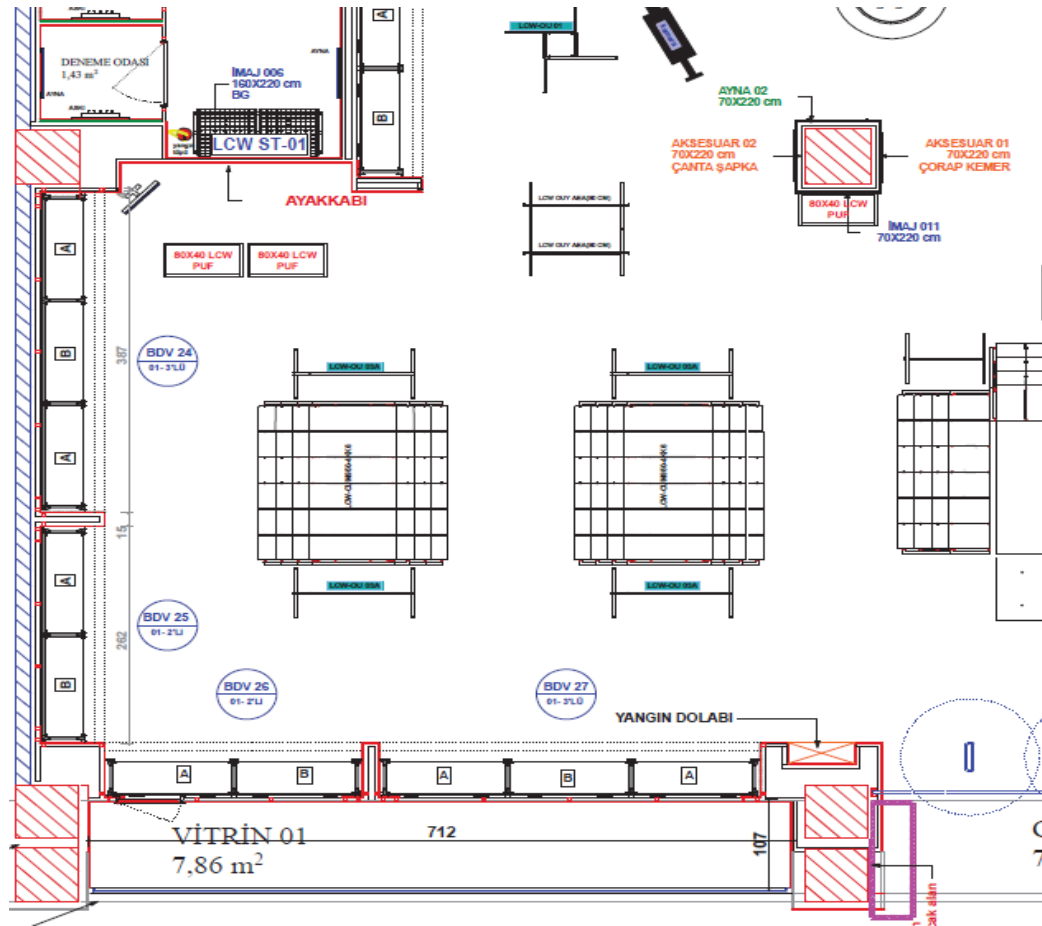


Figure 4 : Unit distribution at a store

As you can see in Figure 4, all the fixtures, the tables and the equipment in the store can be seen with the codes.

The walls also can be seen with their codes, also as you can see in the circles, the number of the walls can be seen.

1.15 Steps of management of the capacity

The actual management process of capacity is described below :

- Before the store is opened, the Architectural Project Department makes the necessary layouts and definitions on the plan.

- It transmits the measurement and code information transmitted to the central capacity department in order to complete the registration in the system.
- Major Renovation is a change of aisle in the store or renovations that require a change in m2 of the store (adding floors to the store, reducing the number of floors).
- Minor Renovations are modifications that require an image in the store (mirror being an image, an image being a mirror, a wall being an image, etc.) depending on the physical condition of the store or managerial decisions.
- Firstly the printed store project should be checked with the system as explained before.
- Then the store project should be matched with the actual situation.
- The Central Capacity Department collectively assigns the capacity changes given manual assignment orders by the users and informs the product group.
- The brief form for the new store project provides the necessary information such as brand distribution rates, determines the middle unit and wall needs in the new store project according to this information and general capacity needs and makes a draft study on the project.
- After the draft study, all the elements that make up the capacity are entered into the planning system as data.
- After the completion of data entries, it creates the capacity report containing the merch group distribution of the relevant study.
- After the needs are determined, the Central Capacity Department implements the necessary arrangements on the project and updates the data in the planning system.
- During or after the project, it organizes evaluation studies that may be needed, participates and reports to the senior management.

2. ABOUT THE DATA

2.1 Overview

The LCW capacity sample data files are exported into csv files, under the Data folder.

I removed some product hierarchies in the real data in order to be suitable for my own model during migration. I used the merch group and category product hierarchy. To create LCM Multiplier, I got the actual measurement information completely from LCW data. I used ready measurement information on category basis.

The unit, unit types, merch groups, floor, wall data are the actual data, taken directly from LCW Data. The relation data are taken with minor changes.

I used “Microsoft T-SQL” to migrate the data, it’s also under the Data folder.

2.2 Features

The general columns on each table are below.

- ModifiedUserRef : int - references to tb_users table (UserRef), keeps last modified user.
- ModifiedDate : datetime - ModifiedDate columns are date and time columns, keeps last modification date.
- “Ref” columns : int - Named for unique ID columns.
- Status : int - For status of the record (Active,Passive)
- ValidFrom : datetime - The column keeps the validation start time for temporal table.
- ValidTo: datetime - The column keeps the validation end time for temporal table.

The description of generic columns is mentioned below.

- StoreRef: int - Store unique ID
- FloorRef: int - Floor unique ID
- WallRef: int - Wall unique ID
- UnitRef: int - Unit unique ID
- MerchGroupRef: int - Merch Group unique ID
- CategoryRef : int - Category unique ID
- StartYearWeek: int - The record is valid between the related start year week and end year week
- EndYearWeek: int - The record is valid between the related start year week and end year week
- UnitTypeRef: int - Unit type unique ID
- Status : int - For status of the record (Active,Passive)
- ValidFrom : datetime - The column keeps the validation start time for temporal table.
- ValidTo: datetime - The column keeps the validation end time for temporal table.
- The other columns are listed in the Tables section.

The project tables are described below.

- tb_StoreUnit (Table) - The table indicating the units connected to the stores and their locations.
- tb_Floor (Table) - Floor Info.
- tb_Wall (Table) - Wall Info.
- tb_StoreMerchGroup (Table) - Table indicating which store, season group, merch group relationship exists in which year and weeks.
- tb_UnitType (Table) - The table indicating the unit types that make up the unit.
- tb_Store (Table) - The table indicating store information.
- tb_SeasonGroup (Table) - Season group information (Summer, winter).

- `tb_MerchGroup` (Table) - The table indicating merch group information (children, women, men etc.) .
- `tb_StoreUnitDetail` (Table) - The table in which year and which merch groups will be held.
- `tb_Unit` (Table) - The table indicating the units kept in the stores.
- `tb_UnitRecipe` (Table) - The table where the relations between the units and the unit types that make up the unit are kept.
- `tb_Category` (Table) - The table where subclass information of merchgroups is kept.
- `tb_UnitTypeCategoryLMEq` (Table) - How many cm of hanger equal to the table and shelf blocks in these conditions on the basis of class the future is calculated.
- `tb_UnitTypeRatio` (Table) - The product mix of the exhibition unit in the relevant week is determined on the basis of class.
- `tb_Users` (Table) - User Info.
- `tb_MerchCalendar` (Table) - The table where the Merch calendar is kept.

In order not to keep duplicate records in the tables and to reduce the number of data rows, start and end year week intervals were used. A generic method was needed to manage this in any insert, update and delete operation. For this, a generic method has been made and this method will be used for update – delete - insert operations in the relevant tables.

The procedure that merges the duplicate year week rows into one row is `sp_MakeYearWeekRow`.

Input Parameters are :

- `SourceTableName` - The table where transactions will be executed
- `SourceTableDatabase` - The database to which the main table is associated
- `TempTableName` - Temp table name where the records to be processed will be filled and sent
- `YearWeekCol` - Year week column name in the temp table
- `StartYearWeekCol` - Start year week column name in the main table
- `EndYearWeekCol` - End Year week column name in the main table
- `UpdatedCols` - Column names to be updated if there is an update process

2.2.1 Transaction Time Logging

When logging, A persistent user-defined table that is common to all batches in a database is used. Each log entry contains a row containing details of each step for each batch that ran. Procedures and tables for logging are described below:

- `sp_LogTraceStart` (Procedure) – Use this procedure inside at the starting of the specific procedure.
- `sp_LogTraceAdd` (Procedure) – Use this procedure at the steps of the procedure.
- `sp_LogTraceStop` (Procedure) – Use this procedure inside at the end of the specific procedure.

Table definitions are :

- `tb_LogHeader` (Table) - The table where log headers are kept.
- `tb_LogDetail` (Table) - The table where log details are kept.
- `tb_LogType` (Table) - The table where log types are kept. The procedure name or the name of the general operation group is written.

2.2.2 Temporal Tables

While developing the application, a structure called “temporal table” is also used. This structure was especially useful to return to data at certain times.

Temporal tables, also known as system-versioned tables, provide us with new functionality for tracking data changes. It enables SQL Server to automatically maintain and manage the history of data in the table. This feature provides a complete history of every change made to the data.[4]

It was first introduced in the ANSI (American National Standards Institute) SQL 2011 standard.[4]

Temporal tables are considered one of the critical properties used to control data. Two period columns of data type `Datetime2`, "ValidFrom" and "ValidTo" define current and historical data for each row of the table. Defines the validity of the data. The `DateTime`

range has a suitable value for this time interval. By querying the table, we can easily see the transition of the data to various states within certain date-time intervals.[4]

The following are some usage scenarios of Temporal tables

- Auditing
- Rebuilding the data in case of inadvertent changes.
- Projecting and reporting for historical trend analysis.
- Protecting the data in case of accidental data loss.

Usage of Temporal Tables is below :

To the main table , two columns must be added.

- ValidFrom : datetime - The column keeps the validation start time for temporal table.
- ValidTo : datetime - The column keeps the validation end time for temporal table.

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Main table log must be added and attached to the main table. It's the temporal table of the main table. The columns have to be the same as the main table. A column also must be added to store the ID of the main table :

MainTableRef : int – The unique ID of the main table

Also the usage of these columns are changed :

ValidFrom : datetime - The column keeps the validation start time for temporal table.

ValidTo : datetime - The column keeps the validation start time for temporal table.

Trigger on MainTable for update and delete : It triggers when updating, inserting Main Table, inserts deleted data into Temporal Table, updates newly inserted or updated data's ValidFrom column.

- Deleted values for tb_Main table are inserted into tb_MainTable_Log.
- ValidFrom column on tb_MainTable is updated with current date and time.

There's a MainTable Log function, which reads the specified date time snapshot of the data. It unions the main table and main table log and queries with specified date and time, gives results.

The code is included in the code folder.

3.PROJECT DEFINITION

3.1 Problem Statement

Capacity is of great importance for product planning, thus avoiding planning more than capacity.

The most important constraint we have to manage when making allocation is the store capacity constraint. It is certain that every allocation we make without knowing the store capacity is an order that can cause us any problem. The allocation we will make by knowing and managing the store capacities is the best practice that can bring us to the maximum profit.

Knowing the amount of products that can be displayed in the store at a "t" instant, ensures healthy plans for that store, preventing problems such as being out of stock or planning more products than can be displayed.

3.2. Project Objectives

The main objective of the project is to develop a store capacity calculation model that calculates LCM capacity of units, merch groups in a store. Then calculate the overall capacity of the store in LCM. And the usage of capacity at allocation process will be described, and the changes of capacity after manipulating data will also be described.

In order to calculate the capacity of the store, not only the area where the products are placed, but also the relationship with the product is important. Therefore, we need to consider these two parts while calculating capacity. Capacity is also available so that we can work with optimum stock.

You can display a product by hanging it on a hanger, or you can fold it and put it on the table, or you can fold it and put it on a shelf. Although they can occupy different areas volumetrically in each area, they occupy the same place on a meter basis. In order to make the products and the places they are exhibited speak in the same unit, we convert them all into LCM. By converting from LCM to pieces, we can find out how many products the units buy according to the categories. These conversions and methods will be described below.

Also capacity is used for the occupancy management on the allocation side. The goal of allocation is managing the store with 100 percent occupancy, not leaving the store empty will cause less costs, i.e. transfer, return, loss of sales, with ideal occupancy. Sales will increase even more in stores that are managed with ideal occupancy. The usage of capacity in the allocation will be described below.

After the first capacity calculation for the future is made and detailed information about this capacity is given to the planning team, there may be revisions in the project. According to the changes made, it may be necessary to compare the old and the new. A report is needed to show the changes over time will be shown in the results pane.

3.3. Project Scope

In the scope of this project, LCM capacity will be calculated using LCM multipliers according to some evaluation metrics described below.

A view is prepared to publish the capacity information.

Also a view is included for the historical changes of the capacity.

The parts in those views are listed below.

- Initially store merch groups, season groups and ratios with year week values. are taken,

- Merch groups, store units and unit values, store unit quantities, unit recipe quantities, wall, floor, unit information with year week values are retrieved.
- Getting the merch group, unit type LCM Multipliers, with year week values.
- LCM Multiplier formula :

$$\text{LCM Multiplier} = \text{Category LM Equivalent} * \text{Display Unit Ratio}$$
- Making calculations with Store, Merch Group, Season Group, Wall, Floor, Unit, Unit Type, Year Week detail.
- In Store LCM Capacity Formula :

$$\text{In Store LCM Capacity} = \text{Unit Type dimension in unit} * \text{Quantity of unit in store} * \text{Unit Type quantity in unit} * \text{LCM Multiplier Calculated above} * \text{Store Merch Group Season Group Ratio}$$
- Making calculation with store warehouse LCM values
- Store Warehouse LCM Capacity Formula :

$$\text{Store Warehouse LCM Capacity} = \text{Unit Type dimension in unit} * \text{Quantity of unit in store} * \text{Unit Type quantity in unit} * \text{LCM Multiplier Calculated above} * \text{Store Season Group Store Warehouse Ratio (Merch Group not included)}$$

The view is included in the code folder.

Also some metrics included to calculate a product volume in a category (subclass information of merch groups). The table how many cm of hanger equal to the table and shelf blocks in these conditions on the basis of class the future is calculated and the product mix of the exhibition unit, for converting the product into LCM is also included.

3.4. Techniques

Unit LCM Multipliers are used to display in order to determine the unit LCM and reach the total capacity. In order to make this calculation, it is necessary to define the counterpart of the table and shelf blocks for the hanging unit. To do this operation the steps below are followed.

How many hangs from a category, how many in the table block with visual display standards number and how many products can be displayed in the shelf block are determined.

For example: 14 products for Women Jean Trousers category on 35cm cane hangers 7 products can be displayed on the shelf. X cm of hanger equal to the table and shelf blocks in these conditions on the basis of class the future is determined.

Table 2: X cm of hanger equal to the table and shelf blocks

Unit	Women Jean Trousers	Hanger Length
Hanger	14 items	35 cm
Shelf	7 items	x cm

$$X = (35 \times 7) / 14$$

$$X = 17.5 \text{ cm (shelf unit LCM Equivalence for Women Jean Trousers)}$$

The product mix of the exhibition unit in the relevant week is determined on the basis of class.

Table 3: The product mix of the exhibition unit in the relevant week

ExhibitionType	Category	Display Unit Ratios
Shelf	Women Jeans	40%
	Women Trousers	20%
	Women Shirts	40%

The unit LCM multipliers on the basis of class in the display unit according to the product mix unit LCM multiplier of the display unit is found by weighing.

Table 4: The unit LCM multipliers on the basis of class in the display unit.

ExhibitionType	Category	Display Unit Ratios	LCM Equivalence
Shelf	Women Jeans	40%	17,5 cm
	Women Trousers	20%	20 cm
	Women Shirts	40%	17,5 cm

$$X = (17.5 \times 40\%) + (20 \times 20\%) + (17.5 \times 40\%)$$

$$X = 18 \text{ cm (Shelf unit LCM Multiplier for Merch Group Women)}$$

After this process is done on a weekly basis for each merch subgroup, the merch subgroup LCM multiplier is calculated for winter and summer. After all the merch bottom the season-based table unit LCM multiplier and shelf unit LCM by averaging the groups the multiplier is calculated.

In order to calculate the LCM capacity, the LCM Factors defined on the basis of the model are calculated and the product's LCM is found by multiplying the number of the defined LCM multiplier for each product.

In order for this calculation to be made, the counterparts of the table and shelf blocks must be defined in the hanging unit. To do this process the steps below are followed.

Table 5 : The counterparts of the table and shelf blocks in the hanging unit.

MerchGroup	Season	Unit	Quantity	Unit LCM Multiplier		LCM Capacity
Women	W	40%	17,5 cm	18	150*18	2700
	W	20%	20 cm	1	1000*1	1000
	W	40%	17,5 cm	20	200*20	4000
Total						7700

LCM capacities defined to merch groups are divided by the ratios specified in the instruction and distributed to merch groups. However, if there is only a unit defined to a

certain merch subgroup, the capacity is directly assigned to that merch subgroup (ex Women merch subgroup).

The number of products that can be exhibited in a LCM may differ according to the category. It can also be found how many products will be bought by taking into account the space occupied by the categories in the store. The capacity calculated in this way is called the quantity capacity.

The LCM capacity calculated for each class is divided by the LCM multiplier of the relevant category and the quantity capacities are found on the basis of the class.

3.5 Methods

The business and data models used in the project are explained in detail in the code folder. In the project, web API technology was used to publish business methods and ado.net technology was used for data methods for accessing data in the business methods. For data analysis, both Microsoft Excel and Microsoft SQL Server transact sql are used. Those gave effective performance while writing code.

3.6 Technologies

The technologies below were used in the project:

- “ASP.Net Core Web API”, “ADO.NET”, “T-SQL”, “C# programming” for programming tools.
- “Azure Microsoft SQL Server” for database server
- “Azure App Services” for the app server containing business objects.

Service operations were performed in ASP.NET Core Web API using ADO.NET. “ASP.NET Core Web API Project” is created. Then “API” as the template is selected. Database Operations are performed using the library for ADO.NET, created before. Post service is used for the methods for insert / update / delete data, The Get service is used to fetch data. Data is received as an Object from client and serialized that object to write insert query from received data and passed that query to the method.

In the Get service, returned data is sent in response by converting it into an “ObjectResult”.

Azure operations are stored in Microsoft Azure platform. The operations are described below.

Logged in to Microsoft Azure using your administrative credentials. From the Dashboard screen, from Resources, SQL database is added (capacity) and resource group is created (capacity). Resource Group is a container that holds related resources for an Azure solution. Also a new App Service is created under “App Services” in Azure to deploy the web application to Azure,

After the configuration of the web service in Azure, deploying our .NET Core Web API code to Azure with Visual Studio, when right clicked the API project and selected “Publish”.

4.RESULTS

4.1 Discussion

Advances in today's technology, the growth of the market, the proliferation of players and the increase of competition in this context, accelerated the globalization process and caused radical changes in the retail businesses. One of these radical changes is that the "information economy" has become as important as the supply and sales economy for retail businesses.

In the retailing sector, "knowledge" is the "norms and rules" that emerge as a natural need as the organization continues to grow.

A standardized retail model; It is the key to success on a local, regional, national and international basis. If a standard that works well in one place does not work well elsewhere, it must be adapted to the environmental conditions and the new adaptation must be standardized again. Hence, "set of standards in writing" is seen in almost all successful retail cases and mostly.[6]

In today's retail world, keeping the right product in the right location in the right quantity benefits companies and brings competitive advantage. In this context, determining the store capacities becomes one of the priority studies. Once this structure is established, effective and healthy walking of the building can be achieved with seasonal arrangements and measurements.

While determining the store capacity;

- The product carrying capacity of the store

- Product range
- Season
- Customer Profile

It must be taken into attention.

According to these store types, it is essential for the store to be calculated with a linear value for the display area data. While doing this, the products sold according to the field of activity should also be defined according to the merch group they belong to.

According to the store types to be created;

- How many shelves
- How many wall stands
- How many units, separators, hangers, tables

must have been introduced to the system where it will be.

Why do we need an LCM based capacity? If we think of a short-sleeved and long-sleeved T-shirt with the same fabric, when these products are hung on hangers, the same amount of product is put. But when you put that product on the table, you have to fold it. For this reason, product exposure rates and the relation of lm multipliers with units is important. While the volumetric capacity can see these products in the same volume, you will ensure the flexibility in lcm capacity.

Capacity defines a lot of things in stores. In particular, it defines the types of fixtures that products can be merchandised on, and the amount of them. This specific space is known as linear centimeters. That is, the actual available space on in-store fixtures that products can be placed in, or on. So it's important to group stores into size categories not just based on their square centimeters of floorspace, but linear centimeters.[2]

Capacity can also be very misunderstood in stores. A lot of retailers forget to consider linear centimeters when it comes to seasonal changes in product ranges. For example if a buying team is used to ordering, let's say 40 jackets from a Spring/Summer collection, when it comes to thicker overcoats from Autumn/Winter only 20 may fit properly on the same fixture.[2]

Within the scope of the above information, we can list the Store Capacity Determination processes as determination of all store-based shelf, hanger etc. product display materials in linear cm on the basis of product range.

4.2 Calculation samples on real data

In this section, two unit samples from a store (T100) and made LCM capacity calculations. Then a sample report calculating history capacity as an output is formed. Finally, store occupancy model and the calculation is described. The data is taken from LCW. The result information is below.

4.2.1 2-LÌ 1(CS1)-1(CS2)-DP/UCGE BG

The first sample is the “2-LÌ 1(CS1)-1(CS2)-DP/UCGE BG” unit. The picture and unit recipe information of unit “2-LÌ 1(CS1)-1(CS2)-DP/UCGE BG” is described below. The calculations are made for this unit according to the following rules.

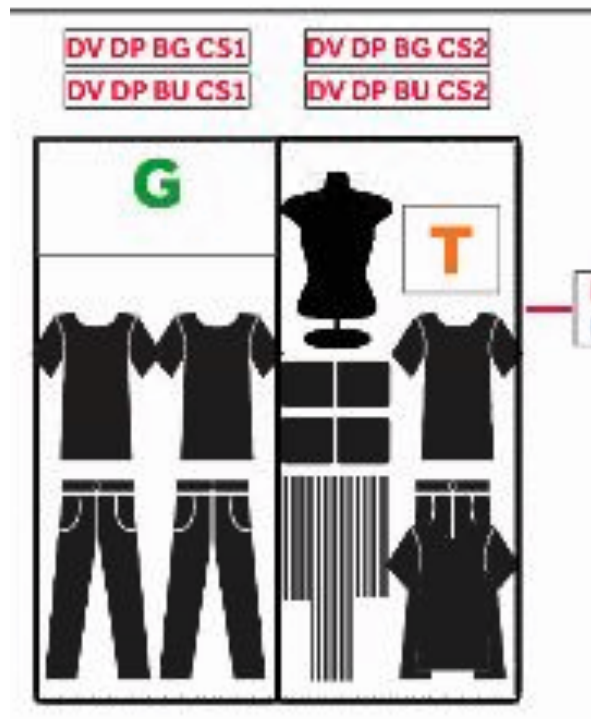


Figure 5: Image of 2-LÌ 1(CS1)-1(CS2)-DP/UCGE BG

Table 6 : 2-Lİ 1(CS1)-1(CS2)-DP/UCGE BG Data Details

Unit Type	Dimension (cm)	Quantity in Unit	LM Multiplier
Yan Aski-D	56 cm	1	0,98
Baston Aski-D	42 cm	5	0,98
Kademeli Askı-D	42 cm	1	0,98

Calculation of display unit ratios and LM Equivalent can be found at “3.4.1 Unit LCM Multipliers and LCM Capacity Calculation Techniques”

Product unit multiplier is the share taken by the units where the products are displayed according to the visual display standard of the product. Normally, all products are converted into hangers. The units consist of hangers, tables or shelves.

Example: Normally a short sleeve T-shirt and a long sleeve T-shirt. Suppose there are T-shirts made of the same fabric. The same pieces can be put on the hanger. The arm doesn't matter here.

Table 7 : The category exhibited in Yan Aski-D, LMEq, Display Unit Ratios and LM Multipliers

Category Definition	Merch Group Code	Unit Type Definition	LMEq	Display Unit Ratio	LM Multiplier
ATLET KEY ORME	BUC	Yan Aski-D	1	0,01	0,01
CEKET KEY DOKUMA	BUC	Yan Aski-D	1	0,01	0,01
CEKET KEY DOKUMA	BUC	Yan Aski-D	1	0,01	0,01
GÖMLEK KEY DOKUMA K.KOL BASKILI	BUC	Yan Aski-D	1	0,05	0,05
GÖMLEK KEY DOKUMA U.KOL	BUC	Yan Aski-D	1	0,11	0,11
GÖMLEK KEY DOKUMA U.KOL	BUC	Yan Aski-D	1	0,05	0,05
HIRKA KEY ORME	BUC	Yan Aski-D	1	0,01	0,01
HIRKA KEY TRIKO	BUC	Yan Aski-D	1	0,01	0,01

HIRKA KEY TRIKO	BUC	Yan Aski-D	1	0,03	0,03
KAZAK KEY TRIKO	BUC	Yan Aski-D	1	0,1	0,1
KAZAK KEY TRIKO	BUC	Yan Aski-D	1	0,02	0,02
KAZAK KEY TRIKO CIZGILI	BUC	Yan Aski-D	1	0,04	0,04
MONT TRIKO HIRKA	BUC	Yan Aski-D	1	0,02	0,02
PANTOLON KEY DOKUMA INCE	BUC	Yan Aski-D	1	0,01	0,01
PANTOLON KEY DOKUMA KALIN	BUC	Yan Aski-D	1	0,02	0,02
PANTOLON KEY DOKUMA ORTA	BUC	Yan Aski-D	1	0,02	0,02
PANTOLON KEY DOKUMA ORTA	BUC	Yan Aski-D	1	0,06	0,06
PANTOLON KEY ORME	BUC	Yan Aski-D	1	0,01	0,01
PANTOLON KEY ORME	BUC	Yan Aski-D	1	0,01	0,01
ROLLER KEY ORME	BUC	Yan Aski-D	1	0,02	0,02
SUVETER KEY TRIKO	BUC	Yan Aski-D	1	0,01	0,01
SWEAT KEY ORME	BUC	Yan Aski-D	1	0,06	0,06
ŞORT/BERMUDA KEY DOKUMA	BUC	Yan Aski-D	1	0,03	0,03
T-SHIRT KEY ORME K.KOL	BUC	Yan Aski-D	1	0,13	0,13
T-SHIRT KEY ORME K.KOL	BUC	Yan Aski-D	1	0,01	0,01
T-SHIRT KEY ORME K.KOL BASKILI	BUC	Yan Aski-D	1	0,02	0,02
T-SHIRT KEY ORME U.KOL	BUC	Yan Aski-D	1	0,04	0,04
T-SHIRT KEY ORME U.KOL	BUC	Yan Aski-D	1	0,02	0,02
T-SHIRT KEY ORME U.KOL BASKILI	BUC	Yan Aski-D	1	0,02	0,02
T-SHIRT KEY ORME U.KOL BASKILI	BUC	Yan Aski-D	1	0,01	0,01
YELEK KEY TRIKO	BUC	Yan Aski-D	1	0,01	0,01
SUM			1	1	1

As seen, LM Equivalence values are the same. The reason is that all the places occupied by the relevant categories on the hangers correspond to approximately 1 cm horizontally in the hanger. LMEq and Display Unit Ratios are taken from LCW data.

In Store LCM Capacity = Unit Type dimension in unit * Quantity of unit in store *
UnitType quantity in unit * LM Multiplier * Store MerchGroup SeasonGroup Ratio

Sum of the Season Group ratio of all season groups must be equal to 1.

Dimension in unit description is that type can be changed in hangers, also in tables. In this example, the length of the hanger bar is made according to the cm calculation in the linear plane.

Table 8: LCM Capacity of related unit and unit type

Store Code	Merc Group Code	Sea Group Code	Year week	Floor Definition	Wall Definition	Unit Definition	Unit Type Definition	Dimension	Store Unit Quantity	Unit Rec Quantity	LM Multiplier	Season Group Ratio	LCM Capacity
T100	BUC	K	202047	Zemin	COLUMN TABLE	2-Lİ 1(CS1)- 1(CS2)- DP/UCGE BG	Yan Aski-D	56	1	1	0,98	0,9995	54,85
T100	BUC	K	202047	Zemin	COLUMN TABLE	2-Lİ 1(CS1)- 1(CS2)- DP/UCGE BG	Baston Aski-D	42	1	5	0,979	0,9995	205,5
T100	BUC	K	202047	Zemin	COLUMN TABLE	2-Lİ 1(CS1)- 1(CS2)- DP/UCGE BG	Kademeli Aski-D	42	1	1	0,978	0,9995	41,05
T100	BUC	Y	202047	Zemin	COLUMN TABLE	2-Lİ 1(CS1)- 1(CS2)- DP/UCGE BG	Yan Aski-D	56	1	1	0,98	0,0005	0,03

T100	BUC	Y	202047	Zemin	COLUMN TABLE	2-Lİ 1(CS1)- 1(CS2)- DP/UCGE BG	Baston Aski-D	42	1	5	0,979	0,0005	0,1
T100	BUC	Y	202047	Zemin	COLUMN TABLE	2-Lİ 1(CS1)- 1(CS2)- DP/UCGE BG	Kademeli Aski-D	42	1	1	0,978	0,0005	0,02

Here, we have obtained detailed capacity data on the basis of the unit, unit type, store merch group and the relevant year on a week basis.

When we group the LCM values according to the related columns and add them, this will give us the lcm values on the basis of the relevant column.

4.2.2 VISION/FORMAL MASA 120v

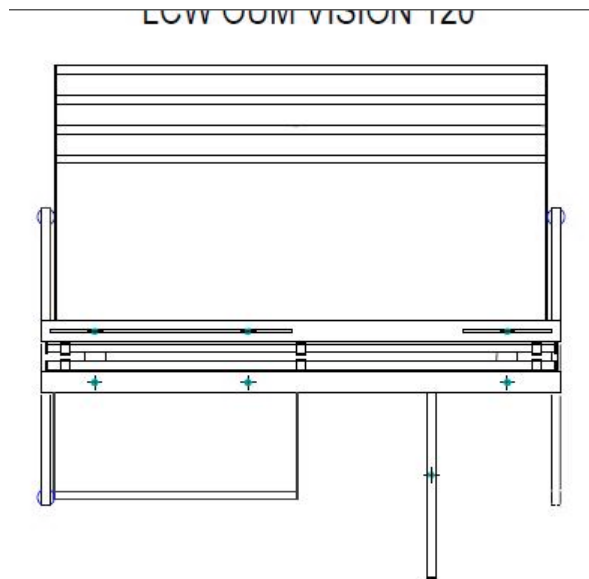


Figure 6: Image of VISION/FORMAL MASA 120v

Table 9 : VISION/FORMAL MASA 120v BG Data Details

Unit Type	Dimension	Quantity in Unit	LMMultiplier
Kademeli Askı-F	42 cm	1	0,99
Masa	2 cm	5	16,95

Calculation of display unit ratios and LM Equivalent can be found at “3.4.1 Unit LCM Multipliers and LCM Capacity Calculation Techniques”

The table is calculated according to the plane of the hanger corresponding to 1 cm. These are calculated according to the plane of the hanger corresponding to 1 cm. There are places where the product is hung and folded. Like a table shelf, wall shelf. When the product is folded and put, it occupies a certain amount of space and when the same product is hung, it occupies a different place. But we can put 10 long-sleeved T-shirts on the table, and 15 with short-sleeved ones. Because when the product is folded, the number of it decreases because the arm is included in the place it covers. It can also be placed on the table up to a certain height according to the exhibition standard. Of course we need a table multiplier to do this. It should be a different mix compared to short sleeves.

The following logic is used to find the Table LCM Multiplier.

I put 15 products on the table, how many centimeters would it be against the table for LCM on the hanger? There need some calculations.

Table 10 : The category exhibited in Kademeli Askı-F, Masa, LMEq, Display Unit Ratio's and LM Multipliers

Category Definition	Merch Group Code	Unit Type Definition	LMEq	Display Unit Ratio	LM Multiplier
ATLET KEY ORME	BUC	Masa	26,0293	0,01	0,260293
GÖMLEK KEY DOKUMA K.KOL BASKILI	BUC	Masa	21,2368	0,06	1,274208
GÖMLEK KEY DOKUMA U.KOL	BUC	Masa	21,33013	0,05	1,066506
GÖMLEK KEY DOKUMA U.KOL	BUC	Masa	20,95238	0,12	2,514286

HIRKA KEY ORME	BUC	Masa	8,74576	0,01	0,0874576
HIRKA KEY ORME	BUC	Masa	7,98732	0,01	0,0798732
HIRKA KEY TRIKO	BUC	Masa	13,22208	0,04	0,5288834
HIRKA KEY TRIKO	BUC	Masa	14,47368	0,01	0,1447368
KAZAK KEY TRIKO	BUC	Masa	17,47675	0,02	0,3495349
KAZAK KEY TRIKO	BUC	Masa	15,59368	0,12	1,871241
PANTOLON KEY DOKUMA INCE	BUC	Masa	23,46105	0,01	0,2346105
PANTOLON KEY DOKUMA KALIN	BUC	Masa	16,15569	0,02	0,3231139
PANTOLON KEY DOKUMA ORTA	BUC	Masa	19,97526	0,07	1,398268
PANTOLON KEY DOKUMA ORTA	BUC	Masa	19,70171	0,02	0,3940343
PANTOLON KEY ORME	BUC	Masa	11,00962	0,01	0,1100962
PANTOLON KEY ORME	BUC	Masa	18,83731	0,01	0,1883731
ROLLER KEY ORME	BUC	Masa	19,12909	0,02	0,3825818
SUVETER KEY TRIKO	BUC	Masa	15,72147	0,01	0,1572147
SWEAT KEY ORME	BUC	Masa	9,726278	0,07	0,6808395
ŞORT/BERMUDA KEY DOKUMA	BUC	Masa	19,03183	0,03	0,5709549
T-SHIRT KEY ORME K.KOL	BUC	Masa	19,52814	0,01	0,1952814
T-SHIRT KEY ORME K.KOL	BUC	Masa	19,16354	0,14	2,682896
T-SHIRT KEY ORME U.KOL	BUC	Masa	18,84004	0,02	0,3768009
T-SHIRT KEY ORME U.KOL	BUC	Masa	18,99313	0,05	0,9496566
			SUM	1	16,82

As seen LM Equivalence values are different. The reason is that all the places occupied by the relevant categories on the hangers correspond to approximately 7-26 cm horizontally in the shelf.

In Store LCM Capacity = Unit Type dimension in unit * Quantity of unit in store * Unit Type quantity in unit * LM Multiplier * Store Merch Group Season Group Ratio
Sum of the Season Group ratio of all season groups must be equal to 1.

Dimension in unit description is that type can be changed in hangers, also in tables. In this example, if three kinds of products are displayed side by side on a table, “3” is entered in size.

Table 11 : LCM Capacity of related unit and unit type

Store Code	Merc h Group Code	Sea son Group Code	Year week	Floor Definiti on	Wall Definition	Unit Definition	Unit Type Definition	Dim ension	Sto re Unit Quanti ty	Uni Rec ipe Qua ntit y	LM Multi plier	Season Group Ratio	LCM Capa city
T100	BUC	K	202047	Zemin	DV09-10	VISION/FO RMAL MASA 120v	Kademeli Askı-F	42	1	1	0,995	0,9995	41,76
T100	BUC	K	202047	Zemin	DV09-10	VISION/FO RMAL MASA 120v	Masa	4	1	5	16,95	0,9995	338,9
T100	BUC	K	202047	Zemin	DV09-10	VISION/FO RMAL MASA 120v	Baston Askı-F	56	1	1	0,969	0,9995	54,26
T100	BUC	Y	202047	Zemin	DV09-10	VISION/FO RMAL MASA 120v	Masa	4	1	5	16,95	0,0005	0,17
T100	BUC	Y	202047	Zemin	DV09-10	VISION/FO RMAL MASA 120v	Baston Askı-F	56	1	1	0,969	0,0005	0,03
T100	BUC	Y	202047	Zemin	DV09-10	VISION/FO RMAL MASA 120v	Kademeli Askı-F	42	1	1	0,995	0,0005	0,02

Here, as seen , the horizontal dimension of the shelf is accepted as 1 cm, but with the help of the multiplier, still we can get the correct capacity.

4.2.3 AL02 BGE 202110 Capacity Changes

Following factors affects the change of the lcm capacities :

- Changing unit definition measurements
- Adding or removing unit definitions of the store
- Changing store unit information

The unit is added to the store or the unit is removed from the store, depending on the size of the store square meter growth and shrinkage.

This increase and decrease is done strategically at certain time intervals. The units inside the unit can sometimes be switched from hangers to shelves and from shelves to hangers. Accordingly, as the units change, the capacity calculation naturally also changes.

The first capacity calculation for the future is made and detailed information about this capacity is given to the planning team. The budget is made for the next season. Product order determination work is done.

Then the unit recipe can be changed. There may be revisions in the project. According to the changes made, it may be necessary to compare the old and the new. The report is needed to show the changes over time, outside of those update times.

Table 12 : Old LCM Capacity of AL02 BGE 202110

Store Code	Merch Group Code	Season Group Code	Year week	Floor Definition	Wall Definition	Unit Definition	Unit Type Definition	Dimension Old	Store Unit Quantity Old	Unit Recipe Quantity Old	LCM Multiplier Old	Ratio Old	Capacity Old
AL02	BGE	K	202110	Zemin	DV15 A	MONT DUVARI 240CM	Yan Askı-D	56	2	8	0,98	0,75	658,56
AL02	BGE	K	202110	Zemin	DV15 A	MONT DUVARI 240CM	Kademeli Askı-D	42	2	8	0,94	0,75	475,08
AL02	BGE	K	202110	Zemin	DV43 A	M 252	Kademeli Askı-F	42	2	12	0,6	0,75	451,92
AL02	BGE	K	202110	Zemin	DV12,13,14	MONT DUVARI 240CM	Yan Askı-D	56	2	8	0,98	0,75	658,56
AL02	BGE	K	202110	Zemin	DV12,13,14	MONT DUVARI 240CM	Kademeli Askı-D	42	2	8	0,94	0,75	475,08
AL02	BGE	K	202110	Zemin	FIXTURE/OUTWEAR/BGX	M 252	Kademeli Askı-F	42	4	12	0,6	0,75	903,84
AL02	BGE	K	202110	Zemin	DV06 2LICHINO	DENIM BA37X1	Baston Askı-D	37	6	2	0,95	0,75	315,12

AL02	BGE	K	202110	Zemin	DV05A 2Lİ	LCW-DENIM MASA-2	Masa	5	2	10	15,07	0,75	1130,1
AL02	BGE	K	202110	Zemin	DV05A 2Lİ	TB 180 5K LCW	Masa	6	4	20	15,07	0,75	5424,47
AL02	BGE	Y	202110	Zemin	DV15 A	MONT DUVARI 240CM	Yan Aski-D	56	2	8	0,98	0,25	219,52
AL02	BGE	Y	202110	Zemin	DV15 A	MONT DUVARI 240CM	Kademeli Aski-D	42	2	8	1	0,25	167,18
AL02	BGE	Y	202110	Zemin	DV43 A	M 252	Kademeli Aski-F	42	2	12	0	0,25	0
AL02	BGE	Y	202110	Zemin	DV12,13,14	MONT DUVARI 240CM	Yan Aski-D	56	2	8	0,98	0,25	219,52
AL02	BGE	Y	202110	Zemin	DV12,13,14	MONT DUVARI 240CM	Kademeli Aski-D	42	2	8	1	0,25	167,18
AL02	BGE	Y	202110	Zemin	FIXTURE/OUTWEAR/BGX	M 252	Kademeli Aski-F	42	4	12	0	0,25	0
AL02	BGE	Y	202110	Zemin	DV06 2Lİ CHINO	DENIM BA37X1	Baston Aski-D	37	6	2	0,99	0,25	110,17
AL02	BGE	Y	202110	Zemin	DV05A 2Lİ	LCW-DENIM MASA-2	Masa	5	2	10	15,31	0,25	382,65
AL02	BGE	Y	202110	Zemin	DV05A 2Lİ	TB 180 5K LCW	Masa	6	4	20	15,31	0,25	1836,72

Table 13: New LCM Capacity of AL02 BGE 202110

Store Code	Merch Group Code	Season Group Code	Year week	Floor Definition	Wall Definition	Unit Definition	Unit Type Definition	Dimension New	Store Unit Quantity New	Unit Recipe Quantity New	LCM Multiplier New	Ratio New	Capacity New
AL02	BGE	K	202110	Zemin	DV15 A	MONT DUVARI 240CM	Yan Aski-D	56	1	4	0,98	0,25	54,88

AL02	BGE	K	202110	Zemin	DV15 A	MONT DUVARI 240CM	Kademeli Askı-D	42	1	4	0,94	0,25	39,59
AL02	BGE	K	202110	Zemin	DV43 A	M 252	Kademeli Askı-F	42	1	6	0,6	0,25	37,66
AL02	BGE	K	202110	Zemin	DV12,13,14	MONT DUVARI 240CM	Yan Askı-D	56	1	4	0,98	0,25	54,88
AL02	BGE	K	202110	Zemin	DV12,13,14	MONT DUVARI 240CM	Kademeli Askı-D	42	1	4	0,94	0,25	39,59
AL02	BGE	K	202110	Zemin	FIXTURE/O UTWWEAR /BGX	M 252	Kademeli Askı-F	42	2	6	0,6	0,25	75,32
AL02	BGE	K	202110	Zemin	DV06 2Lİ CHINO	DENIM BA37X1	Baston Askı- D	37	3	1	0,95	0,25	26,26
AL02	BGE	K	202110	Zemin	DV05A 2Lİ	LCW-DENIM MASA-2	Masa	5	1	5	15,1	0,25	94,17
AL02	BGE	K	202110	Zemin	DV05A 2Lİ	TB 180 5K LCW	Masa	6	2	10	15,1	0,25	452
AL02	BGE	Y	202110	Zemin	DV15 A	MONT DUVARI 240CM	Yan Askı-D	56	1	4	0,98	0,75	163
AL02	BGE	Y	202110	Zemin	DV15 A	MONT DUVARI 240CM	Kademeli Askı-D	42	1	4	1	0,75	125,4
AL02	BGE	Y	202110	Zemin	DV43 A	M 252	Kademeli Askı-F	42	1	6	0	0,75	0
AL02	BGE	Y	202110	Zemin	DV12,13,14	MONT DUVARI 240CM	Yan Askı-D	56	1	4	0,98	0,75	163
AL02	BGE	Y	202110	Zemin	DV12,13,14	MONT DUVARI 240CM	Kademeli Askı-D	42	1	4	1	0,75	125,4
AL02	BGE	Y	202110	Zemin	FIXTURE/O UTWWEAR/ BGX	M 252	Kademeli Askı-F	42	2	6	0	0,75	0
AL02	BGE	Y	202110	Zemin	DV06 2Lİ CHINO	DENIM BA37X1	Baston Askı- D	37	3	1	0,99	0,75	82,63
AL02	BGE	Y	202110	Zemin	DV05A 2Lİ	LCW-DENIM MASA-2	Masa	5	1	5	15,3	0,75	287
AL02	BGE	Y	202110	Zemin	DV05A 2Lİ	TB 180 5K LCW	Masa	6	2	10	15,3	0,75	1378
												Sum	3198

Table 12 shows the old LCM capacity information for the week 202110. Here, store unit quantities and store unit prescription amounts are twice the new quantities in Table 13. It is seen that the LCM amounts are also in the new capacity information, summer and winter rates have changed.

Table 14: Old LCM Capacity of AL02 BGE 202110 / MONT DUVARI 240CM

Store Code	Merch Group Code	Season Group Code	Year week	Floor Definition	Wall Definition	Unit Definition	Unit Type Definition	Dimension Old	Store Unit Quantity Old	Unit Recipe Quantity Old	LCM Multiplier Old	Ratio Old	Capacity Old
AL02	BGE	K	202110	Zemin	DV15 A	MONT DUVARI 240CM	Yan Aski-D	56	2	8	0,98	0,75	658,56
AL02	BGE	Y	202110	Zemin	DV15 A	MONT DUVARI 240CM	Yan Aski-D	56	2	8	0,98	0,25	219,52

$$\text{Winter LCM Capacity} = 56 * 2 * 8 * 0.98 * 0.75 = 658.56$$

$$\text{Summer LCM Capacity} = 56 * 2 * 8 * 0.98 * 0.25 = 219.52$$

$$\text{Summer and Winter LCM Capacity Total: } 658.56 + 219.52 = 878.08$$

Table 15: New LCM Capacity of AL02 BGE 202110 / MONT DUVARI 240CM

Store Code	Merch Group Code	Season Group Code	Year week	Floor Definition	Wall Definition	Unit Definition	Unit Type Definition	Dimension New	Store Unit Quantity New	Unit Recipe Quantity New	LCM Multiplier New	Ratio New	Capacity New
AL02	BGE	K	202110	Zemin	DV15 A	MONT DUVARI 240CM	Yan Aski-D	56	1	4	0,98	0,25	54,88
AL02	BGE	Y	202110	Zemin	DV15 A	MONT DUVARI 240CM	Yan Aski-D	56	1	4	0,98	0,75	164,64

Summer LCM Capacity = $56 * 1 * 4 * 0.98 * 0.25 = 54.88$

Winter LCM Capacity = $56 * 1 * 4 * 0.98 * 0.75 = 164.64$

Summer and Winter LCM Capacity Total: $54.88 + 164.64 = 219.52$

The capacity was reduced by 4 times as the store unit amount and store unit recipe amount were halved. Since the winter display rate has decreased by one third, it has decreased by 12 times in total. The summer exhibition rate has increased 3 times, so the total decrease rate has been about 1 in 4. The important thing here is that the sum of summer and winter rates should be 100%.

4.2.4 Store Occupancy

Occupancy in the store is determined according to the lcm capacity of the store and the lcm occupancy rate of the store.

Store Occupancy = Store Occupancy LCM / Total Capacity LCM

Store Occupancy LCM = Store Stock LCM + Route Stock LCM + TransferIN LCM - TransferOut LCM - Sales Forecast LCM

The LCM of a product is found by the product of the LCM product we found for the product.

The number of products that can be exhibited in a LCM may differ according to the classification. It can also be found how many products will be bought by taking into account the space occupied by the classifications in the store. The capacity calculated in this way is called the Quantity Capacity.

The LCM capacity calculated for each class is divided by the LCM multiplier of the relevant category and the quantity capacities are found on the basis of the class.

After a certain season, a new product will hit the road here. After a certain time, processes such as transfer and return will come. Excess products remain here for a certain period of time. What causes excessive occupancy? No sales were made until the sales forecast, or the capacity of the store decreased. Accordingly, there may be excess stock in the store. In case of excess stock in the store, it is expected to be left in the first place and

the product to be sold. As this product group will slow down in the store when the shelf time expires, transfer algorithms come into play. Stores that are faster than very slow are transferred products. Is transferred. If this is not the case, it is returned and the capacity is opened so that new products can be sent to the store while it is being returned.

If such a situation occurs in all stores, the product is expected to be sold using discount mechanisms.

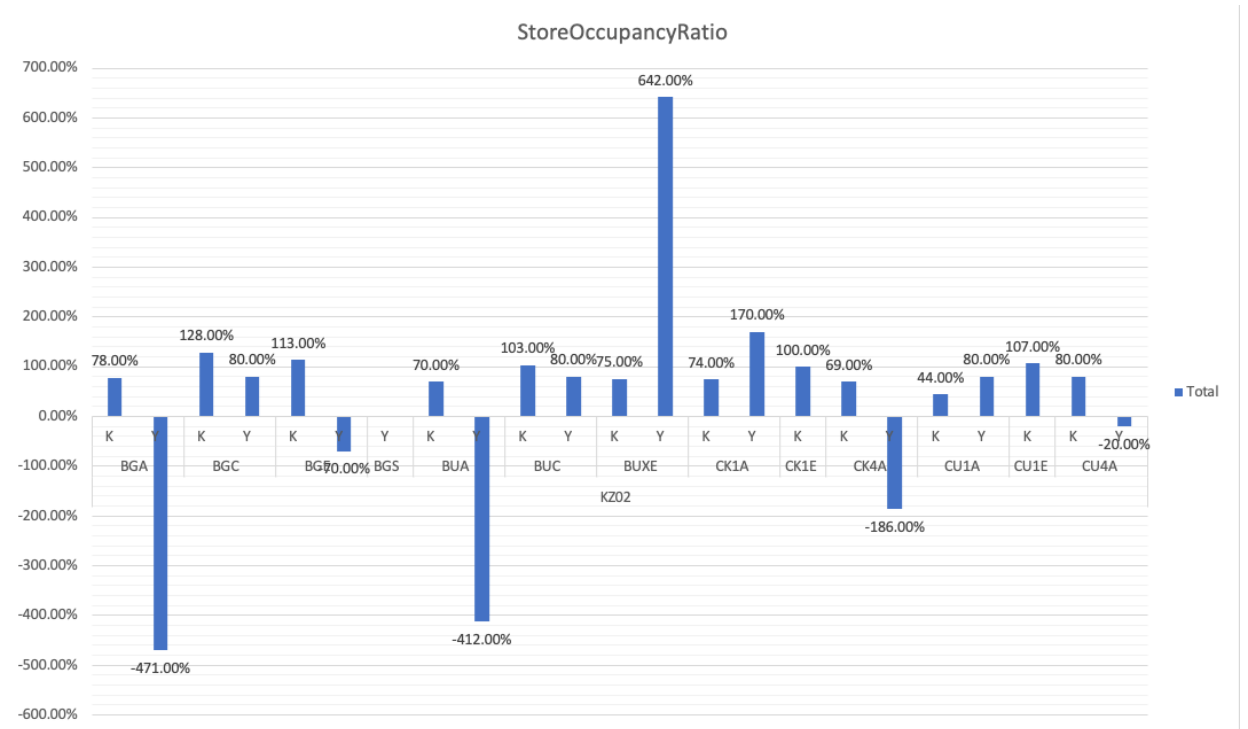


Figure 7: Store Occupancy Ratio of KZ02

Here some rates are above 100%, some rates are below 100%. For those on it, either the prediction algorithm worked incorrectly or the wrong shipment was made. Therefore, the store has accumulated more stock than necessary. In order to complete the related excess stocks, the product will be expected to sell first, and for the remaining ones, the product will be transferred to the stores with high sales speed, if there is none, return and discount mechanisms will work.

For those who are below 100%, allocation reservation mechanisms should be activated and sent to the stores from the relevant products.

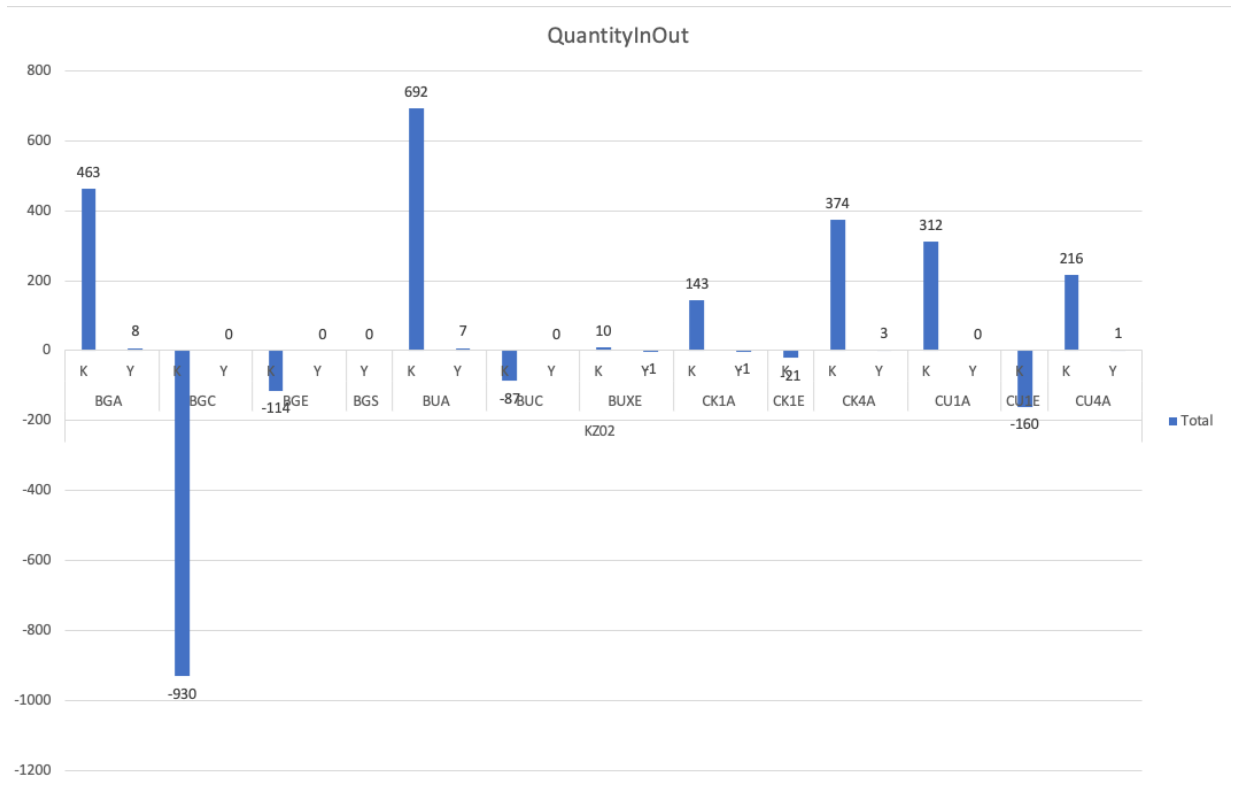


Figure 8: Store Occupancy Quantity of KZ02

Above is the LCM information translated into product quantity. Approximately, how many more, how many amounts need to be filled in each unit merch group and season group, their information is displayed.

4.3 Conclusion

In this study, the capacity management system of a retail store is designed. Detailed store capacity outputs in the system will feed other processes that need capacity.

Store Capacity is to maintain maximum quantity or space consumption of sections and shelves in stores, grouped by item categories or product groups, and for a specific season. Its primary goal is to ensure that items are at the right size to meet current and future business requirements in a cost-effective manner.

Store planners determine how items are being allocated by defining store capacity limit and capacity consumption for the specific item, and generate a report to show the current stock situation. You can then use this information to check whether there is a conflict with the capacity limits in order to avoid physical deterioration of items due to lack of space in the stores.

Thanks to the very detailed lcm information, product delivery over the store capacity will be prevented, capacity management will be created for certain seasons and product groups in the location section, resource planning and management, unnecessary capacity use and prevention of deficiency capacity will provide serious benefits to the company.

According to the customer profile of the location of the store, the capacity of some merch groups will be reduced and the capacity of the merch groups that are likely to sell more can be achieved with this system.

With this system, week year capacity management will also be possible. Several-year capacity plans, capacity values of seasonal products can be planned.

By calculating how many centimeters of product all units can contain in a linear plane, it is converted into a common unit. All of the table and shelf blocks are turned into a hanger unit and the area where the product can be displayed is determined. The number of products that can be exhibited in a display unit varies according to the category. The information on the average amount of LCM covered by one product in each class constitutes the Category LCM Multiplier. Thanks to this common unit, we can see how much space the products will occupy in the store, their capacity and gaps.

Standardized units are an essential part of capacity management. It is very important to enter detailed measurement information about this into the system. The lcm information of each unit will give us a very detailed capacity information in general groupings, which merch group is exhibited in which unit and which year and weeks.

5. FUTURE WORKS

If we briefly summarize what needs to be done for the future in the relevant system, the system should be supported by artificial intelligence and computer vision instead of a system that is less prone to error and has less manual processes. Technological developments will give us this advantage. In terms of visibility, a more visually oriented structure can be achieved. With the photos of the units and products in their places, unit calculations can be made automatically from the image. It is possible to place the units in the store with drawings suitable for two-dimensional or three-dimensional application in drag and drop logic, and enter the necessary data by right clicking on the units. With visual and mobile applications, structures can be established not much faster and in one place, but that everyone can better control, manage more simply by the administration, and minimize manpower.

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APPENDIX A

Below is the detailed capacity chart of the units and unit types connected to the T100 store BUC merch group in the week of 202047. The lowest detail of the capacity calculation is made on unit basis. The total capacity of the units gives us the total capacity.

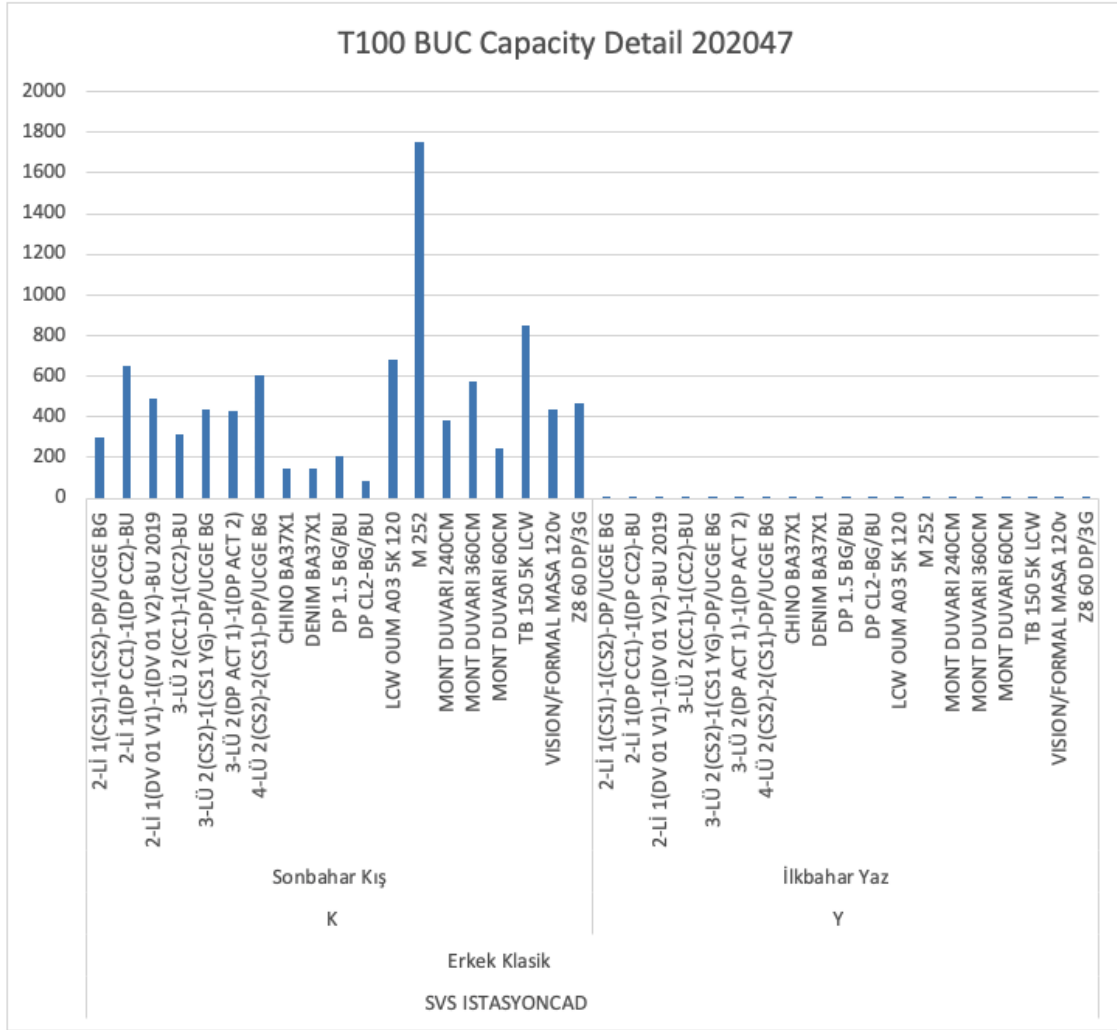
Using vw_StoreCapacity, if we give T100 store, BUC merchaltgroup, 202047 year week as a filter, we get the following result below.

Store Code	Merch Group Code	Season Group Code	Year week	Floor Definition	Wall Definition	Unit Definition	Unit Type Definition	LCM Capacity
T100	BUC	K	202047	Zemin	COLUMN TABLE	2-Lİ 1(CS1)-1(CS2)-DP/UCGE BG	Baston Askı-D	205,45
T100	BUC	K	202047	Zemin	COLUMN TABLE	2-Lİ 1(CS1)-1(CS2)-DP/UCGE BG	Kademeli Askı-D	41,05
T100	BUC	K	202047	Zemin	COLUMN TABLE	2-Lİ 1(CS1)-1(CS2)-DP/UCGE BG	Yan Askı-D	54,85
T100	BUC	K	202047	Zemin	COLUMN TABLE	Z8 60 DP/3G	Baston Askı-D	36,2
T100	BUC	K	202047	Zemin	COLUMN TABLE	Z8 60 DP/3G	Kademeli Askı-D	41,05
T100	BUC	K	202047	Zemin	DEPO	2-Lİ 1(DP CC1)-1(DP CC2)-BU	Baston Askı-D	108,59
T100	BUC	K	202047	Zemin	DEPO	2-Lİ 1(DP CC1)-1(DP CC2)-BU	Yan Askı-D	54,85
T100	BUC	K	202047	Zemin	DEPO	Z8 60 DP/3G	Baston Askı-D	36,2
T100	BUC	K	202047	Zemin	DEPO	Z8 60 DP/3G	Kademeli Askı-D	41,05
T100	BUC	K	202047	Zemin	DV02-3li	MONT DUVARI 240CM	Kademeli Askı-D	164,21
T100	BUC	K	202047	Zemin	DV02-3li	MONT DUVARI 240CM	Yan Askı-D	219,41
T100	BUC	K	202047	Zemin	DV05-BGE-DIŞ	LCW OUM A03 5K 120	Masa	677,78
T100	BUC	K	202047	Zemin	DV05A 2Lİ	TB 150 5K LCW	Masa	847,22
T100	BUC	K	202047	Zemin	DV08 08 A	DENIM BA37X1	Baston Askı-D	144,79
T100	BUC	K	202047	Zemin	DV08,09,10	2-Lİ 1(DP CC1)-1(DP CC2)-BU	Baston Askı-D	108,59
T100	BUC	K	202047	Zemin	DV08,09,10	2-Lİ 1(DP CC1)-1(DP CC2)-BU	Yan Askı-D	54,85
T100	BUC	K	202047	Zemin	DV08,09,10	Z8 60 DP/3G	Baston Askı-D	36,2
T100	BUC	K	202047	Zemin	DV08,09,10	Z8 60 DP/3G	Kademeli Askı-D	41,05
T100	BUC	K	202047	Zemin	DV09-10	M 252	Kademeli Askı-F	501,08
T100	BUC	K	202047	Zemin	DV09-10	VISION/FORMAL MASA 120v	Baston Askı-F	54,26
T100	BUC	K	202047	Zemin	DV09-10	VISION/FORMAL MASA 120v	Kademeli Askı-F	41,76
T100	BUC	K	202047	Zemin	DV09-10	VISION/FORMAL MASA 120v	Masa	338,89
T100	BUC	K	202047	Zemin	DV10-11	2-Lİ 1(DP CC1)-1(DP CC2)-BU	Baston Askı-D	108,59
T100	BUC	K	202047	Zemin	DV10-11	2-Lİ 1(DP CC1)-1(DP CC2)-BU	Yan Askı-D	54,85
T100	BUC	K	202047	Zemin	DV10-11	Z8 60 DP/3G	Baston Askı-D	36,2
T100	BUC	K	202047	Zemin	DV10-11	Z8 60 DP/3G	Kademeli Askı-D	41,05
T100	BUC	K	202047	Zemin	DV10-KOLONG	3-LÜ 2(CC1)-1(CC2)-BU	Baston Askı-D	205,45
T100	BUC	K	202047	Zemin	DV10-KOLONG	3-LÜ 2(CC1)-1(CC2)-BU	Yan Askı-D	109,71
T100	BUC	K	202047	Zemin	DV10-KOLONG	Z8 60 DP/3G	Baston Askı-D	36,2
T100	BUC	K	202047	Zemin	DV10-KOLONG	Z8 60 DP/3G	Kademeli Askı-D	41,05
T100	BUC	K	202047	Zemin	DV12,13,14	MONT DUVARI 360CM	Kademeli Askı-D	246,31
T100	BUC	K	202047	Zemin	DV12,13,14	MONT DUVARI 360CM	Yan Askı-D	329,12

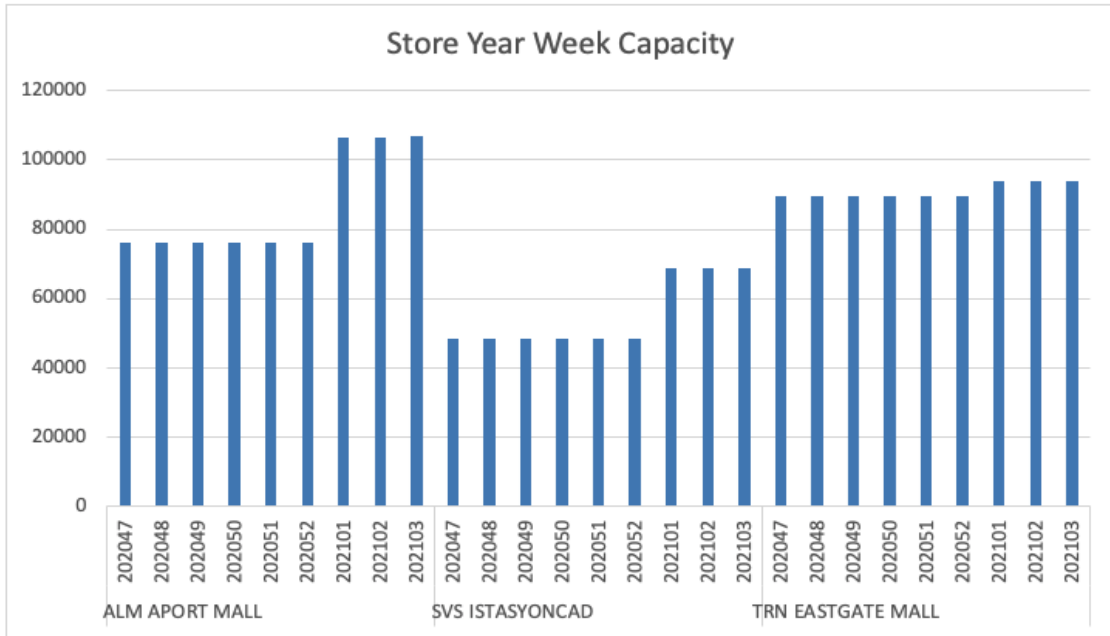
T100	BUC	K	202047	Zemin	DV15 A	3-LÜ 2(DP ACT 1)-1(DP ACT 2)	Baston Aski-D	369,81
T100	BUC	K	202047	Zemin	DV15 A	3-LÜ 2(DP ACT 1)-1(DP ACT 2)	Yan Aski-D	58,77
T100	BUC	K	202047	Zemin	DV16,18	4-LÜ 2(CS2)-2(CS1)-DP/UCGE BG	Baston Aski-D	410,9
T100	BUC	K	202047	Zemin	DV16,18	4-LÜ 2(CS2)-2(CS1)-DP/UCGE BG	Kademeli Aski-D	82,1
T100	BUC	K	202047	Zemin	DV16,18	4-LÜ 2(CS2)-2(CS1)-DP/UCGE BG	Yan Aski-D	109,71
T100	BUC	K	202047	Zemin	DV20 2 LI	2-Lİ 1(DP CC1)-1(DP CC2)-BU	Baston Aski-D	108,59
T100	BUC	K	202047	Zemin	DV20 2 LI	2-Lİ 1(DP CC1)-1(DP CC2)-BU	Yan Aski-D	54,85
T100	BUC	K	202047	Zemin	DV20 2 LI	Z8 60 DP/3G	Baston Aski-D	36,2
T100	BUC	K	202047	Zemin	DV20 2 LI	Z8 60 DP/3G	Kademeli Aski-D	41,05
T100	BUC	K	202047	Zemin	DV29OUT	MONT DUVARI 60CM	Kademeli Aski-D	82,1
T100	BUC	K	202047	Zemin	DV75-4LÜ	3-LÜ 2(CS2)-1(CS1 YG)-DP/UCGE BG	Baston Aski-D	246,54
T100	BUC	K	202047	Zemin	DV75-4LÜ	3-LÜ 2(CS2)-1(CS1 YG)-DP/UCGE BG	Kademeli Aski-D	82,1
T100	BUC	K	202047	Zemin	DV75-4LÜ	3-LÜ 2(CS2)-1(CS1 YG)-DP/UCGE BG	Yan Aski-D	109,71
T100	BUC	K	202047	Zemin	DV77	DP 1.5 BG/BU	Baston Aski-D	72,4
T100	BUC	K	202047	Zemin	DV77	DP 1.5 BG/BU	Kademeli Aski-D	82,1
T100	BUC	K	202047	Zemin	DV77	DP 1.5 BG/BU	Yan Aski-D	54,85
T100	BUC	K	202047	Zemin	HAREKETLI DV	DP CL2-BG/BU	Baston Aski-D	82,18
T100	BUC	K	202047	Zemin	K AKS 03 (N)	MONT DUVARI 60CM	Kademeli Aski-D	82,1
T100	BUC	K	202047	Zemin	K AKS 3C	M 252	Kademeli Aski-F	501,08
T100	BUC	K	202047	Zemin	K AKS01 BG	2-Lİ 1(DV 01 V1)-1(DV 01 V2)-BU 2019	Baston Aski-D	217,19
T100	BUC	K	202047	Zemin	K AKS01 BG	2-Lİ 1(DV 01 V1)-1(DV 01 V2)-BU 2019	Kademeli Aski-D	164,21
T100	BUC	K	202047	Zemin	K AKS01 BG	2-Lİ 1(DV 01 V1)-1(DV 01 V2)-BU 2019	Yan Aski-D	109,71
T100	BUC	K	202047	Zemin	KLN (IMAGE11)	MONT DUVARI 60CM	Kademeli Aski-D	82,1
T100	BUC	K	202047	Zemin	KLN 3	M 252	Kademeli Aski-F	751,63
T100	BUC	K	202047	Zemin	KOLONA MASA	CHINO BA37X1	Baston Aski-D	144,79
T100	BUC	Y	202047	Zemin	COLUMN TABLE	2-Lİ 1(CS1)-1(CS2)-DP/UCGE BG	Baston Aski-D	0,1
T100	BUC	Y	202047	Zemin	COLUMN TABLE	2-Lİ 1(CS1)-1(CS2)-DP/UCGE BG	Kademeli Aski-D	0,02
T100	BUC	Y	202047	Zemin	COLUMN TABLE	2-Lİ 1(CS1)-1(CS2)-DP/UCGE BG	Yan Aski-D	0,03
T100	BUC	Y	202047	Zemin	COLUMN TABLE	Z8 60 DP/3G	Baston Aski-D	0,02
T100	BUC	Y	202047	Zemin	COLUMN TABLE	Z8 60 DP/3G	Kademeli Aski-D	0,02
T100	BUC	Y	202047	Zemin	DEPO	2-Lİ 1(DP CC1)-1(DP CC2)-BU	Baston Aski-D	0,05
T100	BUC	Y	202047	Zemin	DEPO	2-Lİ 1(DP CC1)-1(DP CC2)-BU	Yan Aski-D	0,03
T100	BUC	Y	202047	Zemin	DEPO	Z8 60 DP/3G	Baston Aski-D	0,02
T100	BUC	Y	202047	Zemin	DEPO	Z8 60 DP/3G	Kademeli Aski-D	0,02
T100	BUC	Y	202047	Zemin	DV02-3li	MONT DUVARI 240CM	Kademeli Aski-D	0,08
T100	BUC	Y	202047	Zemin	DV02-3li	MONT DUVARI 240CM	Yan Aski-D	0,11
T100	BUC	Y	202047	Zemin	DV05-BGE-DIŞ	LCW OUM A03 5K 120	Masa	0,34
T100	BUC	Y	202047	Zemin	DV05A 2Lİ	TB 150 5K LCW	Masa	0,42
T100	BUC	Y	202047	Zemin	DV08 08 A	DENIM BA37X1	Baston Aski-D	0,07
T100	BUC	Y	202047	Zemin	DV08,09,10	2-Lİ 1(DP CC1)-1(DP CC2)-BU	Baston Aski-D	0,05
T100	BUC	Y	202047	Zemin	DV08,09,10	2-Lİ 1(DP CC1)-1(DP CC2)-BU	Yan Aski-D	0,03
T100	BUC	Y	202047	Zemin	DV08,09,10	Z8 60 DP/3G	Baston Aski-D	0,02
T100	BUC	Y	202047	Zemin	DV08,09,10	Z8 60 DP/3G	Kademeli Aski-D	0,02
T100	BUC	Y	202047	Zemin	DV09-10	M 252	Kademeli Aski-F	0,25
T100	BUC	Y	202047	Zemin	DV09-10	VISION/FORMAL MASA 120v	Baston Aski-F	0,03
T100	BUC	Y	202047	Zemin	DV09-10	VISION/FORMAL MASA 120v	Kademeli Aski-F	0,02
T100	BUC	Y	202047	Zemin	DV09-10	VISION/FORMAL MASA 120v	Masa	0,17
T100	BUC	Y	202047	Zemin	DV10-11	2-Lİ 1(DP CC1)-1(DP CC2)-BU	Baston Aski-D	0,05
T100	BUC	Y	202047	Zemin	DV10-11	2-Lİ 1(DP CC1)-1(DP CC2)-BU	Yan Aski-D	0,03
T100	BUC	Y	202047	Zemin	DV10-11	Z8 60 DP/3G	Baston Aski-D	0,02
T100	BUC	Y	202047	Zemin	DV10-11	Z8 60 DP/3G	Kademeli Aski-D	0,02
T100	BUC	Y	202047	Zemin	DV10-KOLONG	3-LÜ 2(CC1)-1(CC2)-BU	Baston Aski-D	0,1
T100	BUC	Y	202047	Zemin	DV10-KOLONG	3-LÜ 2(CC1)-1(CC2)-BU	Yan Aski-D	0,05
T100	BUC	Y	202047	Zemin	DV10-KOLONG	Z8 60 DP/3G	Baston Aski-D	0,02

T100	BUC	Y	202047	Zemin	DV10-KOLONG	Z8 60 DP/3G	Kademeli Askı-D	0,02
T100	BUC	Y	202047	Zemin	DV12,13,14	MONT DUVARI 360CM	Kademeli Askı-D	0,12
T100	BUC	Y	202047	Zemin	DV12,13,14	MONT DUVARI 360CM	Yan Askı-D	0,16
T100	BUC	Y	202047	Zemin	DV15 A	3-LÜ 2(DP ACT 1)-1(DP ACT 2)	Baston Askı-D	0,18
T100	BUC	Y	202047	Zemin	DV15 A	3-LÜ 2(DP ACT 1)-1(DP ACT 2)	Yan Askı-D	0,03
T100	BUC	Y	202047	Zemin	DV16,18	4-LÜ 2(CS2)-2(CS1)-DP/UCGE BG	Baston Askı-D	0,21
T100	BUC	Y	202047	Zemin	DV16,18	4-LÜ 2(CS2)-2(CS1)-DP/UCGE BG	Kademeli Askı-D	0,04
T100	BUC	Y	202047	Zemin	DV16,18	4-LÜ 2(CS2)-2(CS1)-DP/UCGE BG	Yan Askı-D	0,05
T100	BUC	Y	202047	Zemin	DV20 2 LI	2-Lİ 1(DP CC1)-1(DP CC2)-BU	Baston Askı-D	0,05
T100	BUC	Y	202047	Zemin	DV20 2 LI	2-Lİ 1(DP CC1)-1(DP CC2)-BU	Yan Askı-D	0,03
T100	BUC	Y	202047	Zemin	DV20 2 LI	Z8 60 DP/3G	Baston Askı-D	0,02
T100	BUC	Y	202047	Zemin	DV20 2 LI	Z8 60 DP/3G	Kademeli Askı-D	0,02
T100	BUC	Y	202047	Zemin	DV29OUT	MONT DUVARI 60CM	Kademeli Askı-D	0,04
T100	BUC	Y	202047	Zemin	DV75-4LÜ	3-LÜ 2(CS2)-1(CS1 YG)-DP/UCGE BG	Baston Askı-D	0,12
T100	BUC	Y	202047	Zemin	DV75-4LÜ	3-LÜ 2(CS2)-1(CS1 YG)-DP/UCGE BG	Kademeli Askı-D	0,04
T100	BUC	Y	202047	Zemin	DV75-4LÜ	3-LÜ 2(CS2)-1(CS1 YG)-DP/UCGE BG	Yan Askı-D	0,05
T100	BUC	Y	202047	Zemin	DV77	DP 1.5 BG/BU	Baston Askı-D	0,04
T100	BUC	Y	202047	Zemin	DV77	DP 1.5 BG/BU	Kademeli Askı-D	0,04
T100	BUC	Y	202047	Zemin	DV77	DP 1.5 BG/BU	Yan Askı-D	0,03
T100	BUC	Y	202047	Zemin	HAREKETLI DV	DP CL2-BG/BU	Baston Askı-D	0,04
T100	BUC	Y	202047	Zemin	K AKS 03 (N)	MONT DUVARI 60CM	Kademeli Askı-D	0,04
T100	BUC	Y	202047	Zemin	K AKS 3C	M 252	Kademeli Askı-F	0,25
T100	BUC	Y	202047	Zemin	K AKS01 BG	2-Lİ 1(DV 01 V1)-1(DV 01 V2)-BU 2019	Baston Askı-D	0,11
T100	BUC	Y	202047	Zemin	K AKS01 BG	2-Lİ 1(DV 01 V1)-1(DV 01 V2)-BU 2019	Kademeli Askı-D	0,08
T100	BUC	Y	202047	Zemin	K AKS01 BG	2-Lİ 1(DV 01 V1)-1(DV 01 V2)-BU 2019	Yan Askı-D	0,05
T100	BUC	Y	202047	Zemin	KLN (IMAGE11)	MONT DUVARI 60CM	Kademeli Askı-D	0,04
T100	BUC	Y	202047	Zemin	KLN 3	M 252	Kademeli Askı-F	0,38
T100	BUC	Y	202047	Zemin	KOLONA MASA	CHINO BA37X1	Baston Askı-D	0,07

In the picture below, you can see the chart form of the table, whose detailed capacities we see above. It will be seen that the M 252 unit has the highest capacity in the winter group.



In the example below, you can see the capacities of three stores on a year by week basis. As of January, there is a capacity increase in the BUC merch group. The reason for this may be the growth of the size of the store, the addition of extra units to the BUC merch group, or the transfer of units in other merch groups to BUC.



In the distribution of store capacities on a merch group basis, we can see which merch group gets the most share from the capacity. LC Waikiki shop system, the capacity of Albania ALM Aport Mall at BU, Turkey Sivas İstasyon Caddesi BGA and Kazakhstan TRN Eastgate Mall are ranked as the CU4.

