Lego Inventory Creation

Description

In this system we were given a set of Legos which were in different size, shapes and colors, now the problem that we face was that we cannot differentiate how many types and shape of each color do we have, so for instance if someone ask for a particular Lego piece, we would have to manually look into it. It is raw data which needs to be sorted or stored in a better way to help the person manage incoming and outgoing pieces.

We initially received a set of Legos in various sizes, shapes, and colors. The primary challenge we encountered was the inability to distinguish the types and shapes within each color category. For instance, if a specific Lego piece was requested, identifying it required a manual search. This raw data needs to be better organized and structured to facilitate the management of incoming and outgoing pieces.

Methods

We considered various methods to create an inventory of Lego products and choose a straightforward solution, easily accessible to new employees.

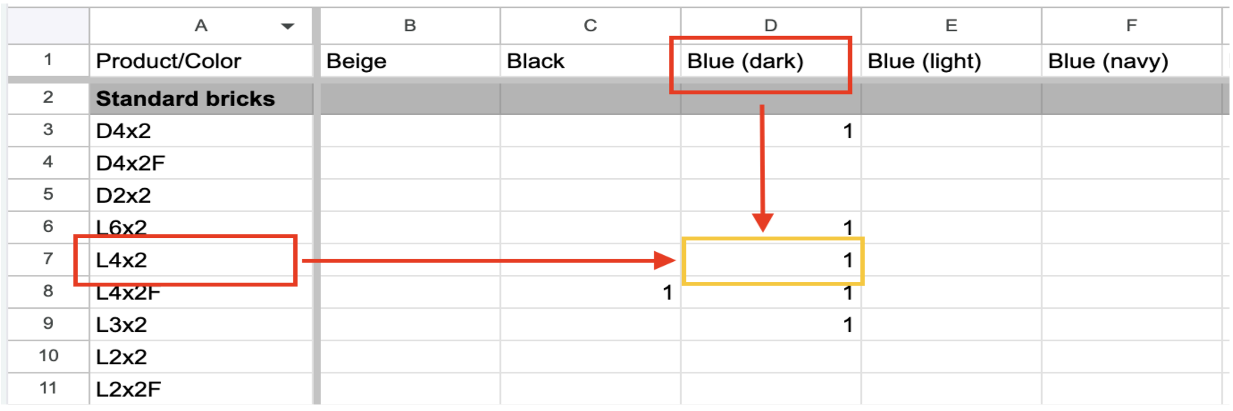
The key characteristics of each Lego piece (shape, color, and size, scale) were used to build a simple matrix-based inventory. Each row represents a Lego item, identified by a unique name (refer to "Categories" for the naming convention), while each column corresponds to the item's color.

To check or update a specific Lego entry, locate the item by its unique name (i) and its color (j) in the matrix. You'll see the entry for that specific product. Totals are displayed at the end of each row and column, providing an instant overview of product quantities, which simplifies the inventory process for the responsible person.

$$Quantity\ of\ Product\ = Cell_{(i\ x\ j)}$$

$$Where\ i\ =\ i^{th}\ product\ from\ row$$

$$j\ =\ j^{th}\ color\ from\ the\ column$$



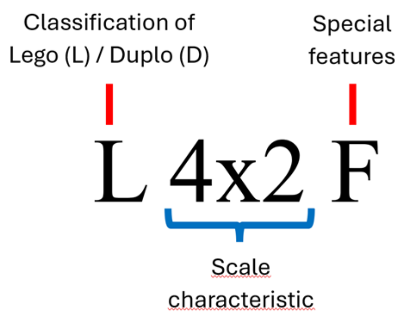
	A	B	C	D	E	F
1	Product/Color	Beige	Black	Blue (dark)	Blue (light)	Blue (navy)
2	**Standard bricks**					
3	D4x2			1		
4	D4x2F					
5	D2x2					
6	L6x2			1		
7	L4x2			1		
8	L4x2F		1	1		
9	L3x2			1		
10	L2x2					
11	L2x2F					

Categorization of Pieces

We chose a classic categorization approach, listing product types in rows by specific identifiers and product colors in columns. Initially, three different categories were defined into which all products could be divided. “Standard bricks” (classic cuboid bricks, subdivided into normal and flat bricks), “Special bricks” (bricks with unique shapes, like round or sloped), and “Special tools” (non-brick components like tires or swords).

After grouping products, we distinguished between Lego and Lego Duplo components by marking them with “L” or “D” labels. Additional product characteristics were included, like brick size (e.g., 4x2) for easy identification. Other categories, such as special shapes, were labeled as follows: flat bricks with “F,” round bricks with “R,” and sloped shapes with “S” or “DS” for single or double slopes.

An example of a product name composition based on the listed categorization options is:



This resulted in the following categorization options:

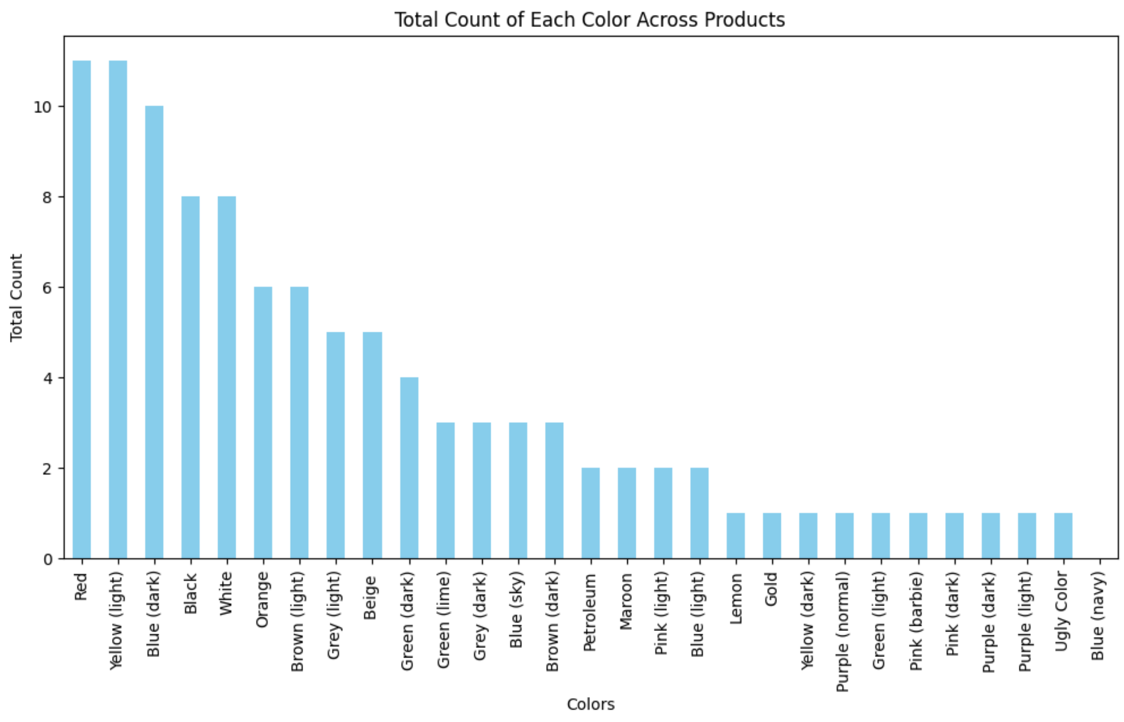
Classification of Lego (L) / Duplo (D)	Scale characteristic	Special features
Lego (L)	4x2	F (Flat)
Duplo (D)	4x1	S (sloped)
	3x2	DS (double sloped/ inverse sloped)
	6x2	R (round)
	2x2	RF (round & flat)
	2x1	
	1x1	

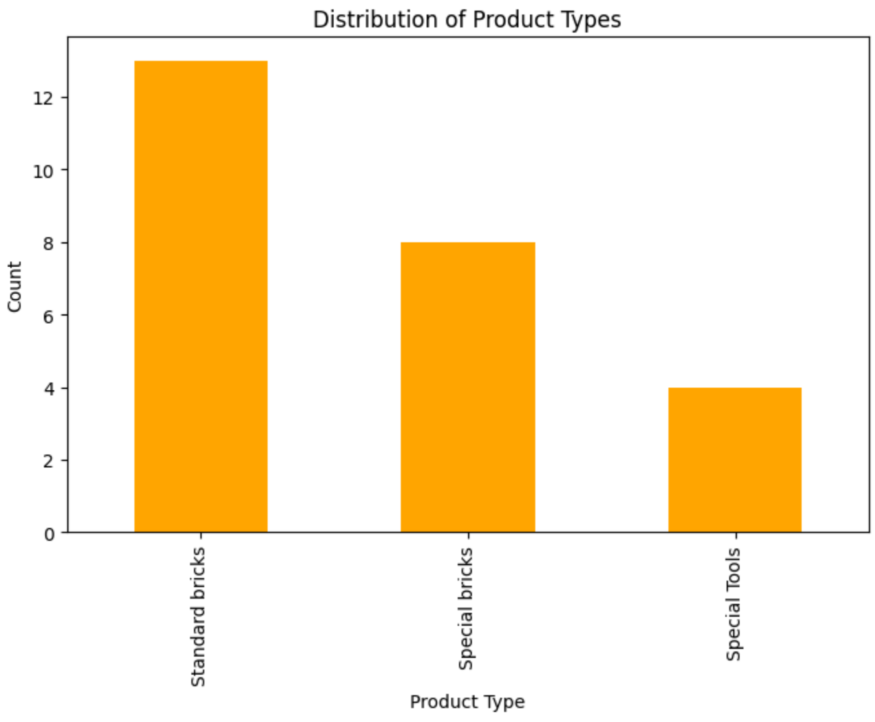
Special tools had unique names: the sword was labeled "sword," and tires were labeled "T" with characteristics like "W" for wide.

Functionality

In this system, each Lego type, color, size, and quantity is precisely organized. It provides precise data on the exact number of pieces available by color and size, ensuring 100% accuracy. We have categorized items into standard bricks, special bricks, and specialized tools, with colors arranged in alphabetical order, allowing for quick search and easy reference. Additionally, the system displays the total inventory count, as well as the totals for each color and type, supplemented by a graph to facilitate quick and clear comprehension for all users.

Data Analysis (EDA)





Resource (Google Sheet)

ASDA Week 2 Lego Inventory