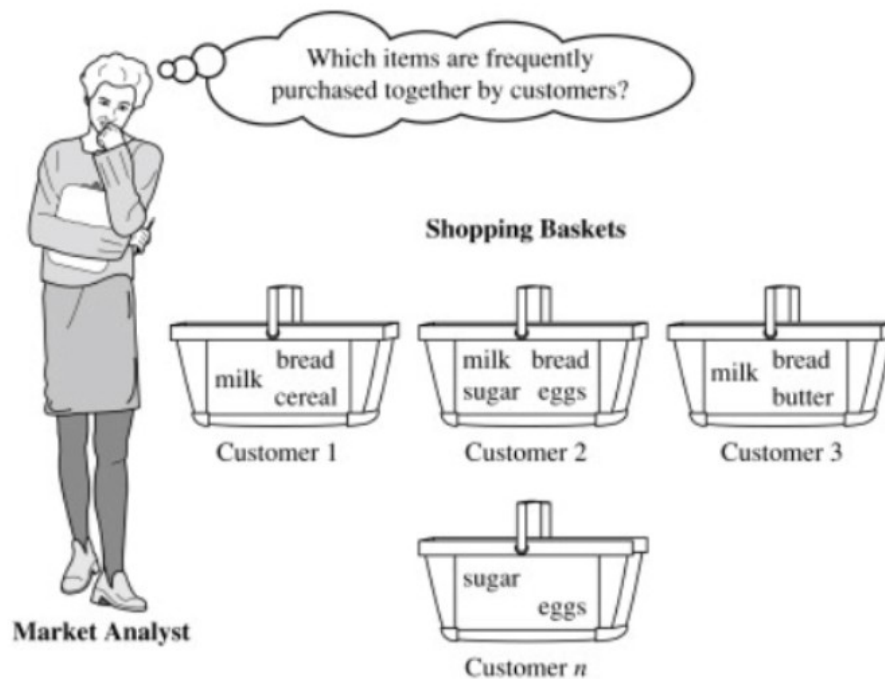


## Phase 2 submission document



### *Introduction:*

In today's rapidly evolving business landscape, the ability to adapt and innovate is paramount. Design market analysis innovation is a strategic approach that merges the power of design thinking with comprehensive market analysis to tackle complex problems and create solutions that resonate with consumers. This innovative framework combines creative problem-solving, data-driven insights, and a deep understanding of consumer needs to not only address existing issues but also uncover new opportunities for growth and differentiation.

As businesses and industries face increasing competition and changing consumer demands, the need for a fresh perspective and novel solutions has never been more pressing. Traditional market analysis and design thinking, in isolation, have limitations. Market analysis alone may provide valuable data, but it often fails to generate transformative ideas, while design thinking, though creative, might lack the

market grounding to ensure viability. The synergy of these two approaches allows organizations to bridge this gap and forge a path to sustainable success.

This integration represents a shift from merely addressing problems to embracing a proactive, forward-thinking approach that seeks to anticipate and respond to emerging challenges and opportunities. By weaving together design market analysis innovation, companies can better position themselves to deliver products and services that not only meet immediate needs but also anticipate and shape future trends. This approach promises to empower businesses to stay ahead of the curve, ultimately achieving greater market share and customer satisfaction.

In this exploration, we will delve into the key elements of design market analysis innovation, discuss its benefits and applications, and showcase examples of organizations that have successfully leveraged this approach to solve problems and drive growth. By the end of this discussion, you will have a deeper understanding of how design market analysis innovation can be a powerful tool to navigate the complexities of the modern business landscape and achieve long-term success.

## *Content for project phase 2 :*

**Dataset link:** <https://www.kaggle.com/datasets/aslanahmedov/market-basket-analysis/data>

	BillNo	Itemname	Quantity	Date	Price	CustomerID	Country
0	536365	WHITE HANGING HEART T-LIGHT HOLDER	6	2010-12-01 08:26:00	2.55	17850.0	United Kingdom
1	536365	WHITE METAL LANTERN	6	2010-12-01 08:26:00	3.39	17850.0	United Kingdom
2	536365	CREAM CUPID HEARTS COAT HANGER	8	2010-12-01 08:26:00	2.75	17850.0	United Kingdom
3	536365	KNITTED UNION FLAG HOT WATER BOTTLE	6	2010-12-01 08:26:00	3.39	17850.0	United Kingdom
4	536365	RED WOOLLY HOTTIE WHITE HEART.	6	2010-12-01 08:26:00	3.39	17850.0	United Kingdom
...	...	...	...	...	...	...	...
195	536389	CHRISTMAS LIGHTS 10 REINDEER	6	2010-12-01 10:03:00	8.50	12431.0	Australia
196	536389	VINTAGE UNION JACK CUSHION COVER	8	2010-12-01 10:03:00	4.95	12431.0	Australia
197	536389	VINTAGE HEADS AND TAILS CARD GAME	12	2010-12-01 10:03:00	1.25	12431.0	Australia
198	536389	SET OF 3 COLOURED FLYING DUCKS	6	2010-12-01 10:03:00	5.45	12431.0	Australia
199	536389	SET OF 3 GOLD FLYING DUCKS	4	2010-12-01 10:03:00	6.35	12431.0	Australia

## **1. Problem Identification:**

- This stage involves identifying the problem or challenge in a detailed manner. Specify its scope, impact, and relevance in the market context. This is where you set the stage for the data-driven approach to problem-solving.

## **2. Data Collection and Preprocessing:**

- Data is the lifeblood of data-driven problem-solving. Collect relevant data sources, which can include customer data, market data, or any other information pertinent to the problem. Data preprocessing involves cleaning, transforming, and structuring the data for analysis. It's essential to ensure data quality and consistency.

## **3. Consumer-Centric Approach:**

- Implement design thinking to truly understand the consumers' perspectives and needs. This understanding will guide your data collection efforts, helping you gather the right information to address consumer pain points.

## **4. Exploratory Data Analysis (EDA):**

- EDA involves a deep dive into the data. It allows you to uncover trends, patterns, outliers, and correlations. This step is crucial for discovering hidden insights that can lead to innovative solutions.

## **5. Feature Engineering:**

- Feature engineering is a data science technique where you create new features or modify existing ones to make them more informative. This step can improve the performance of your predictive models.

## **6. Data Integration:**

- This phase involves combining the consumer insights from design thinking with the data from EDA and feature engineering. The integrated data provides a more holistic view, helping you identify connections and opportunities.

## **7. Creative Ideation:**

- Ideation involves brainstorming creative solutions based on the insights gained from data. It's about thinking outside the box and using data to fuel your creative process.

## **8. Advanced Regression Techniques:**

- If your problem is predictive in nature, advanced regression techniques can be employed. These models use the integrated data to make predictions and inform your solution.

## **9. Prototyping and Testing:**

- Develop prototypes or MVPs based on the predictive models. These prototypes should be tested with your target consumers to gather feedback and refine your solution

## **10. Iterative Refinement:**

- Use feedback from testing to iteratively refine the prototypes. This process should be data-driven and agile to ensure your solution aligns with consumer needs.

## **11. Model Evaluation and Selection:**

- Assess the performance of your predictive models in terms of accuracy, precision, recall, or any relevant metrics. Choose the model that best fits your problem.

## **12. Model Interpretability:**

- Ensure that the selected predictive models are interpretable. Understand the model's decision-making process and which features have the most significant influence on predictions.

## **13. Deployment and Prediction:**

- Implement the final solution based on the chosen predictive model. Use this model to make predictions or decisions related to the problem.

#### **14. Market Viability Analysis:**

- Evaluate the viability of your solution in the market. Consider factors like scalability, cost, and competitive advantage. Data-driven market analysis is crucial for making informed business decisions

#### **15. Implementation Strategy:**

- Develop a clear plan for bringing your data-driven solution to the market. Define marketing, distribution, and sales strategies that leverage your understanding of the market and consumers.

#### **16. Measuring Success:**

- Establish KPIs to measure the success of your solution. Monitor and analyze these metrics post-implementation to ensure that your data-driven solution is achieving the desired impact

#### **17. Continuous Improvement:**

- Use feedback and data to make ongoing improvements. Stay agile and adaptable to evolving market conditions, consumer preferences, and data insights. Continuously refine your solution to stay competitive.

**Programs :**

## Importing the libraries

```
In [1]: import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

```
In [2]: from mlxtend.frequent_patterns import apriori
from mlxtend.frequent_patterns import association_rules
```

## Data preprocessing

```
In [3]: dataset = pd.read_excel('/kaggle/input/market-basket-analysis/Assignment-1_Data.xlsx')
```

```
In [4]: dataset.head(200)
```

Out[4]:

	BillNo	Itemname	Quantity	Date	Price	CustomerID	Country
0	536365	WHITE HANGING HEART T-LIGHT HOLDER	6	2010-12-01 08:26:00	2.55	17850.0	United Kingdom
1	536365	WHITE METAL LANTERN	6	2010-12-01 08:26:00	3.39	17850.0	United Kingdom
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...	...	...	...	...	...	...	...
195	536389	CHRISTMAS LIGHTS 10 REINDEER	6	2010-12-01 10:03:00	8.50	12431.0	Australia

## 18. Continuous Improvement:

```
In [5]: dataset.isnull().sum()
```

```
Out[5]:
BillNo      0
Itemname    1455
Quantity    0
Date        0
Price       0
CustomerID  134041
Country     0
dtype: int64
```

•

```
In [6]: dataset['Itemname'] = dataset['Itemname'].str.strip()
```

```
In [7]: dataset.dropna(axis=0, subset=['Itemname'], inplace = True)
dataset = dataset.drop(columns= ['CustomerID'])
dataset.isnull().sum()
```

```
Out[7]:
BillNo      0
Itemname     0
Quantity    0
Date        0
Price       0
Country     0
dtype: int64
```

## Conclusion:

In summary, the process of "Design Market Analysis Innovation to Solve the Problem" combines design thinking, data-driven insights, and market analysis to address complex challenges. It emphasizes a consumer-centric and data-driven approach, integrates innovative ideation and predictive modeling, and focuses on continuous improvement for sustainable success.