

# SavvyCart: Your Personal Grocery Guru for Smart Shopping

## **Team 7:**

Anirudh Menon

Arjun R Nair

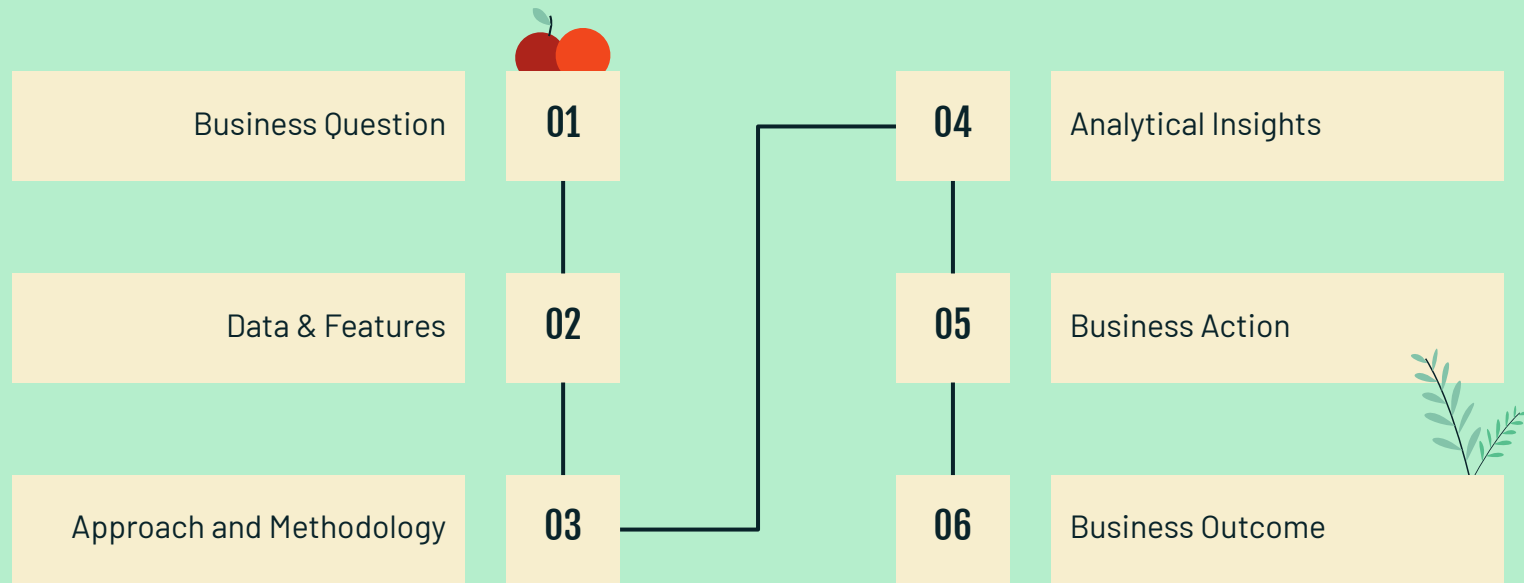
Karan Thakkar

Sripriya Srinivasan

Aishwarya



# AGENDA

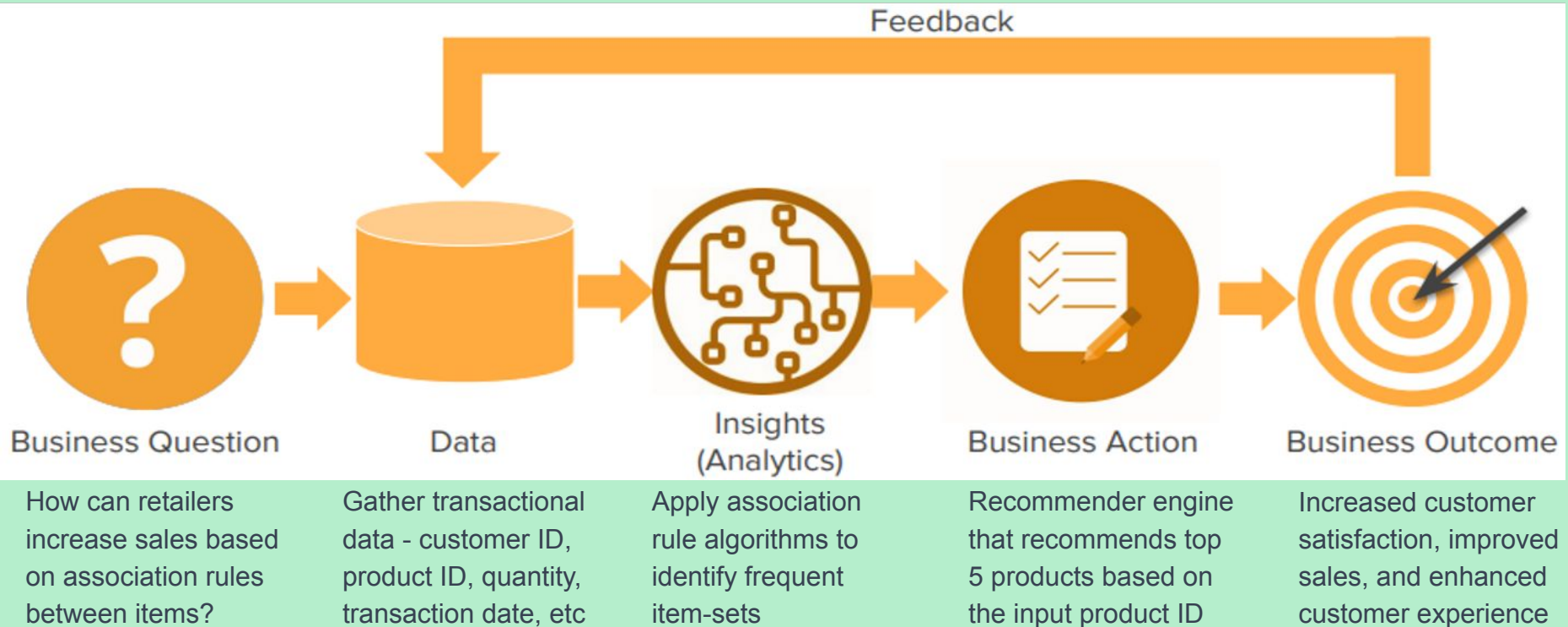














# BUSINESS QUESTION

How can retailers increase sales and customer satisfaction based on association rule between items?

# BUSINESS SOLUTION APPROACH



# MACHINE LEARNING CANVAS

<b>PREDICTION TASK</b>   <u>Unsupervised machine learning task</u> that aims to find associations between items.	<b>DECISIONS</b>  <ul style="list-style-type: none"><li>• Product Placement</li><li>• Cross-Selling and Upselling</li><li>• Marketing Campaigns</li><li>• Inventory Management</li></ul>	<b>VALUE PROPOSITION</b>   Enhance the shopping experience, improve customer satisfaction, and increase cross-selling opportunities for the business by providing personalized product recommendations to the end-users based on their previous purchase history.	<b>DATA COLLECTION</b>   Update models with new training data based on trigger events, data volume, stability, and business needs.	<b>DATA SOURCES</b>   Internal Data Sources (Transactional Data, Product Catalog, etc.) and External Data Sources (Market Data, Social Media Data, etc.)
<b>IMPACT SIMULATION</b>   <u>Methods for evaluation:</u> A/B Testing  <u>Metrics for evaluation:</u> Support, Lift, Confidence	<b>MAKING PREDICTIONS</b>   Update models with new training data based on trigger events. Featurization time can range from minutes to hours		<b>BUILDING MODELS</b>   Have one main production model that captures the underlying patterns. Updating the model less frequently might be sufficient	<b>FEATURES</b>   Customer ID, Product ID, Transaction Date/Time, Transaction Quantity, Transaction Amount, Customer Demographics, Product Descriptions, Historical Purchase Patterns
<b>LIVE EVALUATION AND MONITORING</b>  <ul style="list-style-type: none"><li>• <u>A/B Testing</u>: Compare performance of deployed system against baseline</li><li>• <u>Conversion Rate</u>: Measure rate at which recommendations lead to actual purchase</li><li>• <u>Return on Investment (ROI)</u>: Calculate financial return on the investment</li></ul>				

# DATA & FEATURES

## InvoiceNo



Unique invoice id

## Stock Code

Unique product code

## Description

Product Name

## Quantity

Quantity of product  
purchased in each order

## Invoice Date



Date of the order

## Unit Price

The selling price of the item

## Country

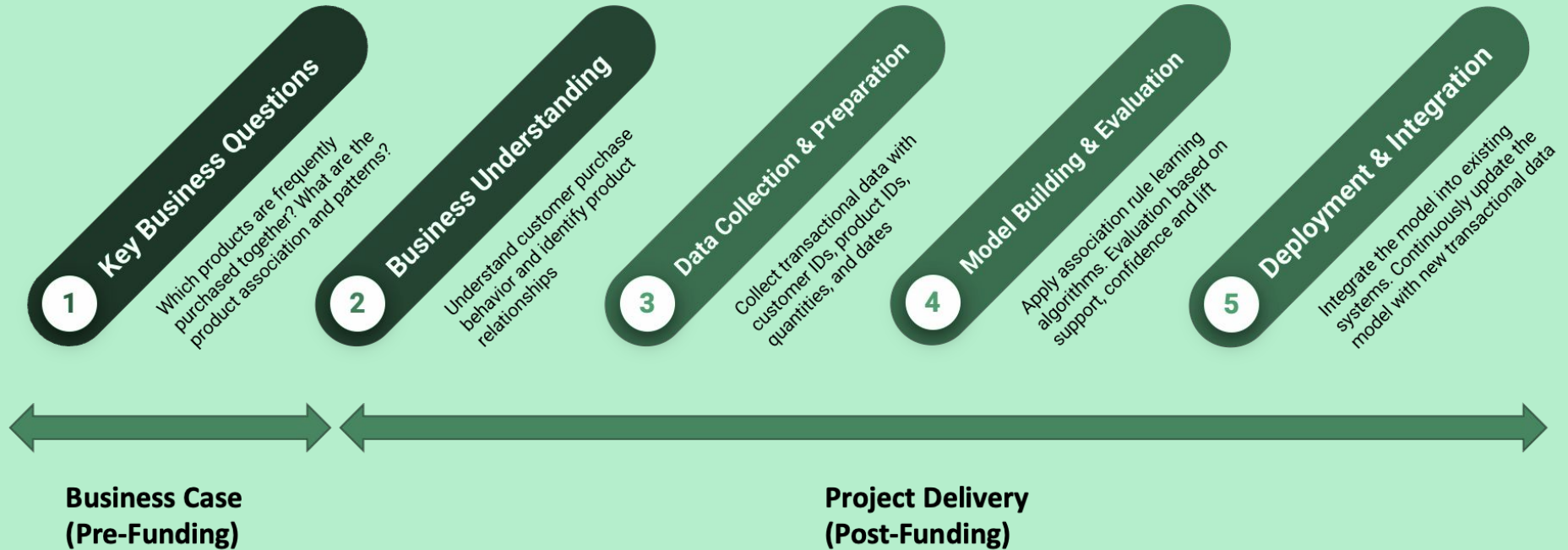
Country of purchase of an  
order

## Customer ID



Unique id of each customer

# DATA SCIENCE FRAMEWORK



# METRICS



## SUPPORT

Threshold value: 0.01

## CONFIDENCE

Threshold value: 0.5



## LIFT

Threshold value: 1



# ASSOCIATION RULE ALGORITHMS

## Apriori

- Subset of frequent itemsets
- Breadth first

## FP Growth

- Frequent Pattern Growth
- Uses divide and conquer strategy
- Depth first

## H-Mine

- Hill-Climbing Mine
- Uses depth first search with pruning

# INSIGHTS FOR REGENCY CAKE STAND 3 TIER

## APRIORI

Roses regency teacup and saucer, Jumbo bag apples, jumbo bag pears, Set of 12 mini loaf baking cases

## FP-GROWTH

Roses regency teacup and saucer, Green regency teacup and saucer, Pink regency teacup and saucer

## H-MINE

Pack of 72 retrospot cake cases, Jumbo bag red retrospot, Lunch bag spaceboy design, Lunch bag black skull, Red harmonica in box



# BUSINESS ACTION

## Placement of products

Place frequent sets together such as jumbo bag pink and diner wall clock



## Discount on combos

Increase sales by discounting frequently bought combos

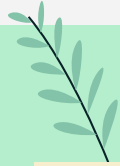


## New product with frequent sets

Market new product with frequent sets to increase traction



# BUSINESS OUTCOMES



## CUSTOMER SATISFACTION

Ease in finding products they need

## INCREASE IN SALES

Increased product combination sales

## CUSTOMER EXPERIENCE

Less time spent in finding the right product



## INCREASE STORE FOOTFALL

Similar product recommendation found at ease

# THANKS!



**Scan to Fund**

Zelle/ Venmo / Apple Pay  
accepted

