MARKETING BOOST

Mini project presentation: First review

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INTRODUCTION

- This project ensures that each no matter small scale or large scale supermarket can utilize this software easily to predict their consumer behavior and shopping patterns.

- Most of the small scale supermarkets and local markets are unable to implement these steps because they don't have data/ sales analytics to study these.

INTRODUCTION

CLASSIFICATION
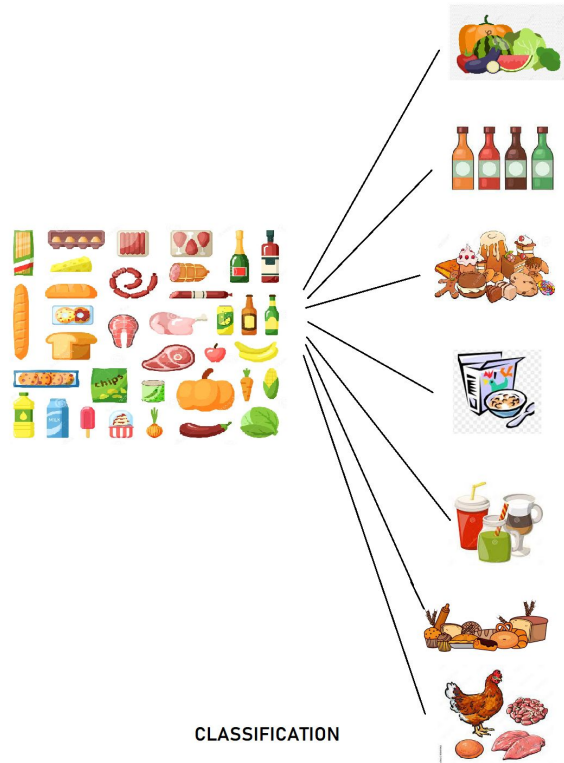
ASSOCIATED ITEMS

PROBLEM STATEMENT

- Most of India's grocery retail happens at kiranas - small- and mid-sized mom-and-pop outlets which account for 75-78% of the consumer goods market, Ambit Capital estimates. But it has only a smaller contribution to the retail sector
  - **Read more at** : https://economictimes.indiatimes.com//industry/services/retail/india-retail-a-nearly-900-billion-market-dominated-by-mom-and-pop-stores/articleshow/81625591.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

- The pandemic served a severe blow to India's physical retailing business in fiscal year 2021 that led the small and medium scale retailing in the country to shrink by 8.5% that year.

- Most Local Shops doesn't utilize their sales data and consumer patterns to improve their sales

- These shop owners fail to use complex systems and methods used by large companies to boost their retail.

Social Relevance and Application

- Target small- and mid-sized supermarket , mom-and-pop outlets and help them grow.

- It can be used to support local business and create a local economic stimulus.

- Provide various tips and details based on the study of their goods and consumer data.

- Provide an easy to use interface so anyone can benefit from our model.

Review of Literature

[1]Tim Bowen proposed an article on april 2023 on How big Supermarkets Are Using Big Data & Predictive Analytics To Win. We were able to propose this idea of using this data analytics and predictive methods on a smaller scale shops

[2]Richard Farnworth wrote an article on July 2020 on **How Data Science and AI are changing Supermarket shopping** . Using this we realised we could use the knowledge we learned in our past semesters to build a model combined of multiple algorithms

[3] National investment promotion & facility agency of India proposed a study on the retail industry of india and in it they stated that The Indian e-commerce industry is expected to cross the $350 Bn in GMV by 2030. By pursuing this project we can further study how these e-commerce companies utilize AI and DS in real time to improve their market

Proposed Methodology

- To generate a system which can help small-mid scale supermarket and local shops to improve their sales

- Provide an easy interface to the user so anyone can easily input datas easily to the system

- Provide a good amount of tips and tricks to the user and emphasis

- On how to manage their goods like for example:
  - Store distribution
  - Efficient inventory management
 - Segmentation

Proposed Methodology

- <u>For Store Distribution</u>

  - This can be achieved using different classification algorithms to group together similar products into a section

    - Classification algorithms can include

      - Apriori Algorithm

      - K-means classification algorithm

      - Naive Bayes algorithm

Proposed Methodology

- <u>For Efficient Inventory Management</u>

  - Create a database system to store the datas provided by the user

  - Should be create this with either sql or pandas

- <u>For Segmentation</u>

  - We can use the above mentioned algorithms in store distribution to categorise the goods based on customer preference

Detailed Working of Model
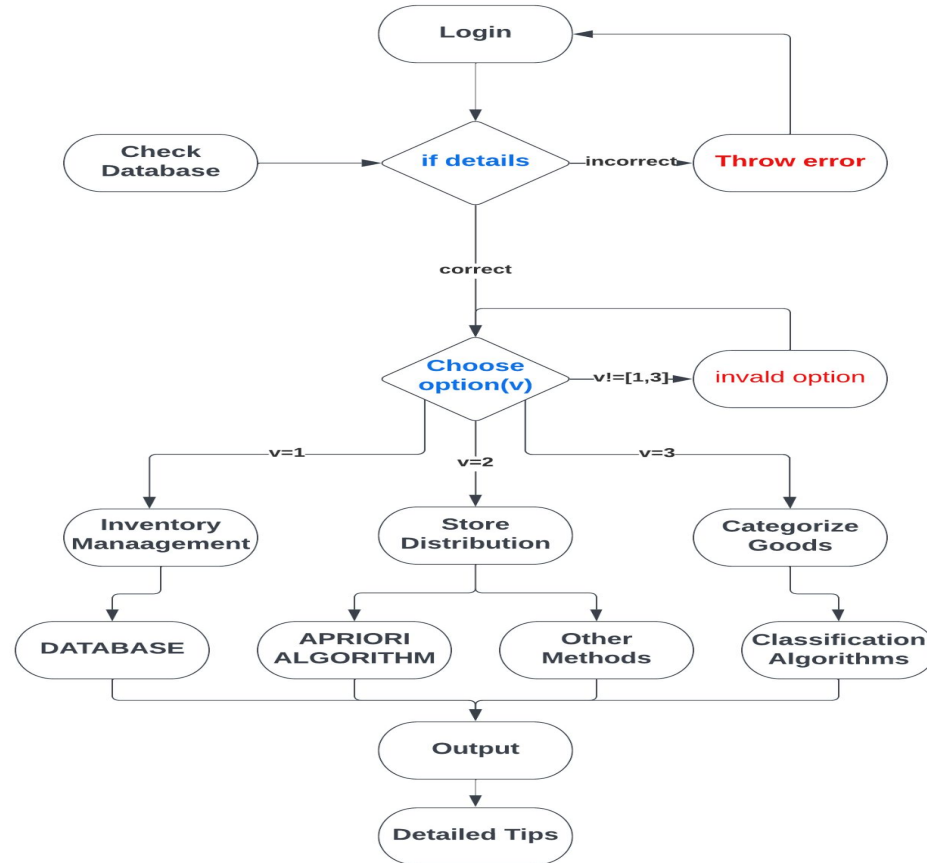
Data Collection

- We have preprocessed the data that are collected from different sources, which contain both legitimate and malicious query

- Drive link to collected datasets:

  https://drive.google.com/drive/folders/1UXK4DiC8PMZmNbsUSpw-efFtsKvF4L3y?usp=share_link

- Overview of one of the datasets collected
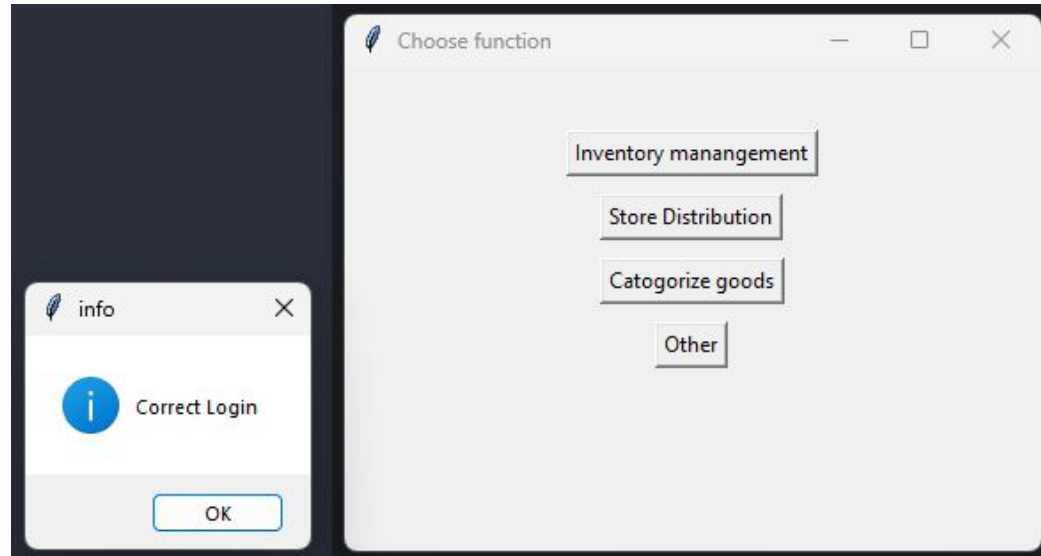

Head values

description

Work Done So Far

- Basic Front-end user interface successfully developed
  - **Login page**
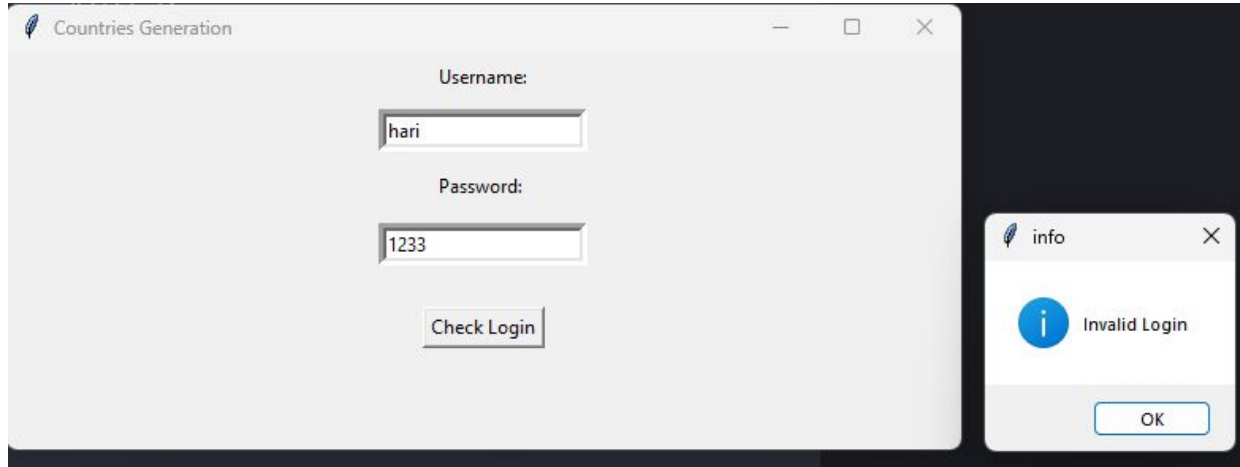
Work Done So Far

○ **Main menu**

Work Done So Far

○   INVENTORY MANAGEMENT

Work Done So Far

- Data processing has been done to remove null and incorrect values and sort them according to transactions

Before processing

After processing

Results

- The results of the algorithm are shown below. This gives us a rough idea regarding the relation between each products

	antecedents	consequents	antecedent support	consequent support	support	confidence	lift	leverage	conviction
0	(rolls/buns)	(other vegetables)	0.110005	0.122101	0.010559	0.095990	0.786154	-0.002872	0.971117
1	(other vegetables)	(rolls/buns)	0.122101	0.110005	0.010559	0.086481	0.786154	-0.002872	0.974249
2	(other vegetables)	(whole milk)	0.122101	0.157923	0.014837	0.121511	0.769430	-0.004446	0.958551
3	(whole milk)	(other vegetables)	0.157923	0.122101	0.014837	0.093948	0.769430	-0.004446	0.968928
4	(rolls/buns)	(whole milk)	0.110005	0.157923	0.013968	0.126974	0.804028	-0.003404	0.964550
5	(whole milk)	(rolls/buns)	0.157923	0.110005	0.013968	0.088447	0.804028	-0.003404	0.976350
6	(soda)	(whole milk)	0.097106	0.157923	0.011629	0.119752	0.758296	-0.003707	0.956636
7	(whole milk)	(soda)	0.157923	0.097106	0.011629	0.073635	0.758296	-0.003707	0.974663
8	(yogurt)	(whole milk)	0.085879	0.157923	0.011161	0.129961	0.822940	-0.002401	0.967861
9	(whole milk)	(yogurt)	0.157923	0.085879	0.011161	0.070673	0.822940	-0.002401	0.983638

Results

- Confidence
  - Confidence ($x => y$) signifies the likelihood of the item y being purchased when item x is purchased. This method takes into account the popularity of item x.

- Lift
  - Lift ($x => y$) is nothing but the 'interestingness' or the likelihood of the item y being purchased when item x is sold. Unlike confidence ($x => y$), this method takes into account the popularity of the item y.

- We utilize these two components to identify what set of items compliment each other the best

Plan of work to get the results

- Need to integrate more classification algorithm to classify the goods
- Create a database to store the inventory
- Need to Integrate the front end to the back end code. The model and the interface should work aside
- Have to improve the User interface to be more easy to use ,secure and better design.

Conclusions

- Our model utilize different Machine learning and data science algorithm to come up with an optimal method to classify the goods and organise them efficiently
- This model ensures that any person from the local small to medium scale markets can implement it and understand how taking certain steps can hugely impact on their revenues.
- Furthermore during the development it enables us to deeply understand how our field AI and DS are vastly used in the ever-advancing world of business and commerce.
- Integrating this system on other premises like, such as social media and demographic data can provide a complete picture of customer behavior and preference

REFERENCES

1. Tim Bowen proposed an article on "How big Supermarkets Are Using Big Data & Predictive Analytics To Win."

2. **National investment promotion & facility agency of India**   proposed a study on the retail industry of india and in it they stated that The Indian e-commerce industry is expected to cross the $350 Bn in GMV by 2030.

3. Joseph Eckert wrote an article on how Analysis of receipt data shows the super bowl can have a significant impact on sales and consumer behavior.

QUESTIONS?

THANK YOU