



In–Restaurant POS software

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Final Design Statement

This Product is designed with the core objectives of Restaurants sales and inventory management, Reducing the waiters time on taking up order from everyone rather digitalizing the menu and ordering by own, this gives Restaurants owner a additional benefit of **Dynamic pricing Menu, Introducing new dishes, special offers** for the day and many more . with super inventory and sales management integrated with **ml/ai recommendation and auto sales increase features** . And on consumer side - ease in selection of order after getting known the reviews and most order food, adding up more filters, calories content, and key ingredients for specials needs .
The product also comes with the added feature of **Recommendation system** and Making up instant combos for the consumer that would help restaurant to manage their inventory.



general hypothesis

Restaurant's Manager Side

- In peak busy hours **more number of waiters** are required.
- Hard Menu is not flexible to write changes in food ingredients , non availability, season specials. etc
- In Conventional menus, the hierarchy is not defined, the famous product of place leads to more ordering time for customers.
- Inventory is hard to manage and lot of raw materials or food ingredients are wasted due to their self-life, and unable to sold out.

Customer Side

- No way to easily filter out the right choice of what to eat.
- Key food ingredients or calories count are not written in food menus.
- For a new restaurant we don't have previous reviews of what is specials or extraordinarily good on that restaurant.
- In a crowded restaurant Waiters are inadequate so adding up into order require more efforts.

Research insights

Especially in a **developing** country like **India** where the disparity between the poor and the rich is glaringly high, it's a **crime** to waste billions of tonnes of food at restaurants.

The causes of food waste in the restaurant industry in India are manifold and complex. Some of the main causes are:

- Overproduction**
- Portion size**
- Menu variety**
- Customer behaviour**

45% of the full Restaurant service business failed to grow in profits without stock management effectively

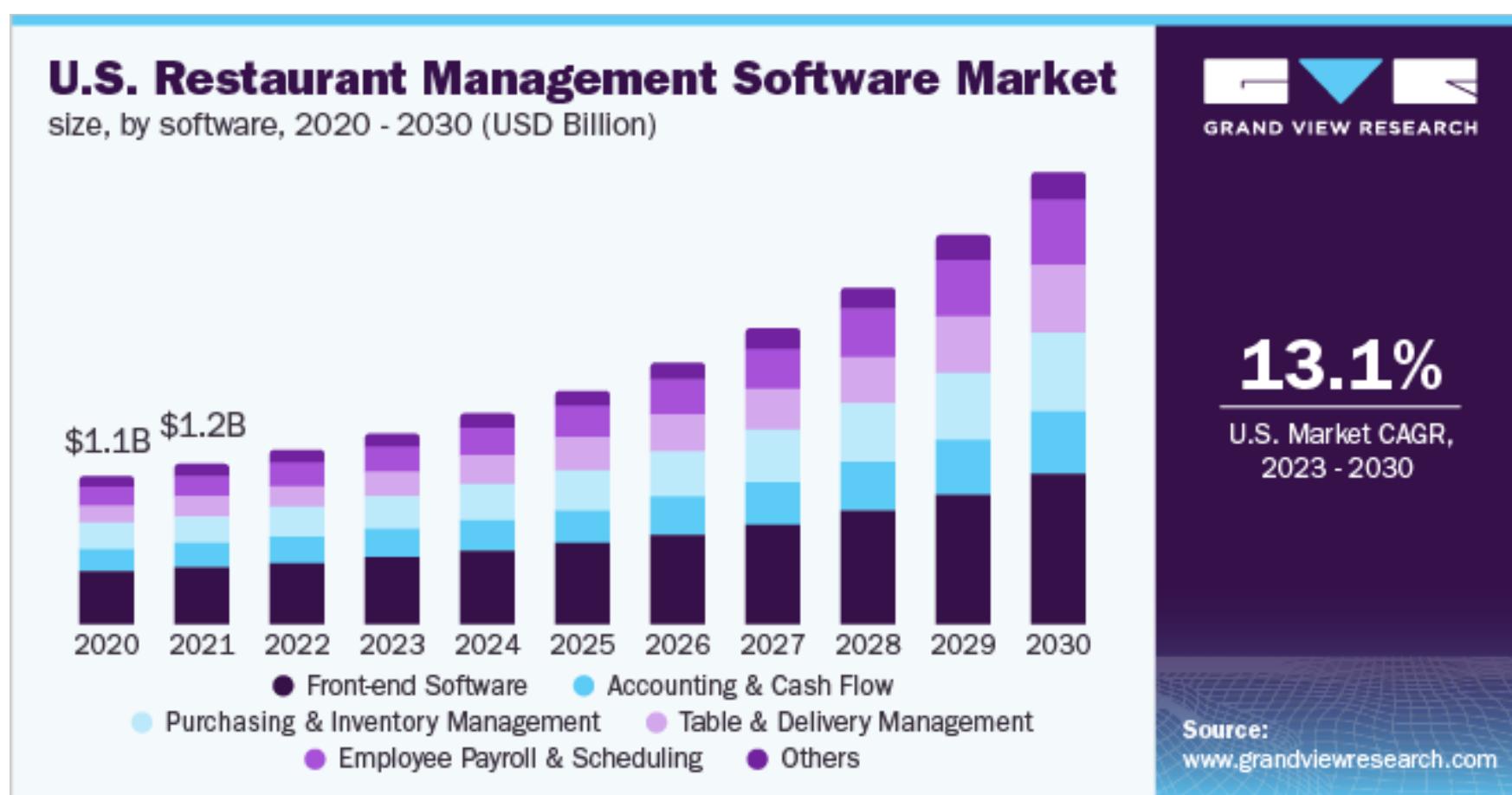
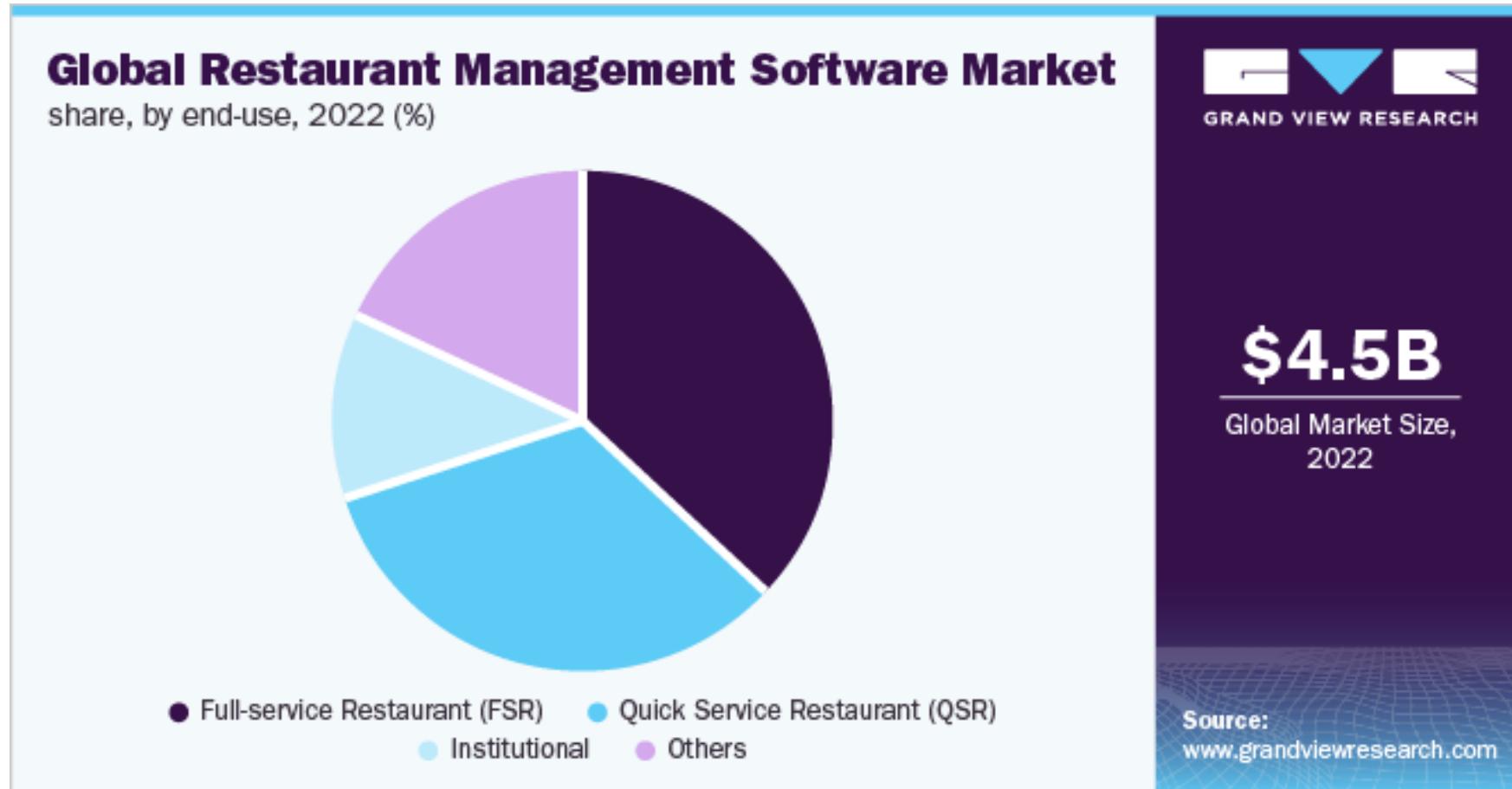
Research suggests that around half a pound of food is wasted on average per meal per day in restaurants all over the world.

In India, annual wastage of food in restaurants amounts to thousands of crores in monetary terms.

The restaurant industry is one of the major contributors to food waste in India. According to the Food Waste Index Report 2021 by the United Nations Environment Programme (UNEP), India generates about **68.7 million tons of food waste** per year, out of which **11.9 million tons** come from the food service sector.

Market Analysis

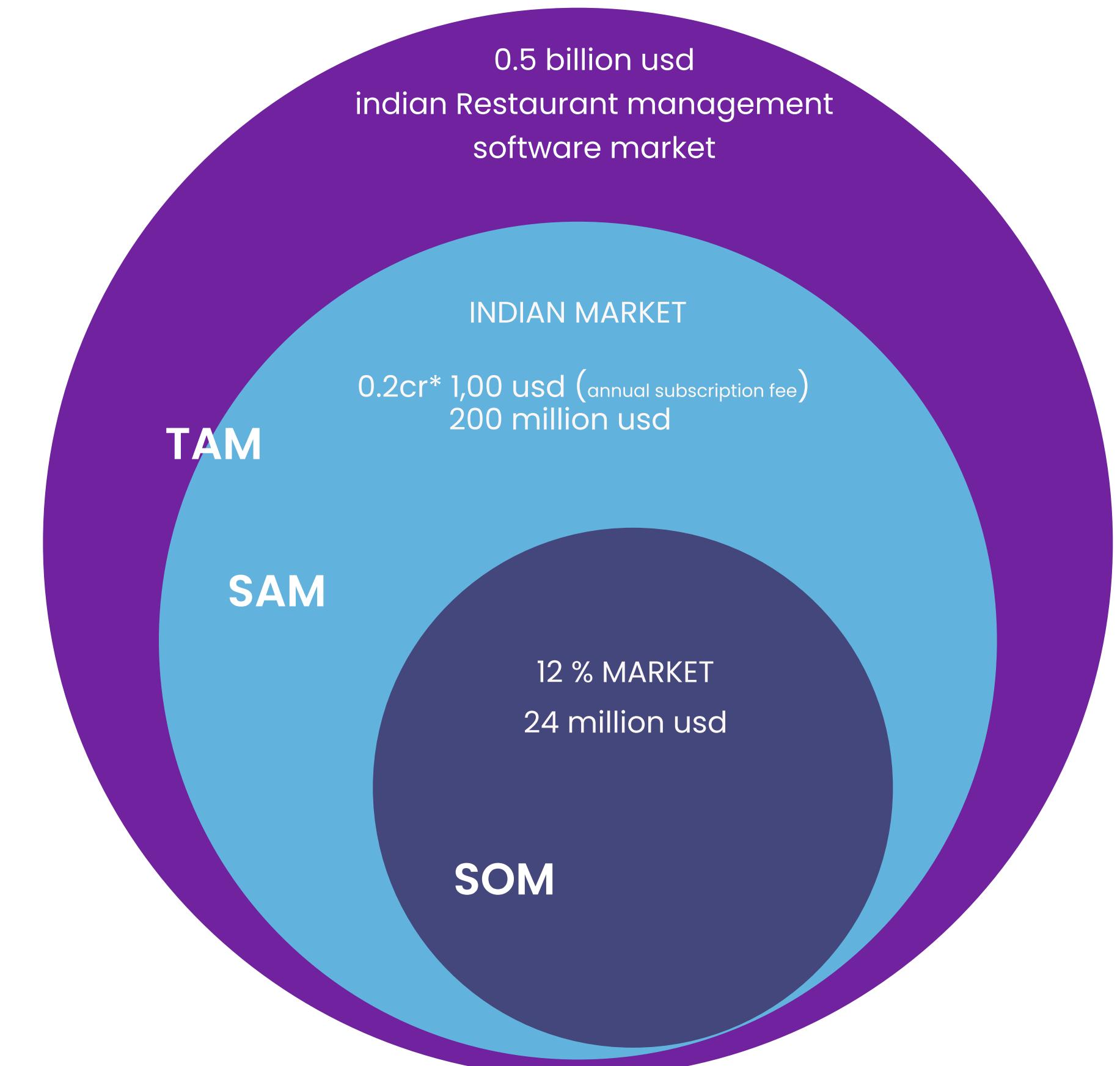
- Global market



- Indian market

- **SOME FACTS USE FOR CALCULATION**

- Approximately 3 crores foodservice businesses
- Organized Category (30 - 35%)
- The projected growth rate by 2022 is 10%
- It is estimated that the restaurant market size including the organized and unorganized sector is INR 3,37,500 crores in 2017.



market gap/competitor analysis

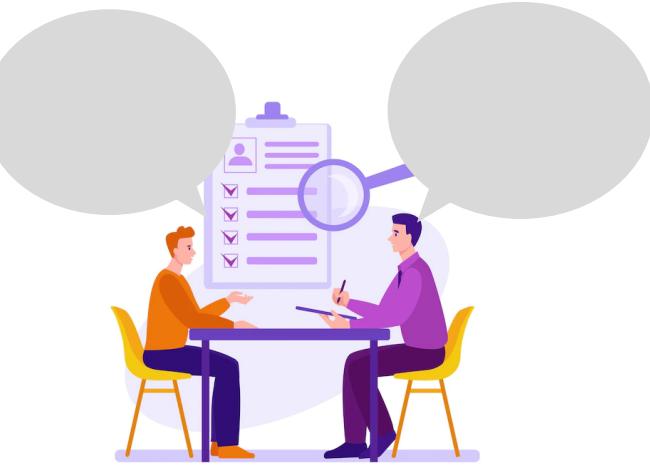
Features	 RestroApp restro app	 Petpooja pet pooja	 Zuyyu zuyyu
QR code table-ordering	✗	✓	✓
calculators Calorie, nutrition	✗	✗	✗
same table multi - device order	✗	✗	✗
Create specials, offers, dynamic pricing	✓	✓	✓
Reports & Analytics	✓	✓	✓
multilingual	✗	✗	✓
integration with food delivery partners	✓	✓	✓
Table and gst billing management	✓	✓	✗
ml/ai based sales increaser recommendation system	✗	✗	✗
normal inventory management	✗	✓	✓

Features	 gloria food	 PineServe pine serve	 Air Menus
QR code table-ordering	✗	✓	✓
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User Analysis- Restaurant Side

We have interviewed various Restaurant owners and managers based on our questionnaire to get real Insights of:

- **Usability**
- **Urgent Need**
- **Main issue of static menu**
- **Extent it could solve the problem**
- **food wastage**
- **inventory management system**
- **Waiters efficiency**
- **customer**



We have interviewed th following restaurants serving from years to those who are new, they all have different needs and perspective towards pros and cons of the product.

Pepri Herb Restaurant

Desi Tadka Restaurant

Prakash Restaurant

The Center point

Aroma

- **Do you use any e- menu system incorporated in your restaurant ?**

CP: It is static menu system.

Pepri: Incorporated earlier but not workable due to issue people unable to use due to complexity

DT: Currently using but its not ble to give Insights or recommendations, and no review system.

Prakash: No such system although we are in lack of space and no. of waiters, but we are able to manage this way, this would be added benefit.

Aroma: Not much crowd so unable to find much usability

- **Main issue with static Menus and how would dynamic or e- menu useful?**

CP: In peak hours or if we manage multiple restaurant It would help me managing at my fingure tips, also unable to manage profits when sudden increase in price of some materials

Pepri: It would help in directing the order directly with particular specification , also no wait time for the customer.

DT: Unavailability or new seasonal product incorporation would be easier .

Prakash: Faster our service, and ease in incorporation of person specific details, faster the orders.

Aroma: Description based would help customers in choosing the order fast.

- **Raw material wastage issue, recommendation, review, and instant combo system?**

CP: We manage our raw materials well as we are experienced from years, but automatic system would help if we are expanding.

Pepri: It would be really helpful if system is easy to use otherwise complexity would not able to incorporate for staff or customer as well

DT: Review system they don't want to incorporate, as to improve high profit margin products, faster and ease in choosing orders

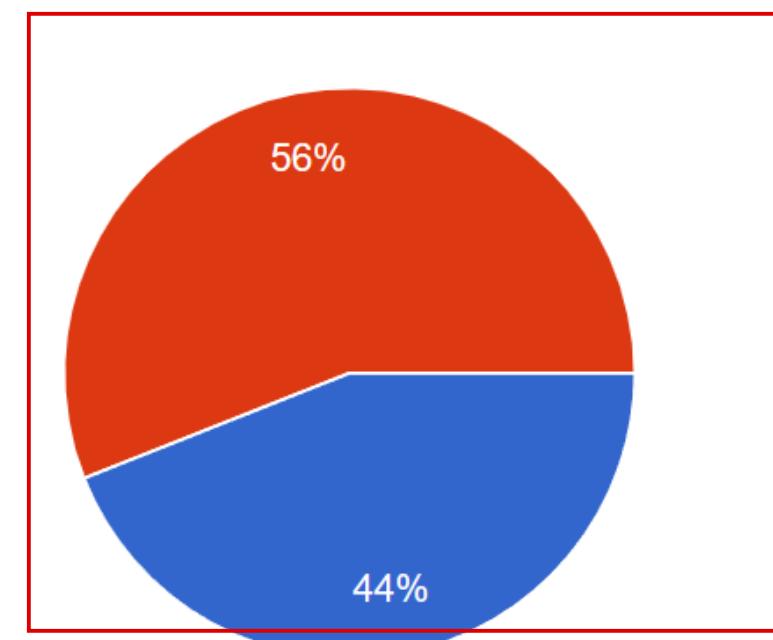
Prakash: Faster our service, recommender and combos help in adding deserts and shakes, into orders.

Aroma: Recommendations help in adding more products into orders.

User Survey

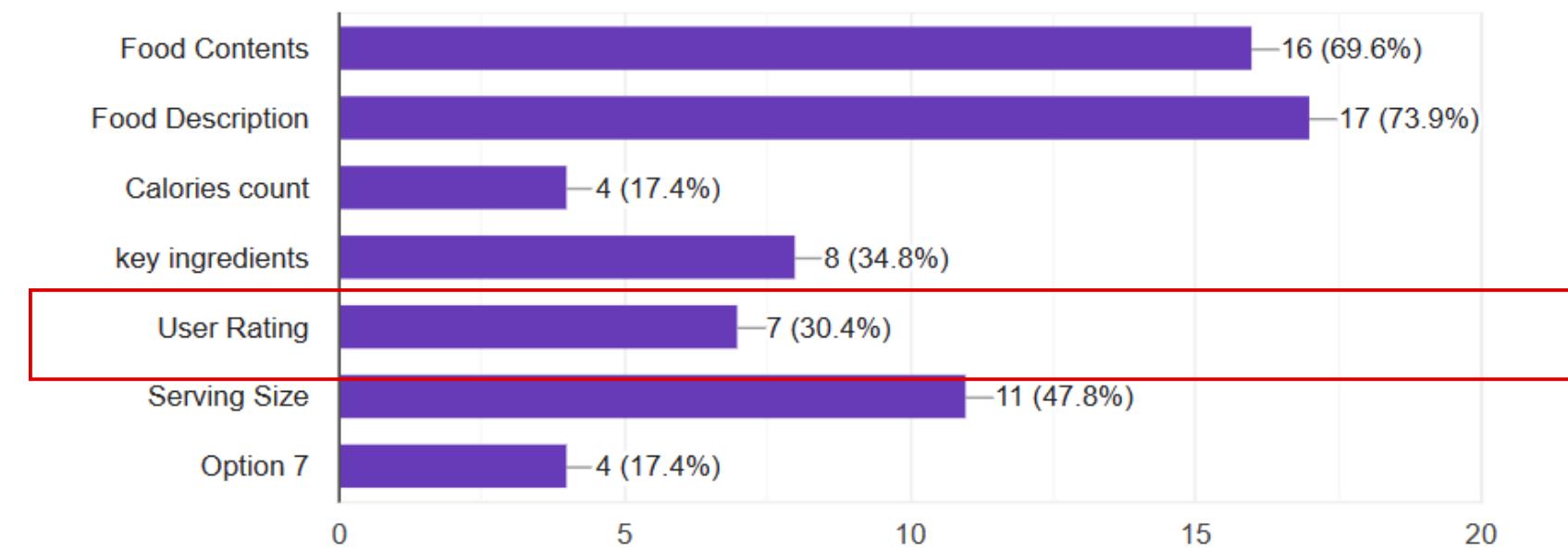
Are conventional menus good enough to provide description of food item?

25 responses



What are the information you usually find in Menus

23 responses

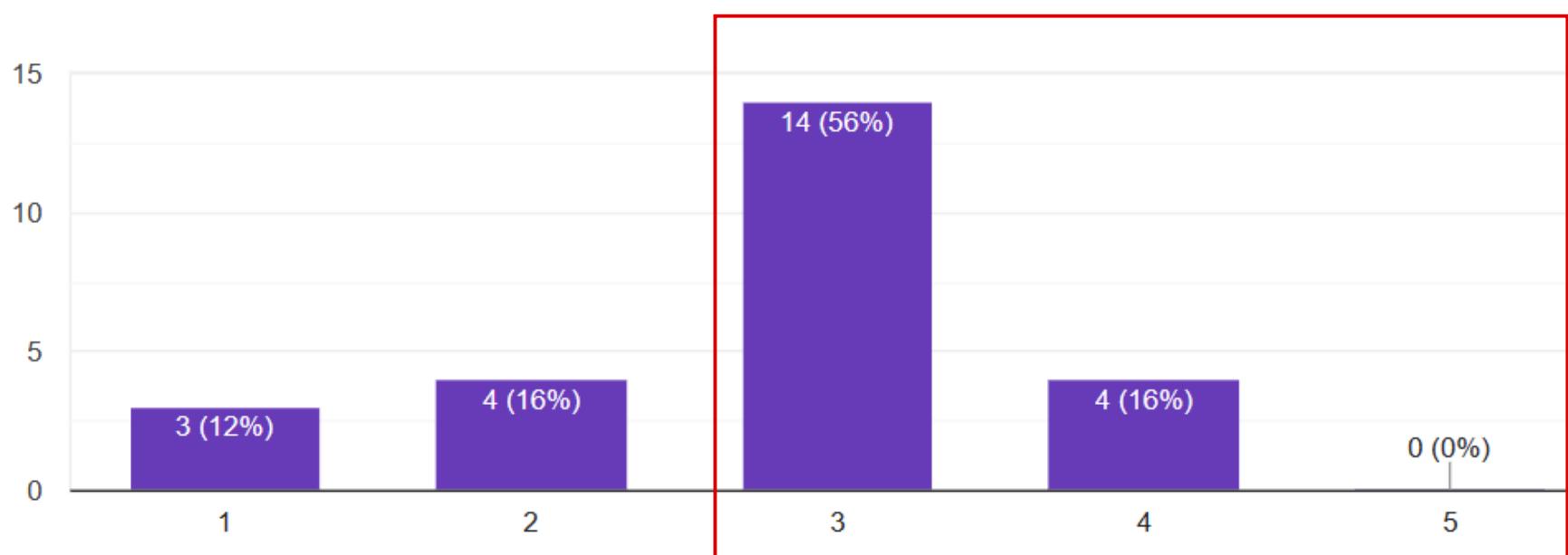


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On scale of 1-5, how do you find deciding from conventional menu a difficult task?

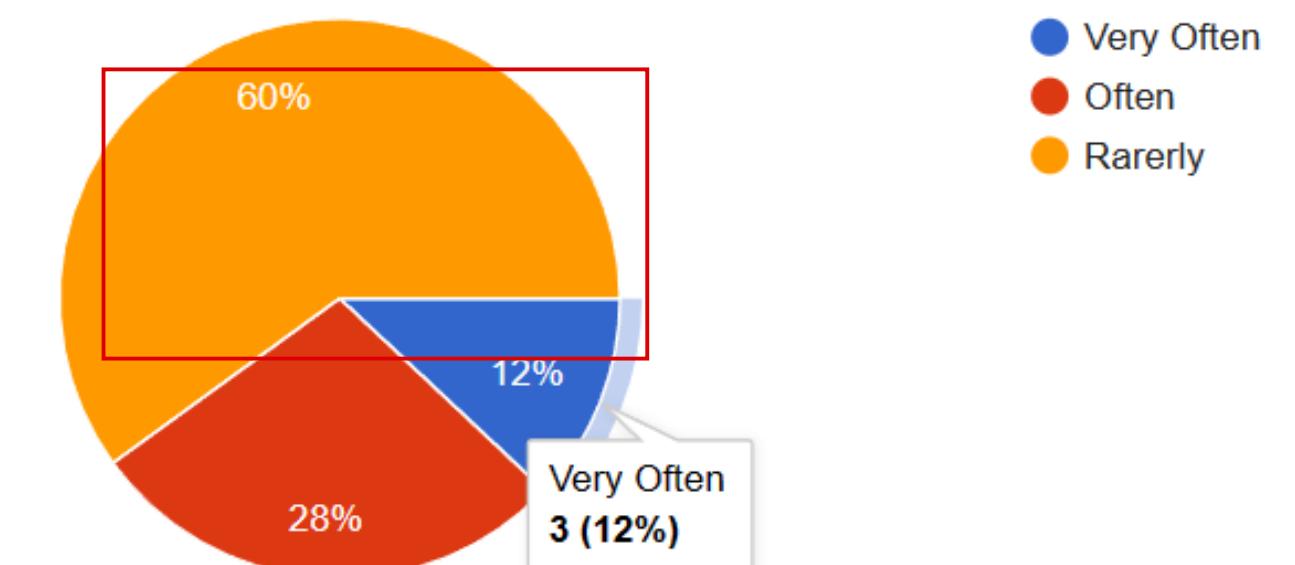
25 responses

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How often you see digital menus in Restaurants?

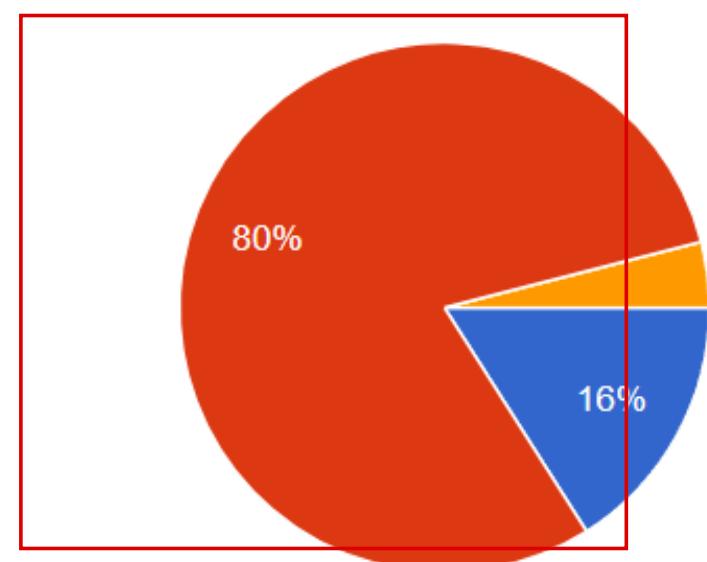
25 responses



User Survey

When do you decide what you want to eat in restaurant?

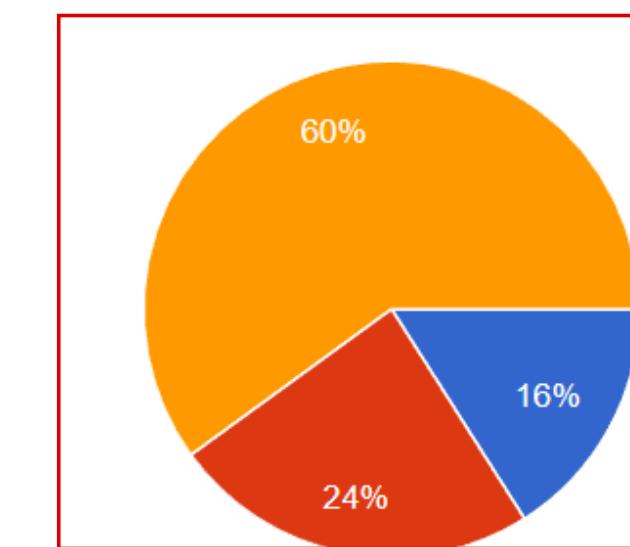
25 responses



- Mostly pre decided
- Mostly after seeing menu
- Mostly After seeing menu

What do you prefer when you are with your friends or family in restaurant?

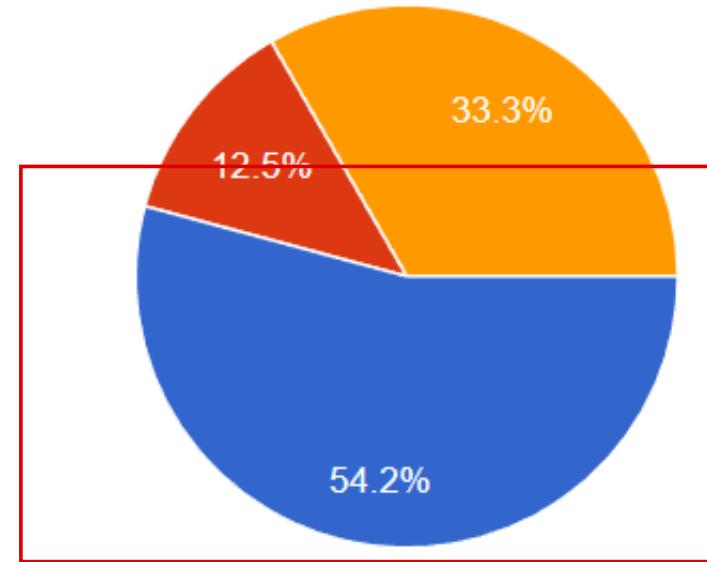
25 responses



- Combos Decided by restaurant with extra discounts
- Order of your choice and no added discounts
- Differ in situation

Do you find need of people reviews, and ratings over a food item?

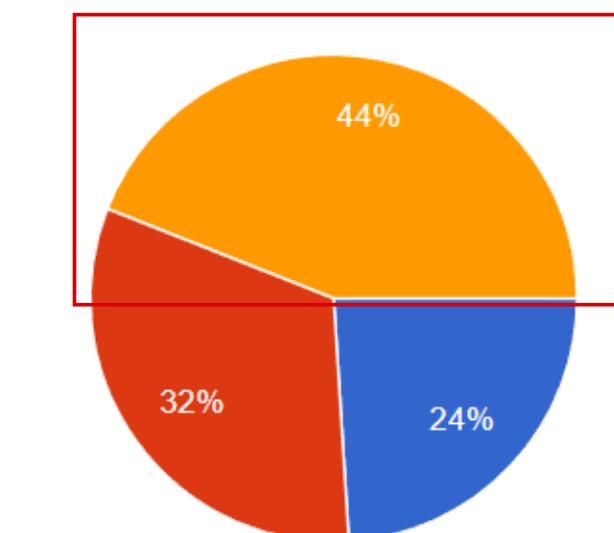
24 responses



- Yes
- No
- May Be

Do you get combos, offers when you order food at restaurant in a group?

25 responses



- Yes
- No
- Sometimes

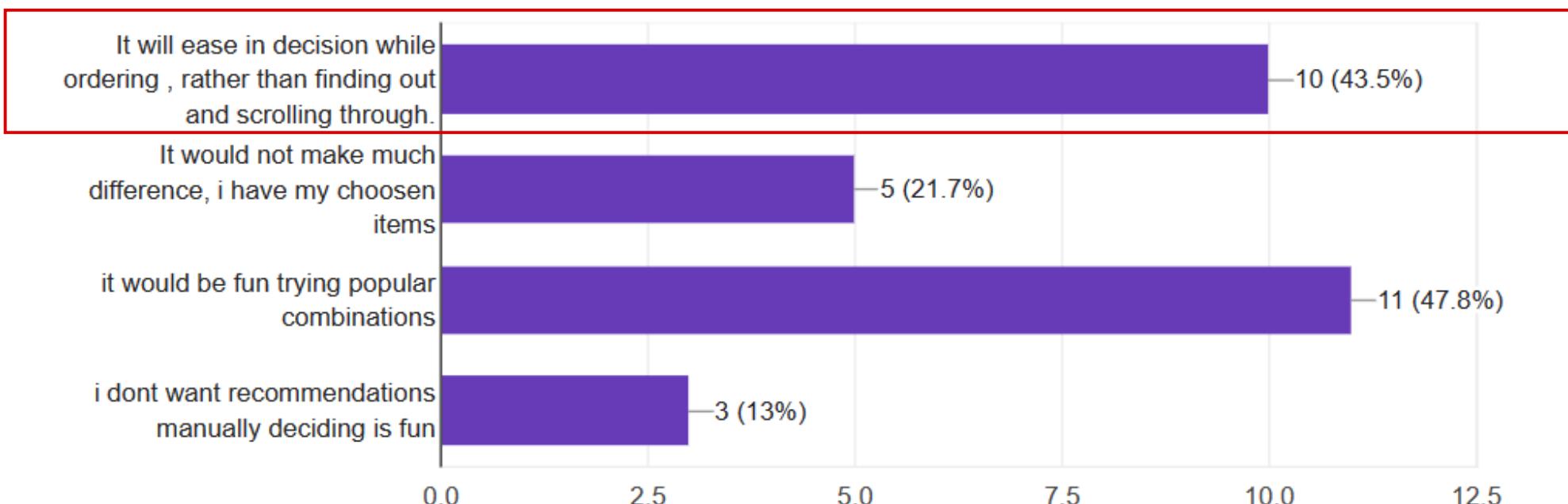
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User Survey

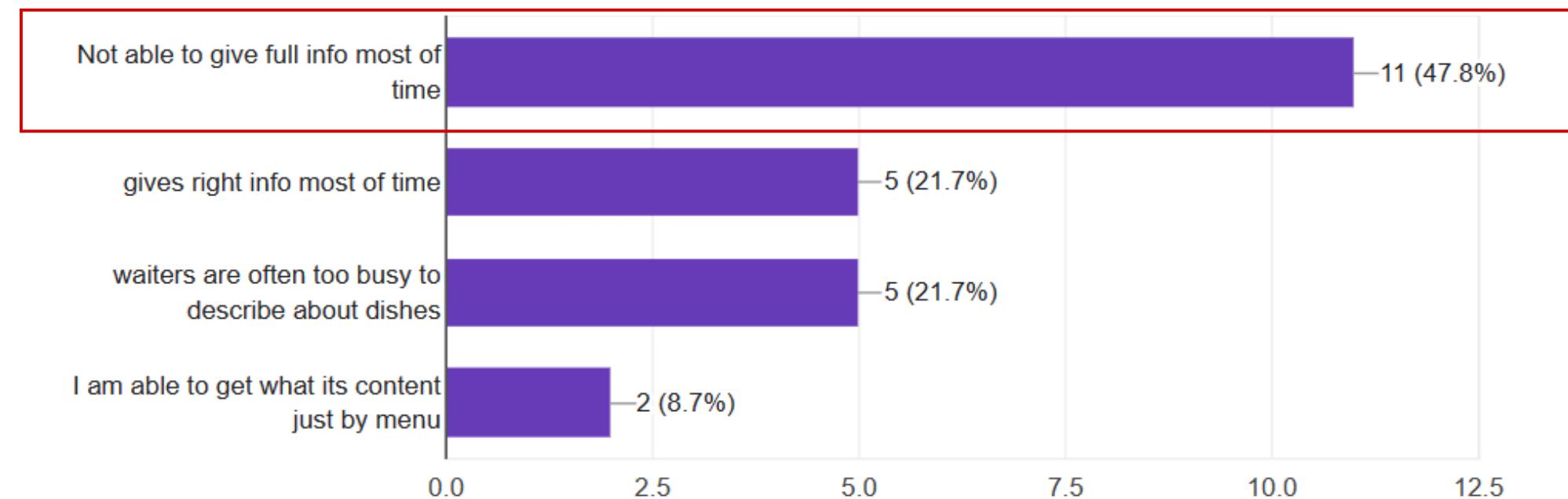
How would a recommendation system based on people ordering stats in combination with a particular item help you in ordering food and deciding menu? [Copy](#)

23 responses



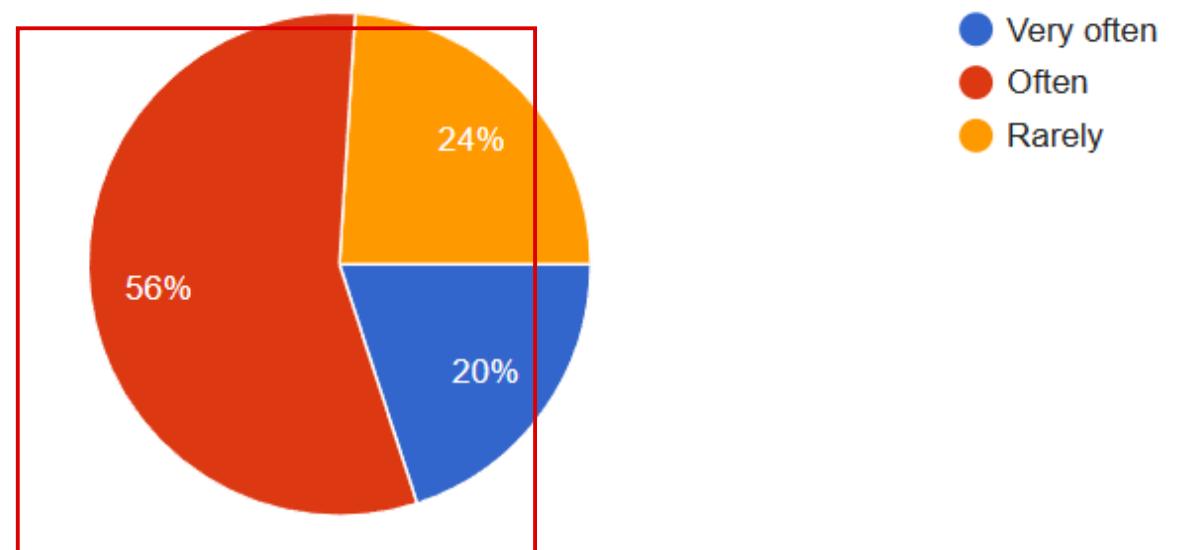
How often is waiter able to help you know the food item and its content ?(specially in rush hours) [Copy](#)

23 responses



In a busy restaurant, how often you have to wait long for waiter to take orders? [Copy](#)

25 responses



Insights and conclusion

- Deciding the Item to order in restaurant finds a difficult task for most people and it rated as Level of 3-4 by most of them.
- Most of the information we find missing in Menus, as people considering.
- We rarely see digit menus so there is market in doing so.
- often people have to wait long for waiters to take orders.
- Waiters are not able to provide full information that the customer wants to know so people sometimes didn't want to give a try to the new thing.
- Deciding while seeing menu is the people preference based on Survey so, the requirement to invest on it.
- According to survey people want review system to be incorporated in restaurant menus.
- People usually not preferring much to the Restaurant decided combos .
- People want to try experimenting multiple or popular combinations.

SWOT Analysis

S

STRENGTH

- ONE STOP SOLUTION FOR POS , INVENTORY MANAGEMENT AND FOOD ORDERING WITH ADVANCE FEATURES of MI/Ai
- SEAMLESS INTEGRATION WITH OTHER POS AND DELIVERY PARTNERS
- BEST USER EXPERIENCE ON BOTH ENDS
- GUARANTEE INCREMENT IN SALES EVENTUALLY CREATE GREAT OFFERS FOR END USERS.

W

WEAKNESS

- NOT HAVE FIRST MOVER ADVANTAGE
- HARD TO ERADICATE CONVENTIONAL SYSTEMS FULLY THATS WHY DEVELOPED SYSTEM ACCORDING TO HYBRID
- INITIALLY HAVE LESS DATA TO TRAIN ML MODELS
- LESS TEAM SIZE FOR ONBOARDING EXPANSIONS AND FOR INITIAL TRAINING OF MANAGEMENT STAFF.

O

OPPORTUNITY

- RAPIDLY GROWING MARKET IN INDIA AFTER UPI , QR DIGITALIZATION
- LOT OF IMPROVEMENTS AND ENHACEMENT OPPORTUNITY IN USER EXPERIENCE AND TECH .
- ECOSYSTEM TRAP CREATION OPPORTUNITIES

T

THREAT

- COMPETITIVE THREAT
- MARKET SATURATION THREAT
- ONLINE FOOD ORDERING MARKET THREAT.
- REVIEW SYSTEM ADOPTION BY THE RESTAURANTS.

Business Model Canvas

<p>Key Partners</p> <ul style="list-style-type: none"> • Restaurant Owners • Restaurant Managers • Inventory managers • Chefs • Waiters 	<p>Key Activities</p> <ul style="list-style-type: none"> • minimal viable product making required • time to time update in product • b2b Selling to the Restaurants business • customization changes according to them • Product marketing. • onboarding and mentorship program • support services setup 	<p>Value Proposition</p> <p>To business</p> <ul style="list-style-type: none"> • Increase in revenue by sales through ml/ai recommendation system and reduced wastage in inventory . • Inventory Management by useful insights and improved sales of 'low seller' items by introducing instant combos. • Dynamic and elaborated Menu – can be changed according to the needs. • multilingual 	<p>Customer Relationship</p> <ul style="list-style-type: none"> • B2B Customer Tech support. • Specials feature incorporation as per demand. • one on one Training Sessions for the use of product 						
<p>Key Resources</p> <ul style="list-style-type: none"> • cloud Servers channels. • cloud storage • physical product creation • Machine Learning Programmer for optimization and issues. • Subscription management system. • Estimate and proposal maker for B2B transactions • payment gateway integration provider • 	<p>Customer Segmentation</p> <ul style="list-style-type: none"> • Small restaurants • Fine dine restaurants • Big restaurants • Cafes • specific food item selling shops 	<p>Channels</p> <ul style="list-style-type: none"> • Marketing through one on one product preview to the restaurant. • Product is delivered in app or software or system, tablets could be provided. • Proper survey would help to maximize the best way of delivering the product. 							
<p>Cost Structure</p> <table border="1"> <thead> <tr> <th>PRODUCT DEVELOPMENT COST</th> <th>MARKETING COST</th> <th>OPERATIONS COST</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> • Human resource • cloud storage • payment services • physical product material • manufacturing cost • api purchase • annotated data purchase </td> <td> <ul style="list-style-type: none"> • Human resource • ad running cost • campaign outsourcing • </td> <td> <ul style="list-style-type: none"> • office running • travelling • procurement • </td> </tr> </tbody> </table>	PRODUCT DEVELOPMENT COST	MARKETING COST	OPERATIONS COST	<ul style="list-style-type: none"> • Human resource • cloud storage • payment services • physical product material • manufacturing cost • api purchase • annotated data purchase 	<ul style="list-style-type: none"> • Human resource • ad running cost • campaign outsourcing • 	<ul style="list-style-type: none"> • office running • travelling • procurement • 	<p>Revenue Streams</p> <ul style="list-style-type: none"> • Subscription Based on different features, sizing and added value features would decide it subscription amount. • high end analytics services to industry. • initial free trials period to make smooth shift from conventional methods and other pos systems . 		
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Key Features Integrated

- Able to order food from app, easy UI , reviews, recommendations, filters and instant offers
- Inventory Management by useful insights and improved sales of 'low seller' items by introducing instant combos.
- Dynamic and elaborated Menu – can be changed according to the needs.
- Ability to Take order fast and deliver, calculate waiting time, improved efficiency , reducing human labour.

Application Working Demonstration

<https://amreshs-app-zldm.glide.page>

Working of Machine Learning Algorithm

Algorithm Works on the factors:

- Algorithm works on the dataset of Restaurant's Billing and orders by the people.
- This dataset consist of 13000 Costumers and 70000 orders placed. Of some Indian Restaurant in USA.
- The popular Combinations people have chosen over time, the relation of one product with other.
- Individual Popularity of item.
- It would Generate the results and could create combinations.

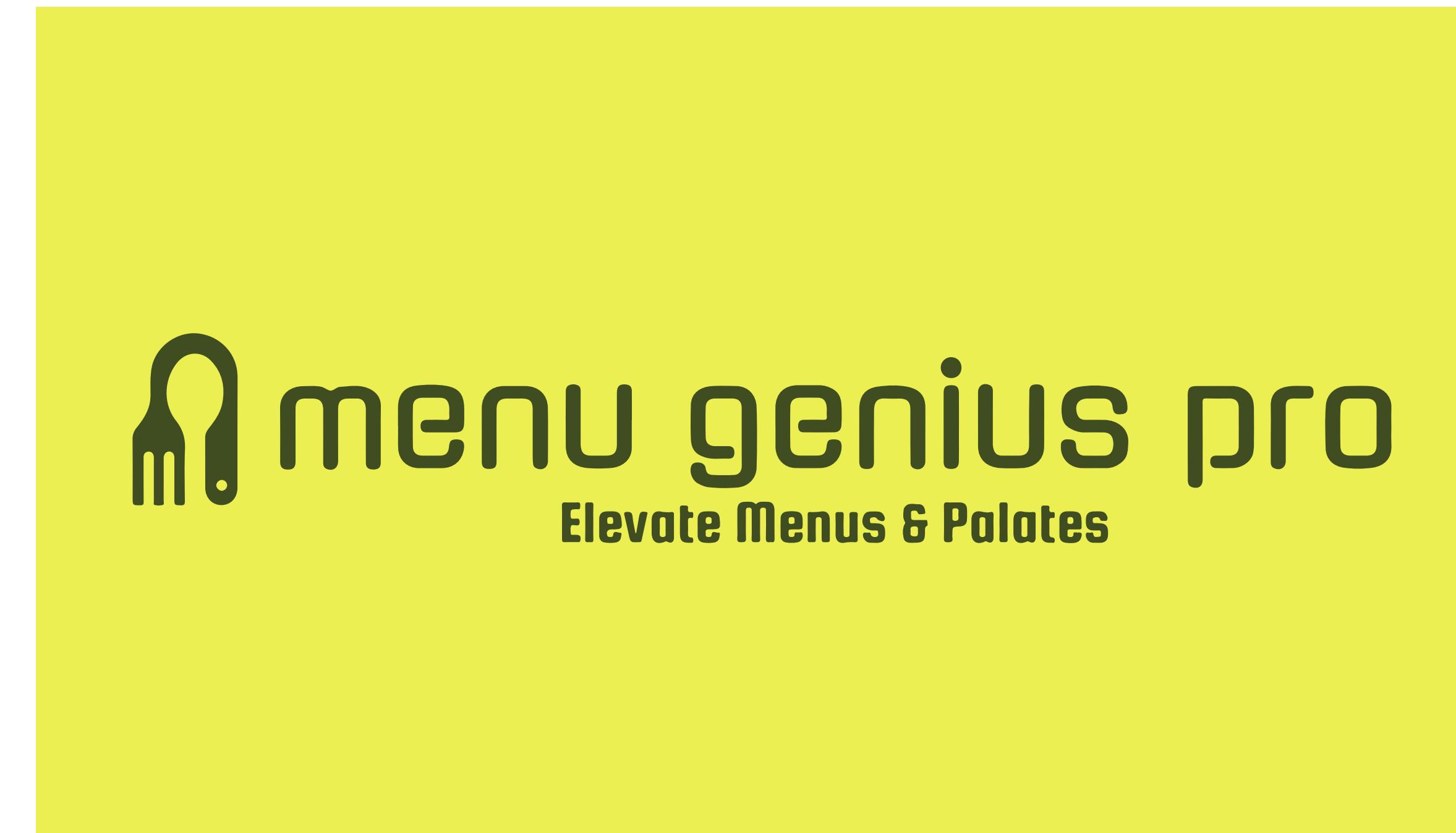
Machine Learning Model Working

Demonstration

Menu Genius Pro - Jupyter Notebook

Future Scope

- Deployment of ML model with the Application.
- Improve algorithm to generate more intelligent combos.
- Integration of connection with Restaurant owner backend to intelligently detect the life of raw materials and intelligently Generate Recommendations.



<https://www.figma.com/file/cTon2iXk3JaS59GP9OnUim/E-Menu-App?type=design&node-id=47-7074&mode=design&t=7AB3KoHOrqhgt2Pr-0>