RESTAURANT ORDER ANALYSIS

By Ayantika Chowdhury

Table of contents

INTRODUCTION

Introduction

This project analyzes a restaurant order datset. It includes two tables:

1.order details table (order_details_id, order_id, order_date, order_time, item_id)
2. Menu items table(menu_item_id, item_name, category, price)

The orders table contains three months of order data (from January 1, 2023, to March 31, 2023) from an International cuisine restaurant, while the menu table contains details of menu items.

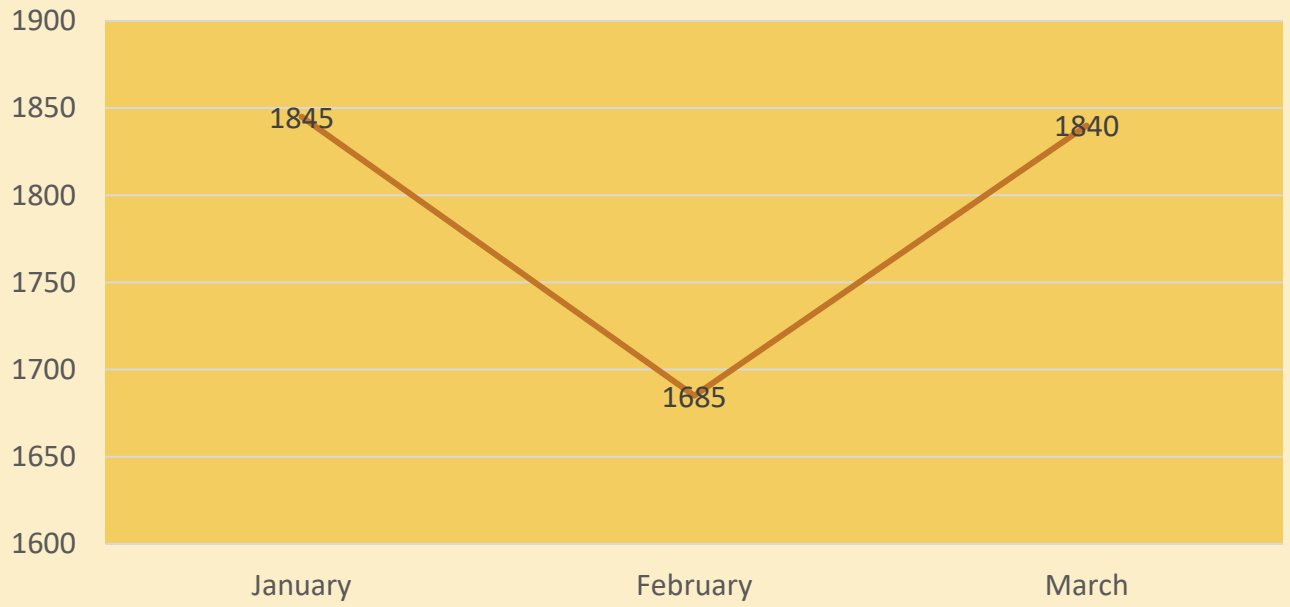
OBJECTIVES

Objectives

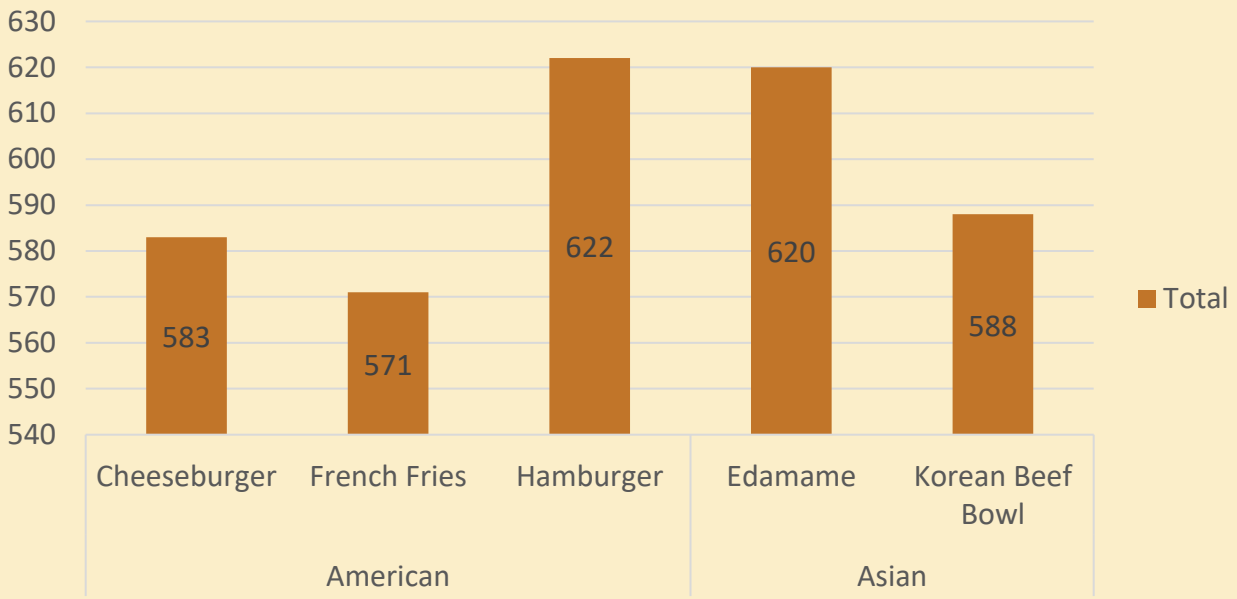
1. Analyze order data to identify the top 5 most and bottom 5 least popular menu items and their types of cuisine.
2. Find peak order hours and items ordered during peak hours
3. Revenue generated from top 5 highest orders
4. Total orders as per day of week
5. Category wise menu items,total orders and revenue
6. Find bestestselling items
7. Top 3 items in each cuisines based on the number of orders
8. Top 5 highest value order IDs with item names and amount spent

DATA ANALYSIS

Monthly order trend

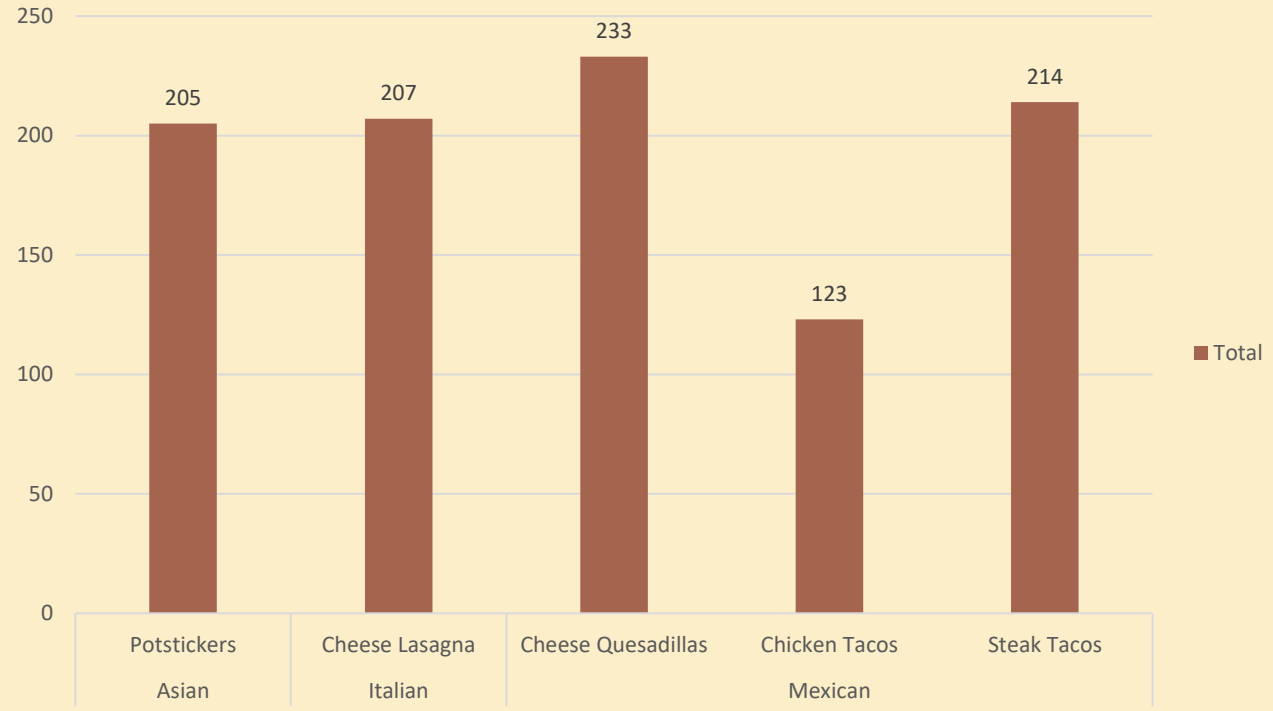


Top 5 most ordered items



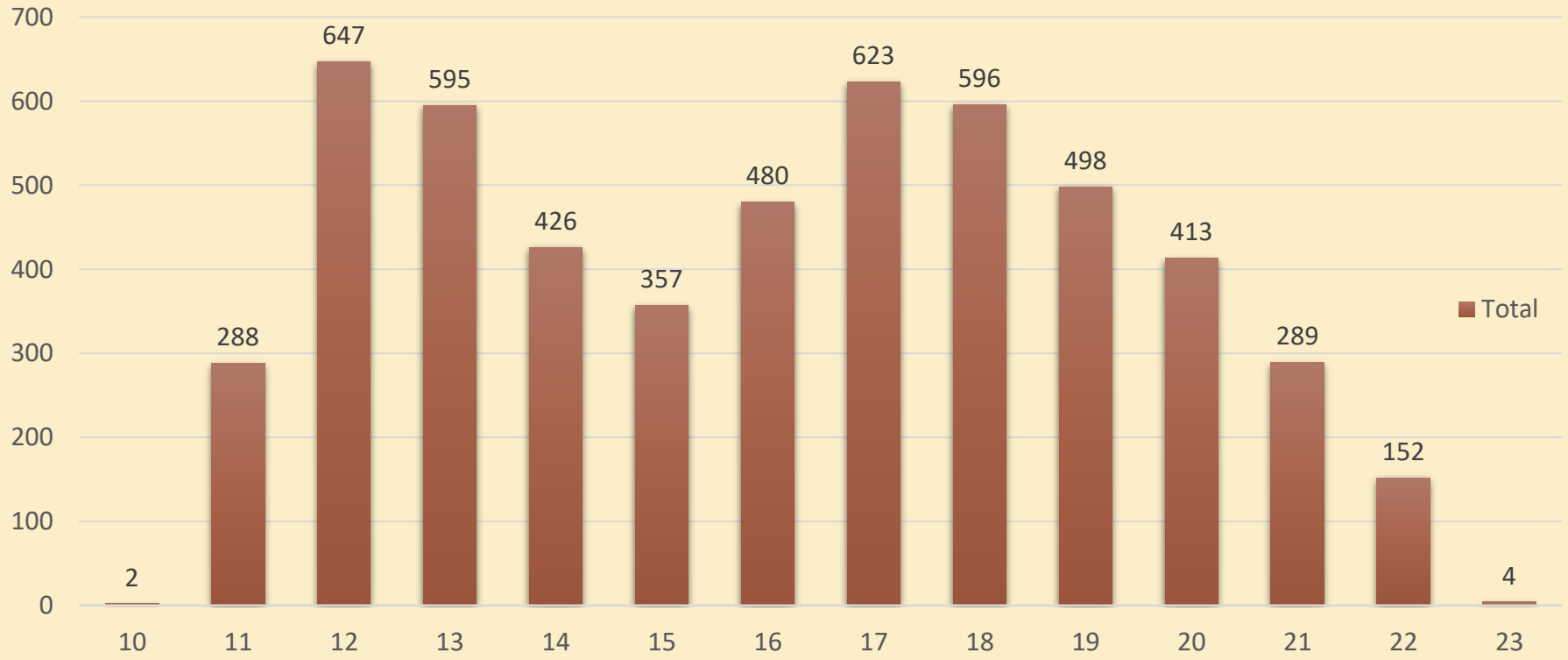

```
select item_name,category,
count(item_id) as
numberOFordersfrom
order_details o inner join
menu_items m on
o.item_id=m.menu_item_idgrou
p by item_name,categoryorder
by 3 desclimit 5;
```

Bottom 5 least ordered items




```
select item_id,item_name,category, count(item_id) from order_details o inner join menu_items m on o.item_id=m.menu_item_idgroup by item_id,item_name,categoryorder by 4 limit 5;
```

Orders by hour of the day



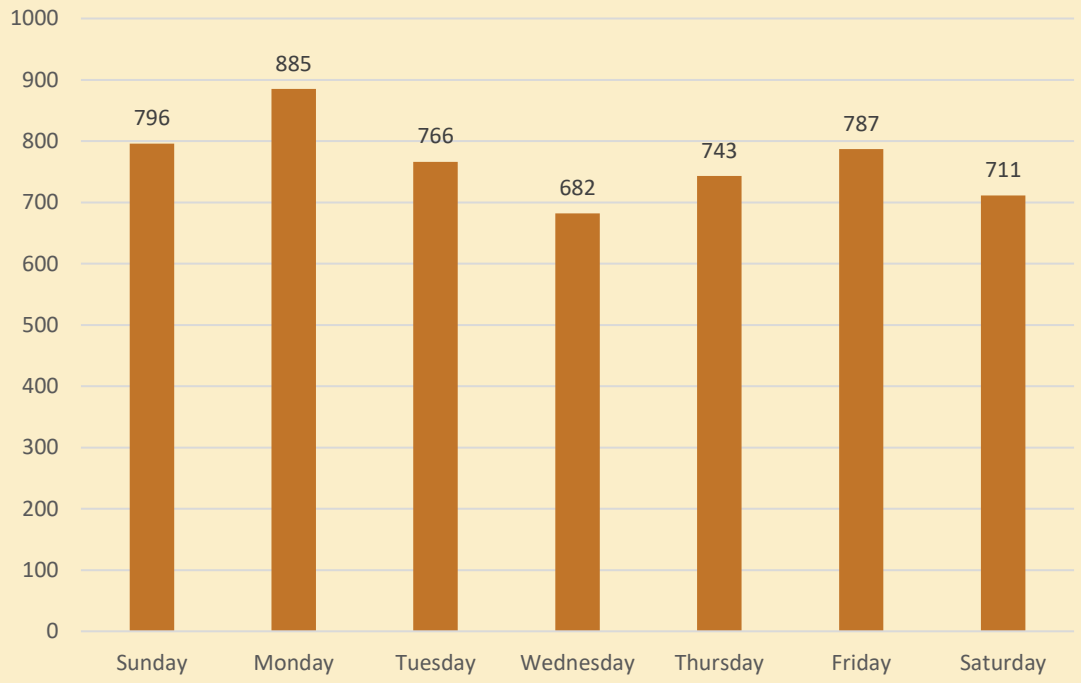

```
select timeoftheday,count(distinct order_id) as
numberofordersfrom order_details group by
timeoftheday order by 1;
```

Top 10 items ordered during peak time period

item_name	category	NumberOfOrders
Edamame	Asian	83
Cheeseburger	American	78
Hamburger	American	78
French Fries	American	71
Spaghetti & Meatballs	Italian	71
Tofu Pad Thai	Asian	69
Chips & Salsa	Mexican	68
Korean Beef Bowl	Asian	68
Chicken Burrito	Mexican	66
Spaghetti	Italian	60

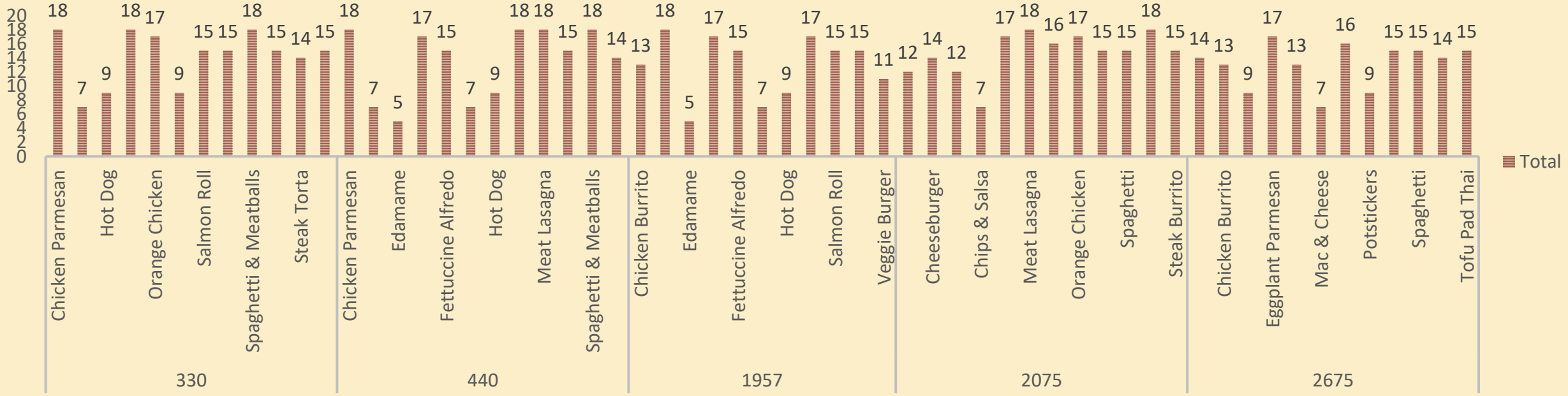
```
with peaktime as (select timeoftheday,count(distinct order_id) as numberofordersfrom order_detailsgroup by timeofthedayorder by 2 desclimit 1)select m.item_name, m.category, count(distinct order_id) NumberOfOrdersfrom order_details o inner join menu_items m on o.item_id = m.menu_item_id inner join PeakTime p on o.TimeOfTheDay = p.TimeOfTheDaygroup by m.item_name, m.categoryorder by NumberOfOrders Desclimit 10;
```

Total orders by day of week



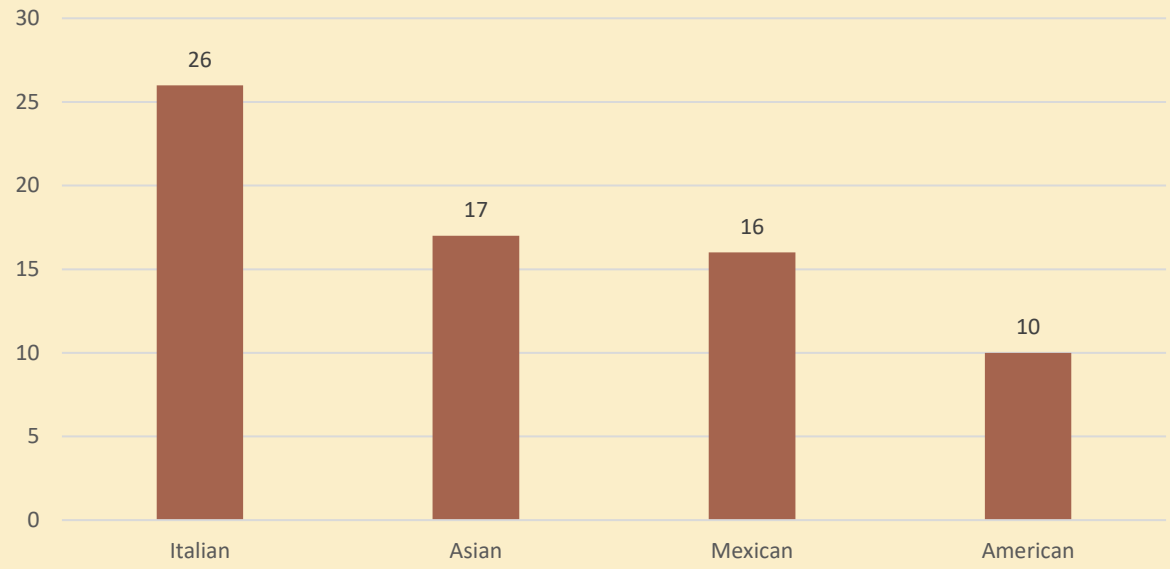

```
select day_name,
count(distinct order_id) as
numberofordersfrom
order_detailsgroup by
day_name order by 2 desc;
```

Top 5 highest value order IDs with item names and amount spent



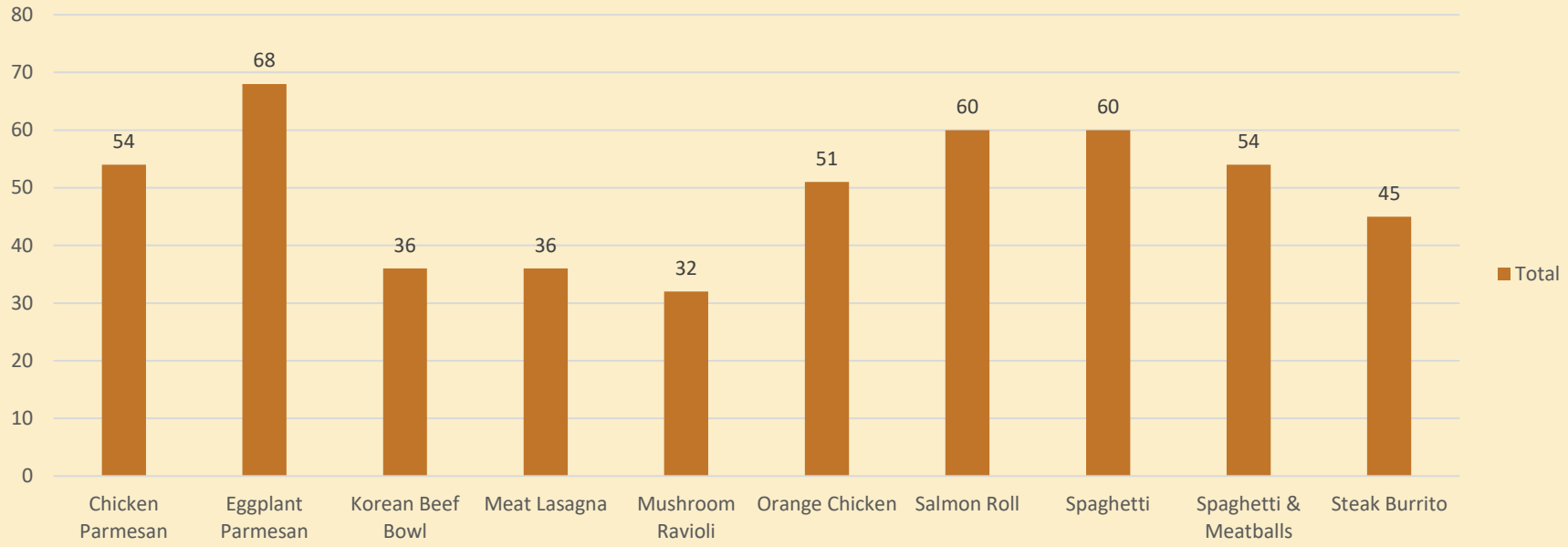

```
with highestvalue as (select order_id,sum(price) as totalorderPRICEfrom
order_details o inner join menu_items m on o.item_id = m.menu_item_idgroup
by order_idorder by 2 desc limit 5)select h.order_id , item_name, sum(price)
over (partition by h.order_id,item_name order by sum(price) desc) as
totalpricefrom order_details o inner join menu_items m on o.item_id =
m.menu_item_id inner join highestvalue h on o.order_id = h.order_idgroup by
order_id , item_name;
```

Category wise total items ordered in top 5 highest value orders



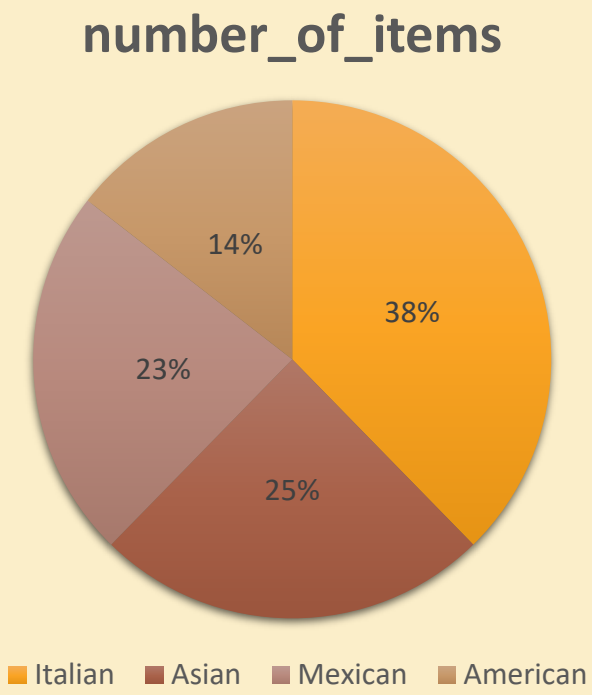

```
select category, count(item_id) as
total_items_orderedfrom order_details o
inner join menu_items m on
o.item_id=m.menu_item_idwhere order_id
in(440,2075,1957,330,2675)group by
categoryorder by 2 desc;
```

Top 10 bestselling items with total order price



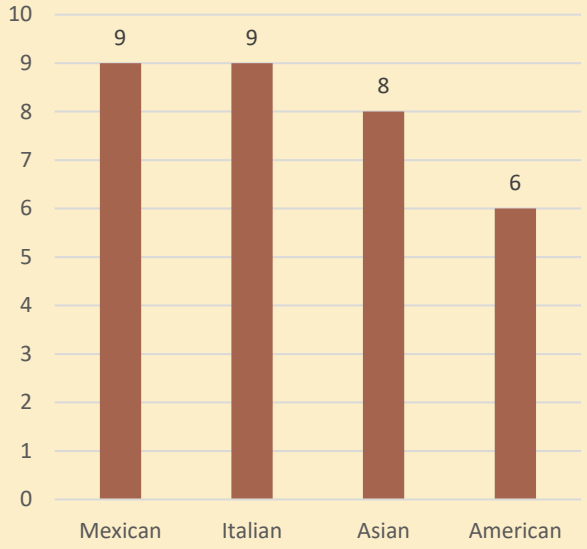

```
with top5 as (with highestvalue as (select order_id,sum(price) as totalorderPRICEfrom order_details o inner join menu_items m on o.item_id = m.menu_item_idgroup by order_idorder by 2 desc limit 5)select h.order_id , item_name, sum(price) over (partition by h.order_id,item_name order by sum(price) desc) as totalpricefrom order_details o inner join menu_items m on o.item_id = m.menu_item_id inner join highestvalue h on o.order_id = h.order_idgroup by order_id , item_name)select item_name, sum(totalprice) total_pricefrom top5group by item_nameorder by 2 desc limit 10;
```

Category wise total items in top 5 orders



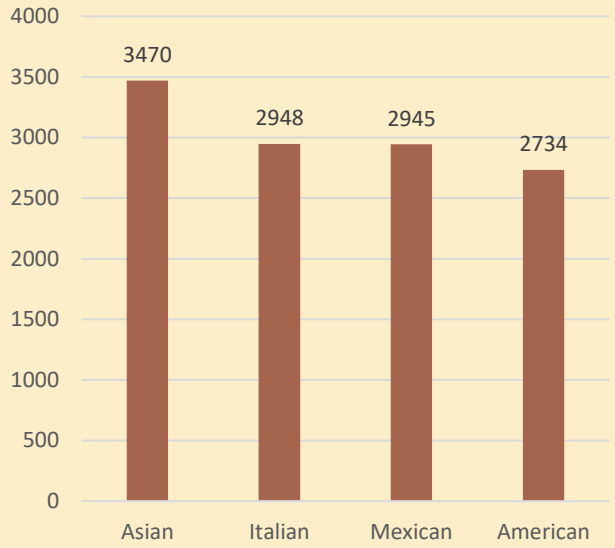

```
with highestvalue as (select order_id,sum(price) as totalorderPRICEfrom order_details o inner join menu_items m on o.item_id = m.menu_item_idgroup by order_idorder by 2 desc limit 5)select category, count(item_id) as number_of_itemsfrom order_details o inner join menu_items m on o.item_id = m.menu_item_id inner join highestvalue h on o.order_id = h.order_idgroup by categoryorder by 2 desc;
```

Category wise menu items



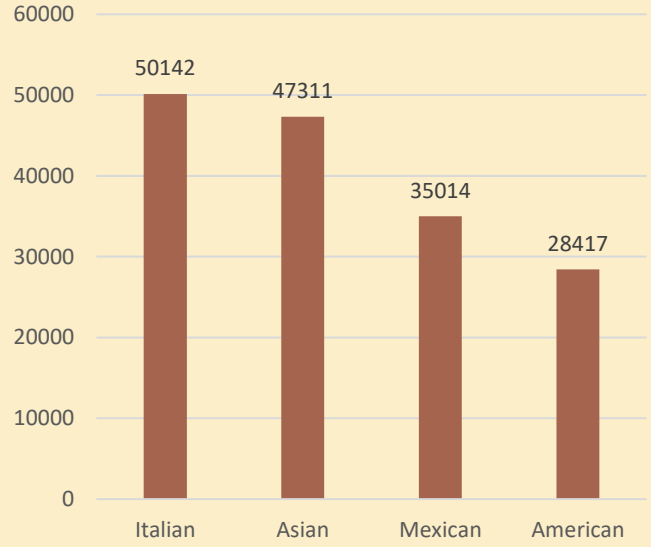

```
select category , count( menu_item_id) as total_menu_items from menu_items group by categoryorder by 2 desc;
```

Category wise orders




```
select category , count( order_id) total_number_of_ordersfro m order_details o inner join menu_items m on o.item_id = m.menu_item_idgroup by categoryorder by 2 desc;
```

Category wise revenue




```
select category , sum( price) as total_revenue from order_details o inner join menu_items m on o.item_id = m.menu_item_idgroup by categoryorder by 2 desc;
```

List of items that are expensive but underperforming

item_name	price	total_orders
Cheese Lasagna	16	207
Steak Tacos	14	214
Shrimp Scampi	20	239
Fettuccine Alfredo	15	249
Meat Lasagna	18	273
Salmon Roll	15	324
Steak Burrito	15	354
Mushroom Ravioli	16	359
Pork Ramen	18	360
Chicken Parmesan	18	364
Spaghetti	15	367

Top 3 items in each cuisines/ category based on the number of orders

category	item_name	number of orders	rank
American	Hamburger	622	1
American	Cheeseburger	583	2
American	French Fries	571	3
Asian	Edamame	620	1
Asian	Korean Beef Bowl	588	2
Asian	Tofu Pad Thai	562	3
Italian	Spaghetti & Meatballs	470	1
Italian	Eggplant Parmesan	420	2
Italian	Spaghetti	367	3
Mexican	Steak Torta	489	1
Mexican	Chips & Salsa	461	2
Mexican	Chicken Burrito	455	3

```
with cte as (select category, item_name, count(order_id) as numberOForders, rank () over (partition by category order by count(order_id) desc) as rnkfrom order_details o inner join menu_items m on o.item_id=m.menu_item_idgroup by category,item_name )select * from cte where rnk<=3;
```

INSIGHTS AND RECOMMENDATIONS

Insights from data

The Data shows that even if Mexican food items are offered more in menu but they are underperforming, but Asian food items are performing well(more orders and revenue) despite of being offered less in menu.

Peak hours are12pm- 1 pm and in evening 5pm- 6 pm. Lesser number of orders during 2 pm-4 pm.

Lowest number of orders are on Wednesday.

Top 5 highest value orders help to understand customer preferences and indicates they are crucial for business and indicates bestselling items.

Recommendations

Menu Re-engineering

Placing underperforming Mexican items in high visibility areas of the menu (e.g. in a box or at the top) and add high quality photos of those items. Update the item with new name and use unique ingredients.

Improve Efficiency

Improving workflow, training staff, managing inventory ,optimizing resource utilization and optimizing online ordering can boost revenue. To boost sales of expensive but underperforming items price can be revised, customer feedback can be taken.

Enhance marketing

Introduce afternoon-happy-hour and social media ads, promotions, send sms to increase sells during off peak hours 2pm-4pm and introduce special Wednesday offers to boost orders.

Feature underperforming items in combos and creating limited time offers

THANK YOU