

1. Which menu dishes have the highest profit margins?

DishName	Category	Profit_Percentage	Ranking
Parmegian Asparagus	Antipasti	90.08	1
Eggplant Milanese	Antipasti	89.33	2
Sardinian Mushrooms	Antipasti	86.33	3
Lemon Granita	Dessert	97.94	1
Cartelatte	Dessert	83.56	2
Bonet	Dessert	82.96	3
Bucatini alla Amatriciana	Primi Piatti	82.56	1
Spaghetti Carbonara	Primi Piatti	82.35	2
Pancotto	Primi Piatti	82.17	3
Calabrese Kid Goat	Secondi Piatti	78.27	1
Stuffed Squid	Secondi Piatti	67.69	2
Venetian Liver	Secondi Piatti	64.83	3

It appears that Antipasti dishes have a good profit margin, suggesting they should be prioritized for increased sales.

In contrast, Secondi Piatti dishes have lower profit margins compared to other categories. However, further analysis of revenue will provide a clearer understanding of how these dishes contribute to overall earnings.

2. Which ingredients are used in the most dishes?

IngredientName	UsageCount
Olive Oil	14
Parsley	11
Butter	10
Egg	9
Garlic	9
Onion	9
Sugar	7
Parmesan Cheese	6
Pecorino Cheese	6
Tomato Sauce	6
White Wine	6
Breadcrumbs	5
Tomato	5

Olive oil is used in 14 out of 26 dishes on the menu (excluding desserts for obvious reasons).

Parsley follows closely behind, being used in 11 dishes. Ingredients such as butter, eggs, and sugar also play significant roles, particularly in dessert preparations.

Additionally, staples like onion and garlic are essential for flavoring various dishes.

The presence of Italian cheeses like Parmesan and Pecorino in storage underscores the commitment to maintaining the high culinary standards of the Italian restaurant.

Understanding ingredient usage can inform purchasing decisions and menu planning.

Let's examine the usage of ingredients in the dishes on our menu:

IngredientName	TotalUsage	Unit
Beef Tenderloin	2900	grams
Onion	2880	grams
Veal Steaks	2400	grams
Beef Broth	2212.5	ml
Artichokes	2087.5	grams
Tomato Sauce	2040	grams
Tomato	1806.25	grams
Olive Oil	1736.25	ml
Parsley	1228.75	grams
Lemon	1162.5	grams
White Wine	1126.25	ml
Sugar	1100	grams
Swordfish Fillets	1000	grams
Butter	992.5	grams
Kid Goat	960	grams
Veal Liver	933.33	grams
Squid	866.67	grams
Flour	855	grams
Bacon	848.75	grams
Ground Beef	814.29	grams

This table highlights the significance of maintaining a good stock of onions, olive oil, tomato sauce, sugar, white wine, butter, and tomatoes.

3. Which dishes are most frequently ordered?

DishName	Total
Artichokes Meatballs	47
Carpaccio	36
Bucatini alla Amatriciana	29
Parmegian Asparagus	29
Carciofi alla Fiorentina	27
Ligurian Minestrone	27
Spaghetti Carbonara	27
Venetian Liver	27
Eggplant Milanese	27
Lucanian Almonds	24
Pancotto	24
Swordfish Rolls	20
Sardinian Mushrooms	20
Sicilian Meat Roll	16

This data allows us to identify the dishes that should always be present on the menu and ensures that the necessary ingredients are stocked in the restaurant's inventory.

Later, this information will be used to determine which dishes generate good revenue and must remain on the menu, as well as those with lower revenue that still attract clients and can continue to be offered.

4. Which menu items have the highest and lowest sales revenue?

A) Highest revenue

DishName	Category	Profit
Carpaccio	Antipasti	8.18
Eggplant Milanese	Antipasti	8.04
Sardinian Mushrooms	Antipasti	7.77
Bonet	Dessert	7.47
Cartelatte	Dessert	6.68
Sicilian Cassatta	Dessert	6.58
Fettuccine alla Papalina	Primi Piatti	10.63
Capelletti alla Romagnola	Primi Piatti	10.57
Bucatini alla Amatriciana	Primi Piatti	9.91
Calabrese Kid Goat	Secondi Piatti	18.00
Stuffed Squid	Secondi Piatti	14.21
Swordfish Rolls	Secondi Piatti	12.77

Ingredient Efficiency: Dishes like Carpaccio, with minimal ingredients, achieve high revenue, emphasizing the importance of quality ingredients and simplicity.

Menu Optimization: Promoting top-selling dishes like Bucatini all'Amatriciana can enhance revenue and reputation.

Increasing Variety: Increasing presence of popular dishes like Sardinian Mushrooms and Cappelletti alla Romagnola can satisfy customer demand for diverse options.

Boosting Orders: Despite low popularity compared to the whole menu, high-profit desserts like Bonet can boost revenue. Enhancing descriptions or running promotions can increase desserts sales, maximizing profitability and customer appeal.

High-Profit Promotion: Despite lower order frequency, Calabrese Kid Goat boasts high profit margins, suggesting potential for increased promotion to capitalize on its profitability and unique flavors.

B) Lowest Revenue

DishName	Category	Profit
Macaroni Salad	Antipasti	4.30
Udine Salad	Antipasti	4.91
Nepitelle	Dessert	3.98
Lucanian Almonds	Dessert	5.49
Cauliflower Macaroni	Primi Piatti	7.49
Ligurian Minestrone	Primi Piatti	7.84
Artichokes Meatballs	Secondi Piatti	3.62
Saltimbocca alla Romana	Secondi Piatti	5.56

Cost Adjustment Needed: Artichokes Meatballs, despite being the top item in the menu, yields the lowest profit in the Secondi Piatti category. Adjusting costs, raising prices, or encouraging additional purchases of high-profit items alongside it may be necessary.

Consider Removal: Saltimbocca alla Romana, with low demand, could be considered for removal from the menu.

Controlled Offering: While Ligurian Minestrone is frequently ordered, implementing control measures may be necessary to ensure profitability.

Low Consumption: Nepitelle has minimal consumption and may be considered for removal from the menu to streamline offerings.

5. Which Category of dish is most popular among customers?

Category	TotalOrders
Antipasti	196
Primi Piatti	176
Secondi Piatti	143
Dessert	108

This helps to orientate the prices and offers in the menu. Trying to pull Secondi Piatti (as they tend to be the ones with higher revenue) and the Desserts considering the cost of production is lower than other dishes.

6. Which menu items have the highest and lowest quantity sold?

A) Top 5 Highest

DishName	TotalQuantitySold
Artichokes Meatballs	58
Carciofi alla Fiorentina	51
Sardinian Mushrooms	45
Parmegian Asparagus	43
Bucatini alla Amatriciana	41

Focus on promoting and selling these products, particularly Bucatini alla Amatriciana, Sardinian Mushrooms, and Parmegian Asparagus.

B) Top 5 Lowest

DishName	TotalQuantitySold
Osso Buco alla Milanese	0
Roast Beef Piemontese	0
Cauliflower Macaroni	12
Capelletti alla Romagnola	12
Calabrese Kid Goat	12

Dishes like Osso Buco alla Milanese have zero sales and high production costs, making them impractical to keep on the menu.

Cauliflower Macaroni can also be considered for removal from the menu.

7. Which ingredients are very much used and are also the least expensive per unit?

IngredientName	TotalQuantity	Cost	QuantityRank	CostPerUnitRank	CombinedRank
Tomato	650	2.07	3	3	6
Beef Broth	800	2.44	2	6	8
Lemon	351	1.42	14	2	16
Onion	920	3.10	1	15	16
Sugar	325	2.44	15	6	21
Olive Oil	520	3.22	6	16	22
Flour	270	2.20	20	5	25
Breadcrumbs	260	2.44	21	6	27
Zucchini	200	2.44	25	6	31
Green Peas	200	3.66	25	18	43

Tomato and Beef Broth: These ingredients are both widely used and inexpensive per unit, making them profitable choices for inclusion in various dishes.

Lemon, Onion, Sugar, and Flour: These ingredients are well spread and commonly used across many dishes, emphasizing their importance in storage and menu planning.

Olive Oil: Despite being the most used ingredient across salty dishes, olive oil maintains a low cost per unit, further enhancing its profitability and versatility in menu offerings.

8. Which menu items have the highest and lowest cost of ingredients?

A) Highest Cost

DishName	Category	TotalCostPerDish	RankPerCategory
Macaroni Salad	Antipasti	3.70	1
Udine Salad	Antipasti	2.09	2
Carpaccio	Antipasti	1.82	3
Nepitelle	Dessert	3.02	1
Sicilian Cassatta	Dessert	2.42	2
Tiramisu	Dessert	1.84	3
Cauliflower Macaroni	Primi Piatti	3.51	1
Mussels Soup	Primi Piatti	3.28	2
Ligurian Minestrone	Primi Piatti	3.16	3
Saltimbocca alla Romana	Secondi Piatti	15.44	1
Artichokes Meatballs	Secondi Piatti	14.38	2
Osso Buco alla Milanese	Secondi Piatti	12.57	3

Antipasti: Carpaccio ranks highest in ingredient cost within the Antipasti category. Despite its higher cost, it's crucial to note that Carpaccio also generates the highest revenue and is one of the most consumed dishes on the menu.

Dessert: Nepitelle stands out with the highest ingredient cost among desserts. Considering its high cost, low revenue, and low demand, it's advisable to remove this item from the menu.

Primi Piatti: Cauliflower Macaroni, with its high ingredient cost, is not performing well in terms of revenue and demand. Removing it from the menu could be a strategic move.

Secondi Piatti: Saltimbocca alla Romana and Osso Buco alla Milanese have the highest ingredient costs among main courses. Based on our analysis, it's recommended to remove these items from the menu.

While Artichokes Meatballs have a relatively high ingredient cost among main courses, it is one of the most ordered dishes. Exploring cost adjustment strategies or potential price increases for Artichokes Meatballs could improve revenue generation while maintaining customer satisfaction.

B) Lowest Cost

DishName	Category	TotalCostPerDish	RankPerCategory
Parmegian Asparagus	Antipasti	0.79	1
Eggplant Milanese	Antipasti	0.96	2
Sardinian Mushrooms	Antipasti	1.23	3
Lemon Granita	Dessert	0.12	1
Cartelatte	Dessert	1.32	2
Lucanian Almonds	Dessert	1.51	3
Pancotto	Primi Piatti	1.78	1
Spaghetti Carbonara	Primi Piatti	2.12	2
Fettuccine alla Papalina	Primi Piatti	2.37	3
Calabrese Kid Goat	Secondi Piatti	5.00	1
Venetian Liver	Secondi Piatti	6.33	2
Stuffed Squid	Secondi Piatti	6.79	3

Antipasti: Parmegian Asparagus ranks lowest in ingredient cost within the Antipasti category. Despite its low cost, it's important to consider its popularity and potential revenue contribution.

Dessert: Lemon Granita has the lowest ingredient cost among desserts. This low-cost dessert option could be leveraged to attract customers and increase overall dessert sales.

Primi Piatti: Pancotto ranks lowest in ingredient cost within the Primi Piatti category. While it has a low ingredient cost, its popularity and revenue generation should be evaluated to determine its value on the menu.

Secondi Piatti: Calabrese Kid Goat has the lowest ingredient cost among main courses. Despite its low cost, it's essential to assess its revenue and popularity to determine its significance on the menu and potential for promotion.

Final conclusions

Profitable Menu Items:

High-profit dishes like Carpaccio, Eggplant Milanese, and Bucatini alla Amatriciana should be prominently featured and promoted to capitalize on their revenue potential. Additionally, popular items such as Artichokes Meatballs should undergo cost adjustments or price increases to maintain profitability.

Ingredient Utilization:

The widespread use of olive oil, onion, tomato, and sugar underscores their importance in menu planning and inventory management. Leveraging these staple ingredients effectively can streamline operations and enhance cost efficiency, emphasizing their significance in menu planning and stock.

Popular Categories:

Antipasti emerges as the most popular category, suggesting opportunities for menu expansion and innovation within this segment. However, careful attention should be paid to balancing profitability with customer preferences to drive sustained revenue growth.

Dessert Optimization:

Despite their lower popularity, high-profit desserts like Bonet present untapped potential for revenue growth. Strategic promotions and menu descriptions can drive customer interest and increase dessert sales, thereby maximizing profitability.

Cost Efficiency:

Dishes like Parmegian Asparagus and Lemon Granita demonstrate a favorable balance of low ingredient cost and high revenue potential. Incorporating more of these cost-effective options into the menu can optimize profitability without compromising quality or customer satisfaction.

Streamlining Operations:

Removal of underperforming items like Cauliflower Macaroni and Nepitelle can streamline operations and reduce costs without significant revenue impact. Similarly, dishes with high ingredient costs and low demand, such as Saltimbocca alla Romana, should be considered for removal to optimize menu offerings.