what this

**'plt.figure(figsize=(10, 5)) data.boxplot(column='Average Cost for two', by='Has Online delivery')**

**plt.title('Cost vs Online Delivery')**

**plt.suptitle('')**

**plt.xlabel('Online Delivery')**

**plt.ylabel('Cost')**

**plt.show() '**

explains and insights

The provided code snippet generates a box plot to compare the average cost for two people between restaurants that offer online delivery and those that do not. Here’s a detailed explanation of what the code does and the insights that can be derived from the resulting plot:

**Code Explanation**

python

Copy code

plt.figure(figsize=(10, 5))

data.boxplot(column='Average Cost for two', by='Has Online delivery')

plt.title('Cost vs Online Delivery')

plt.suptitle('')

plt.xlabel('Online Delivery')

plt.ylabel('Cost')

plt.show()

1. **Figure Size**:

python

Copy code

plt.figure(figsize=(10, 5))

* + This line sets the size of the figure to be 10 inches wide and 5 inches tall.

1. **Box Plot**:

python

Copy code

data.boxplot(column='Average Cost for two', by='Has Online delivery')

* + This line creates a box plot with the Average Cost for two as the variable of interest, grouped by the Has Online delivery column.
  + The Has Online delivery column should contain binary data (e.g., Yes/No or 1/0) indicating whether the restaurant offers online delivery or not.

1. **Title and Labels**:

python

Copy code

plt.title('Cost vs Online Delivery')

plt.suptitle('')

plt.xlabel('Online Delivery')

plt.ylabel('Cost')

* + These lines set the title of the plot and the labels for the x and y axes. plt.suptitle('') is used to remove the default subtitle added by boxplot.

1. **Show Plot**:

python

Copy code

plt.show()

* + This line displays the plot.

**Insights from the Box Plot**

1. **Median Cost**:
   * The horizontal line inside each box represents the median cost for two people. By comparing the medians, you can see if there is a difference in the typical cost between restaurants that offer online delivery and those that do not.
2. **Interquartile Range (IQR)**:
   * The box itself represents the interquartile range (IQR), which is the range within which the middle 50% of the data falls.
   * A larger IQR indicates greater variability in the cost for two people.
3. **Whiskers and Outliers**:
   * The "whiskers" extend from the box to the smallest and largest values within 1.5 times the IQR from the lower and upper quartiles, respectively.
   * Points outside the whiskers are considered outliers and are plotted individually.
4. **Comparison Between Groups**:
   * By examining the position and size of the boxes, whiskers, and outliers, you can compare the distribution of costs between restaurants with and without online delivery.

**Example Interpretation**

* **Median Cost**:
  + If the median line for restaurants with online delivery is higher than for those without, it indicates that restaurants offering online delivery tend to have a higher average cost for two people.
  + Conversely, if the median line is lower, it suggests that these restaurants tend to be less expensive.
* **Variability**:
  + If the IQR for restaurants with online delivery is wider, it indicates greater variability in the cost for two people at these restaurants.
  + A narrower IQR suggests more consistent pricing.
* **Outliers**:
  + The presence of outliers can indicate that there are some exceptionally expensive or cheap restaurants in each category.
  + Identifying these outliers can be important for understanding the range of options available to customers.

**Strategic Implications**

1. **Pricing Strategy**:
   * Understanding how costs differ between restaurants that offer online delivery and those that do not can help in setting competitive prices.
   * For example, if online delivery restaurants are generally more expensive, it might be justified by additional convenience and service quality.
2. **Market Positioning**:
   * If online delivery is associated with higher costs, marketing efforts can emphasize the added value and convenience provided.
   * If online delivery restaurants are not significantly more expensive, it can be used as a selling point to attract cost-conscious customers looking for convenience.
3. **Operational Decisions**:
   * If there's significant cost variability, it might indicate differences in how online delivery is managed. This can lead to exploring standardizing delivery processes to control costs better.

**Conclusion**

By presenting the box plot and explaining these insights, you can help stakeholders understand how the average cost for two people varies with the availability of online delivery. This information can guide strategic decisions regarding pricing, marketing, and operations to better align with customer expectations and market trends.