Python Project 1

This data project has been used as a take-home assignment in the recruitment process for the data science positions at Uber.

Project Tasks:

Using the provided dataset, answer the following questions:

1. Which date had the most completed trips during the two week period?
2. What was the highest number of completed trips within a 24 hour period?
3. Which hour of the day had the most requests during the two week period?
4. What percentages of all zeroes during the two week period occurred on weekend (Friday at 5 pm to Sunday at 3 am)? Tip: The local time value is the start of the hour (e.g. `15` is the hour from 3:00pm - 4:00pm)
5. What is the weighted average ratio of completed trips per driver during the two week period? Tip: "Weighted average" means your answer should account for the total trip volume in each hour to determine the most accurate number in whole period.
6. In drafting a driver schedule in terms of 8 hours shifts, when are the busiest 8 consecutive hours over the two week period in terms of unique requests? A new shift starts in every 8 hours. Assume that a driver will work same shift each day.
7. True or False: Driver supply always increases when demand increases during the two week period. Tip: Visualize the data to confirm your answer if needed.
8. In which 72 hour period is the ratio of Zeroes to Eyeballs the highest? 9. If you could add 5 drivers to any single hour of every day during the two week period, which hour should you add them to? Hint: Consider both rider eyeballs and driver supply when choosing
10. True or False: There is exactly two weeks of data in this analysis 11. Looking at the data from all two weeks, which time might make the most sense to consider a true "end day" instead of midnight? (i.e when are supply and demand at both their natural minimums) Tip: Visualize the data to confirm your answer if needed.

Data Description:

To answer the question, use the dataset from the file `dataset_1.csv`. For example, consider the row 11 from this dataset:

Date	Time (Local)	Eyeballs	Zeroes	Completed Trips	Requests	Unique Drivers
2012-09-10	16	11	2	3	4	6

This means that during the hour beginning at 4pm (hour 16), on September 10th, 2012, 11 people opened the Uber app (Eyeballs). 2 of them did not see any car (Zeroes) and 4 of them requested a car (Requests). Of the 4 requests, only 3 complete trips actually resulted (Completed Trips). During this time, there were a total of 6 drivers who logged in (Unique Drivers).

Please work on the questions in the displayed order. Make sure that the solution reflects your entire thought process - it is more important how the code is structured rather than the final answers.

Deliverables:

- **Jupyter Notebook** with:
  - Data cleaning and preprocessing steps.
  - Exploratory data analysis.
  - Solutions to business questions.
  - Visualizations.