Predicting number of failures

Problem

Suppose you are asked to predict the number of failures that will occur at certain time of a day. These predictions will be useful for various business optimization decisions to reduce failures and the costs. For this problem you are given with timestamps of each failure.

Following are the tasks:

1. The attached failuretimes.json contains all the timestamps of failures. Aggregate them based on 15 minute time intervals. Visualize and describe the resulting time-series data that will help understand the underlying patterns of the number of failures. Discuss your insights from the visualizations.
2. Based on your insights from (1), implement a forecasting method at the same 15-minute granularity over the next hour (4 periods ahead). Apply your method to the given dataset. Discuss your method in detail and its accuracy.

Instructions

1. Create a written document that has your discussions for the above tasks.
2. Attach your code. Please include sufficient comments in the code.
3. If there is any question, email at vnajari@processminer.com
4. R or Python is preferred for the codes.

Your submission will be evaluated based upon:

1. Business understanding
2. Data understanding
3. Data preparation
4. Modeling
5. Evaluation
6. Code quality and reusability
7. Presentation

Submission

- Submit all materials within a week in a zipped file.

Google Drive Link: https://drive.google.com/open?id=0BzrlKrqHScyEUXVNSmVxdVRjbFU