We are addressing the critical issue of classifying company’s performance based on the changing utilization percentages of specific time frame (Ramadan to Dhu al-Hijja, in weeks).

we have the following business use case that I want you to paraphrase to be written for a proposal idea of using A.i to classify the performance of a company:

a company "X" reserves hotel rooms for specific nights.

These are the data variables stored by the system:

1. "reserved room nights": number of confirmed/non-confirmed room nights.

2. "total room nigths": all the room nights.

Now, for our system, we had received each day from company "X" the variables mentioned above and our context of the stored data is the following:

The variables received in each day is related to the reservation details done in the span of Ramadan to Dhu al-Hijja, and is given in weeks (i.e., we have 16 weeks). So, our objective is to predict the reservation details of this span in a future year given the history data representing the current reservation details of that same span. To do this prediction, our pipeline should have the following steps:

1. preprocess this historic time series data into a ratio of […] over […] per day (of the days in the 16 week time span)
2. Separate the data by years
3. For each year, separate the data by the 16 weeks that we want to get the utilization percentage change for
4. use statistical measures to summarize the utilization percentage change on each of these data subsets
5. these summarized measures are used as features for a machine learning classification model, such that, for each tuple of summarized measures, the label is a category specifying the performance of the data subset of one of the 16 weeks (so that means we will have 16 different models)
6. So, in the production phase, we will receive data of a specific company, and we’ll first summarize it using the same statistical measures, then feed that as input to the 16 models, to get predictions for the 16 weeks