ISM 370

Module 6 Project

Project Name	Forecasting and Prediction – Tip Amounts
Project Due Date	Sunday by 11:59pm

Requirements

In this project, you will use Python to perform forecasting and prediction with regression analysis on a dataset that includes data about tip amounts and dining information. This project will give you hands-on experience with forecasting and regression. You will need to write down your insights and conclusions in text cells in your code file.

Project Steps:

1. Read in the tips.csv file into your Python project. The column names are generally descriptive of what is included in the column. However, here are a few details that may be helpful:
   - tip represents the dollar amount of the tip given to the server.
   - sex represents the sex of the server.
   - size represents the size of the dining party.
2. Use descriptive statistics and plots to explore and better understand the variables and their distributions. In a text cell inserted into your code file, write down your insights and observations about the data.
3. Create a forecasting (regression) model that only includes the significant predictors of tip amount. In a text cell below your output, explain the statistics you used to determine which variables are significantly related to tip amount. For those that are significant, write whether the relationship is positive or negative and explain what that means for that variable.
4. Using your model, forecast or predict the tip amount when given the following conditions. If the variable is not significantly related to tip amount, do not include it in your model or as part of your regression equation. Print your forecast using a label or identifier followed by the expected tip amount:
   - total_bill = 30.99
   - sex = Female
   - Smoker = Yes
   - day = Sat
   - time = Dinner
   - size = 4
5. In one final text cell, summarize what you learned about forecasting and explaining tip amounts.

Grading

Completing both the analysis and the writing requirements completely (in text cells for this project) and well are necessary to earn high marks on this project. Deficiency in either will result in lower marks. You are welcome to add additional functionality and to utilize your creativity in making the program even better.

Deliverable

Submit your Word document and your Python file to Canvas.