CS575
Spring 2021
MSE

Indian Institute of Technology Patna

Department of Computer Science and Engg

CS575: Applied Time Series Analysis

4th May 2021,

Total marks: 100

Instructions

Attempt all the questions. Marks are given in [ ].

Submit by date: 5th May 2021 / 12pm. Answers must be unique, shared answers if found (All candidates will be given zero marks)

Submissions must be uploaded to the following link in a single zip file (word/pdf file (answers A1, A2))

Zip file(Analysis and Code) (use "roll_number_end_sem_cs575" as the filename); E.g. 1701CS52_ end_sem_cs575.zip

Upload on PCLOUD

https://u.pcloud.com/#page=puplink&code=0kkkZx8ooeLTT4KHPeYzJ9z4lWyC27TV7

Also upload on your GitHub repository

<Respective Git Repo>

Uploading on both pcloud and git is mandatory.

Make appropriate assumption if required. Do not send any response to the personal emails of the instructor. If you do so, your paper will not be evaluated.

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A1: Consider a time series stock values of various companies for a given duration (download using the script below). Perform an exploratory data analysis. (submit your code and analysis)

[30 points]

A2: Consider a time series stock values of various companies for a given duration (download using the script below). Your task is to find an appropriate model for the stock prediction.
Compare at least with three different models including classical and Machine Learning Models. (submit your code and analysis)

[70 points]

<See next page for dataset download codes>

```
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################################################
#download data from yahoo finance
################################################
##data source: http://finance.yahoo.com/
"""

from pandas_datareader import data as pdr
from datetime import datetime
#download data
ibm = pdr.DataReader('IBM', 'yahoo', start=datetime(2014, 8, 1), end=datetime(2016, 11, 30))
aapl = pdr.DataReader('AAPL', 'yahoo', start=datetime(2014, 8, 1), end=datetime(2016, 11, 30))
fb = pdr.DataReader('FB', 'yahoo', start=datetime(2014, 8, 1), end=datetime(2016, 11, 30))
googl = pdr.DataReader('GOOGL', 'yahoo', start=datetime(2014, 8, 1), end=datetime(2016, 11, 30))

#print first few lines of data
print(ibm.head())
print(aapl.head())
print(fb.head())
print(googl.head())

#export and save as csv files
ibm.to_csv('IBM_stock.csv', sep=',')
aapl.to_csv('Apple_stock.csv', sep=',')
fb.to_csv('Facebook_stock.csv', sep=',')
googl.to_csv('Google_stock.csv', sep=',')
```