CS5101: ML LAB Practical exam 1

Rules:
1. You must submit the code in a single python .ipynb notebook with a naming format as follows: firstName_lastName_midsem.ipynb
2. For each question, create a separate text block containing the question followed by a code block containing the solution.
3. Follow each and every instruction for each question carefully.
4. Your code must be properly commented explaining each step clearly.
5. If any of the instructions are not followed, the penalty will be there for the same.
6. Your code and answers will be checked for plagiarism and if found plagiarized then zero marks will be provided for the mid-semester exam. So make sure, you actually code and solve the questions rather than noting down the answers.
7. You can refer your own codes for below operations. You are not allowed to ask TAs to help.
8. **First 5 correct submissions will attract bonus of 1 mark.**

Problem 1

[**5 Marks**] Generate moon data and show class boundary for Naive Bayes, Logistic and SVM with RBF.

Problem 2

[**5 Marks**] **Time series forecasting using regression:**
For given time_data, use the regression method to predict the next value.
Hint: Time series forecasting occurs when you make scientific predictions based on historical time-stamped data. Perform CV to know the number of previous values to be used. You can use any regression method from scikit-learn.
Autoregression is a time series model that uses observations from previous time steps as input to a regression equation to predict the value at the next time step. It is a very simple idea that can result in accurate forecasts.

$$y_t = c + \phi_1 y_{t-1} + \phi_2 y_{t-2} + ... + \phi_p y_{t-p}$$

Think how you can use regression here.