Computer Science & Information Systems

# Machine Learning - Lab sheet - Module 4

## Exercise 4 - Naive Bayes classifier

## 1 Objective

The objective is to

- implement naive Bayes classification on a given dataset.

## 2 Steps to be performed

**Tool** Python3

**Libraries required** numpy, matplotlib, pandas, sklearn

**Input** Weather dataset

| outlook | temperature | humidity | windy | play |
|---|---|---|---|---|
| sunny | hot | high | false | no |
| sunny | hot | high | true | no |
| overcast | hot | high | false | yes |
| rainy | mild | high | false | yes |
| rainy | cool | normal | false | yes |
| rainy | cool | normal | true | no |
| overcast | cool | normal | true | yes |
| sunny | mild | high | false | no |
| sunny | cool | normal | false | yes |
| rainy | mild | normal | false | yes |
| sunny | mild | normal | true | yes |
| overcast | mild | high | true | yes |
| overcast | hot | normal | false | yes |
| rainy | mild | high | true | no |

**Machine Learning Model** Naive Bayes classifier

**Implementation** ML_Lab 12 NaiveBayes_Weather.ipynb

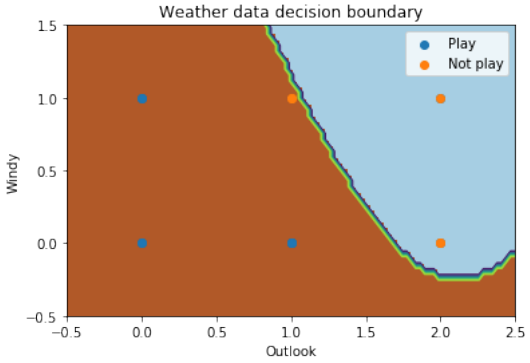
**Steps** .

- Understand the problem.
- Import required Python libraries.
- Import the dataset and convert to as dataframe.
- Preprocess the data. Extract columns as $X$ and $y$.
- Create an object of machine learning model. Specify the parameters if any.

- Train the model using dataset.
- Predict the values for dataset using the model.
- Measure the performance of the model.
- Visualize the decision boundary.

# 3 Results

- The machine learning model is fitted for the given dataset.




# 4 Observation

- The machine learning model is trained and tested using the given dataset.
- The decision boundary was drawn for the given dataset.