**Task 12**

Machine Learning (Classification Algorithm II)

Upload .py or Ipynb extension file on GitHub public repo “100DaysofBytewise" and share the link in the submission form by

23 July 2024.

1. Predicting Employee Attrition Using Logistic Regression

**Dataset**: HR Analytics Employee Attrition Dataset

**Preprocessing Steps**:

- Handle missing values if any.

- Encode categorical variables (e.g., one-hot encoding for department, gender, etc.).

- Standardize numerical features.

**Task**: Implement logistic regression to predict employee attrition and evaluate the model using precision, recall, and F1-score.

2. Classifying Credit Card Fraud Using Decision Trees

**Dataset**: Credit Card Fraud Detection Dataset

**Preprocessing Steps:**

- Handle missing values if any.

- Standardize features.

**Task**: Implement a decision tree classifier to classify credit card transactions as fraud or not and evaluate the model using ROC-AUC and confusion matrix.

3. Predicting Heart Disease Using Logistic Regression

**Dataset**: Heart Disease Dataset

**Preprocessing Steps**:

- Handle missing values (e.g., fill missing values with mean).

- Encode categorical variables (e.g., one-hot encoding for gender, chest pain type, etc.).

- Standardize numerical features.

**Task**: Implement logistic regression to predict heart disease and evaluate the model using accuracy and ROC-AUC.

4. Classifying Emails as Spam Using Decision Trees

**Dataset**: Spam Email Dataset

**Preprocessing Steps**:

- Handle missing values if any.

- Standardize features.

- Encode categorical variables if present.

**Task**: Implement a decision tree classifier to classify emails as spam or not and evaluate the model using precision, recall, and F1-score.

5. Predicting Customer Satisfaction Using Logistic Regression

**Dataset**: Customer Satisfaction Dataset

**Preprocessing Steps:**

- Handle missing values (e.g., fill missing values with median).

- Encode categorical variables (e.g., one-hot encoding for region).

- Standardize numerical features.

**Task**: Implement logistic regression to predict customer satisfaction and evaluate the model using accuracy and confusion matrix.