**Task 11**

Machine Learning

Upload .py or Ipynb extension file on GitHub public repo “100DaysofBytewise" and share the link in the submission form by 22 July 2024.

1. Predicting Diabetes Onset Using Logistic Regression

**Dataset**:

* Diabetes Dataset

**Preprocessing Steps:**

* Handle missing values if any.
* Standardize features.
* Encode categorical variables if any.

**Task**:

* Implement logistic regression to predict diabetes onset and evaluate the model using accuracy, precision, and recall.

2. Classifying Iris Species Using Decision Trees

**Dataset**:

* Iris Dataset

**Preprocessing Steps**:

* Handle missing values if any.
* Standardize features.
* Encode categorical variables if any.

**Task**:

* Implement a decision tree classifier to classify iris species and evaluate the model using confusion matrix and accuracy.

3. Predicting Titanic Survival Using Logistic Regression

**Dataset:**

* Titanic Dataset

**Preprocessing Steps**:

* Handle missing values (e.g., fill missing ages with median).
* Encode categorical variables (e.g., one-hot encoding for embarked and gender).
* Standardize numerical features.

**Task:**

* Implement logistic regression to predict survival on the Titanic and evaluate the model using 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.