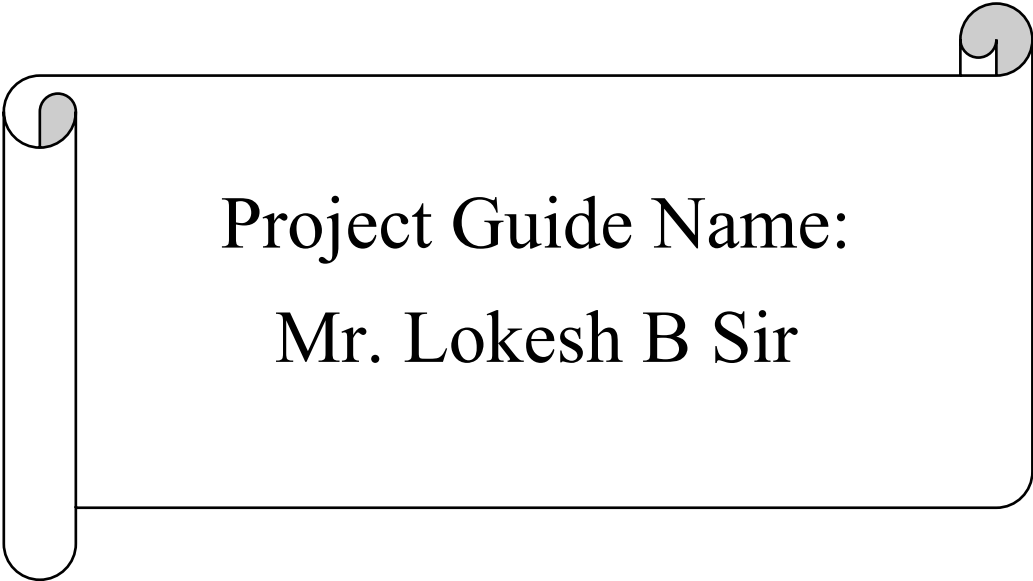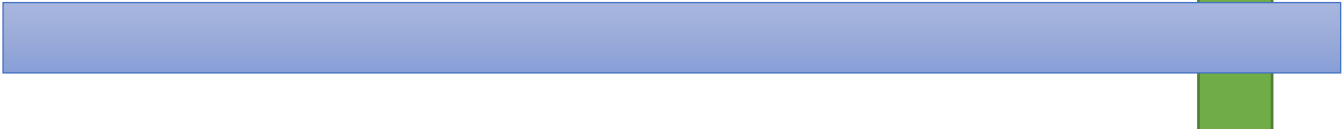# PROJECT TITLE:

ANALYSIS AND PREDICTING THE IRIS SPECIES WITH THE RANDOM FOREST.

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Problem Statement

Random Forest is an ensemble technique capable of performing both regression and classification tasks with the use of multiple decision trees and a technique called Bootstrap and Aggregation, commonly known as bagging. The basic idea behind this is to combine multiple decision trees in determining the final output rather than relying on individual decision trees.

Random Forest has multiple decision trees as base learning models. We randomly perform row sampling and feature sampling from the dataset forming sample datasets for every model. This part is called Bootstrap.

We need to approach the Random Forest regression technique like any other machine learning technique.

```python
from sklearn.datasets import load_iris
# Load the Iris dataset
iris = load_iris()
X = iris.data
y = iris.target


# Split the dataset into training and testing sets

from sklearn.model_selection import train_test_split
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)



# Create a Random Forest classifier with 100 trees
from sklearn.ensemble import RandomForestClassifier

random_forest = RandomForestClassifier(n_estimators=100)




# Train the classifier on the training data
random_forest.fit(X_train, y_train)
```

```
  ▾ RandomForestClassifier
  RandomForestClassifier()
```

```python
# Make predictions on the test data
y_pred = random_forest.predict(X_test)



# Calculate accuracy

from sklearn.metrics import accuracy_score
accuracy = accuracy_score(y_test, y_pred)
print(f"Accuracy: {accuracy:.2f}")
```

```
Accuracy: 1.00
```