***Lab Task 2***

***Name :*** M. Hassan  
***Roll no. :***101

***Concise Report: Classification using XGBoost and Random Forest***

## **1. Introduction**

This project focuses on a classification task using XGBoost and Random Forest classifiers. The dataset is preprocessed, split into training and testing sets, and evaluated using accuracy metrics.

## **2. Methodology**

### **2.1 Data Preparation**

* The dataset is loaded from train.csv and test.csv.
* Unnecessary columns such as PassengerId, Cabin, and Name are removed to avoid irrelevant data.

### **2.2 Model Training**

* Two models are used: XGBClassifier and RandomForestClassifier.
* The dataset is split into training and testing sets.
* Grid search and cross-validation are applied to optimize hyperparameters.

### **2.3 Evaluation**

* The models are evaluated using accuracy\_score.
* Cross-validation ensures model generalizability.

## **3. Results and Conclusion**

* The trained models classify the data effectively.
* Future work includes fine-tuning hyperparameters and testing additional feature engineering techniques.

***Screenshots***

