

Major Project

- **Project Name:**

Data Science July Major Project

- **Project Description:**

Problem statement: Create a classification model to predict whether a person makes over \$50k a year

Context: This data was extracted from the 1994 Census bureau database by Ronny Kohavi and Barry Becker (Data Mining and Visualization, Silicon Graphics).

Dataset :

<https://drive.google.com/file/d/11GNij0IV9hiAwW5b6xk1O-a6LF11n5QQ/view?usp=sharing>

Details of features:

The columns are described as follows:

- 1) Age
- 2) Workclass
- 3) Fnlwgt
- 4) Education
- 5) education_num
- 6) marital_status
- 7) occupation
- 8) relationship
- 9) race
- 10) sex
- 11) capital_gain
- 12) capital_loss
- 13) hours_per_week
- 14) native_country
- 15) income

Steps to consider:

- 1)Rename the columns.
- 2)Remove handle null values (if any).
- 3)Split data into training and test data.
- 4)Apply the following models on the training dataset and generate the predicted value for the test dataset
 - a. Decision Tree
 - b. Random Forest Classifier
 - c. Logistic Regression
 - d. KNN Classifier
 - e. SVC Classifier (with linear kernel)
- 5)Predict the income for test data
- 6)Compute Confusion matrix and classification report for each of these models.
- 7)Validate the result for Precision, Recall, F1-score and Accuracy for each model based on values from confusion_matrix and classification_report
- 8)Generate the percentage of misclassification in each of these models.
- 9)Report the model with the best accuracy.