Adult Income Prediction

Design a **Machine Learning Model** on the data-set given below:

Download the dataset from this link. **CLICK HERE TO DOWNLOAD DATASET**

The detailed description about the dataset can be found here. **Dataset Description**

For your reference, kindly have a look at this jupyter notebook. **CLICK HERE**

If you are facing any difficulty, follow the steps mentioned below:

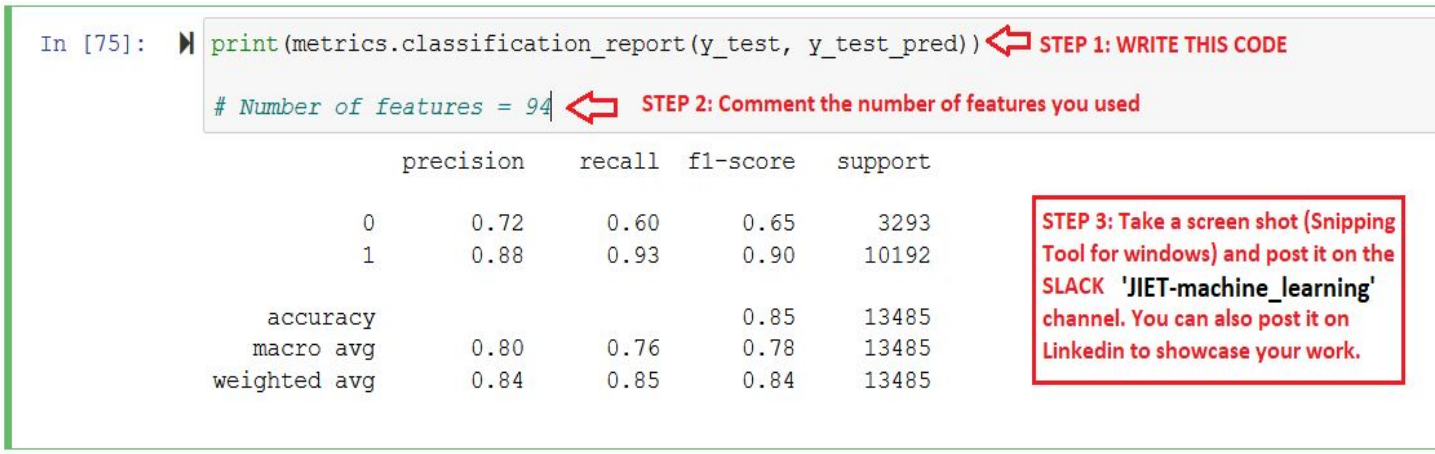
Step - 1 - Getting things ready for the project
- Import the required libraries
- Load the data
- Discover and handle missing values (Similar to previous assignment)

Step - 2 - Data Preparation
- Consider 'income' as the target variable (:P)
- Remove unnecessary columns (For eg: 'fnlwgt')
- Standardizing numerical data
- Encoding categorical features
- Train Test Split

Step - 3 - Train the model on Training Data
- Consider 'income' as the target variable (-_-)
- Identify the TASK in hand and choose the appropriate algorithm for the task.
- Since task is Classification, use Logistic Regression

Step - 4 - Predict on Test Data

Step - 5 - Evaluate each Model
- Use evaluation metrics like Accuracy, Confusion Metric, Precision and Recall.
- Print classification report as shown in the figure below



Step - 6 - Use RFE to extract the best features.

- Build Logistic regression using the best features
- Test and Evaluate the new model

Step - 7 - Use PCA to extract the best features and build the model again.

- Since task is Classification, use Logistic Regression, Knn, DT and SVM (Create an individual model for each of the algorithm)
- Test and Evaluate for each Model.
- Print the Classification Report as shown in Step 5.