

★ Instruction to deploy and run code

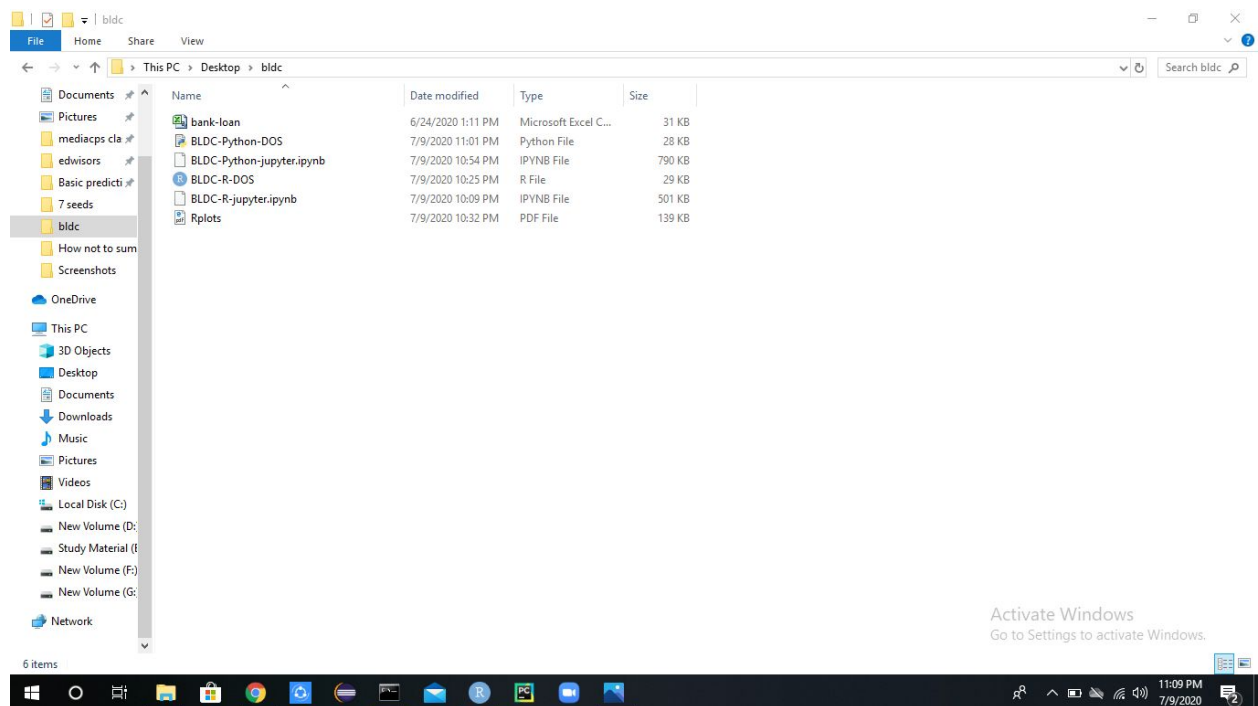
1. Python and R code files

1.1 DOS executable code files

1.2 Jupyter notebooks

1. Python and R code files:

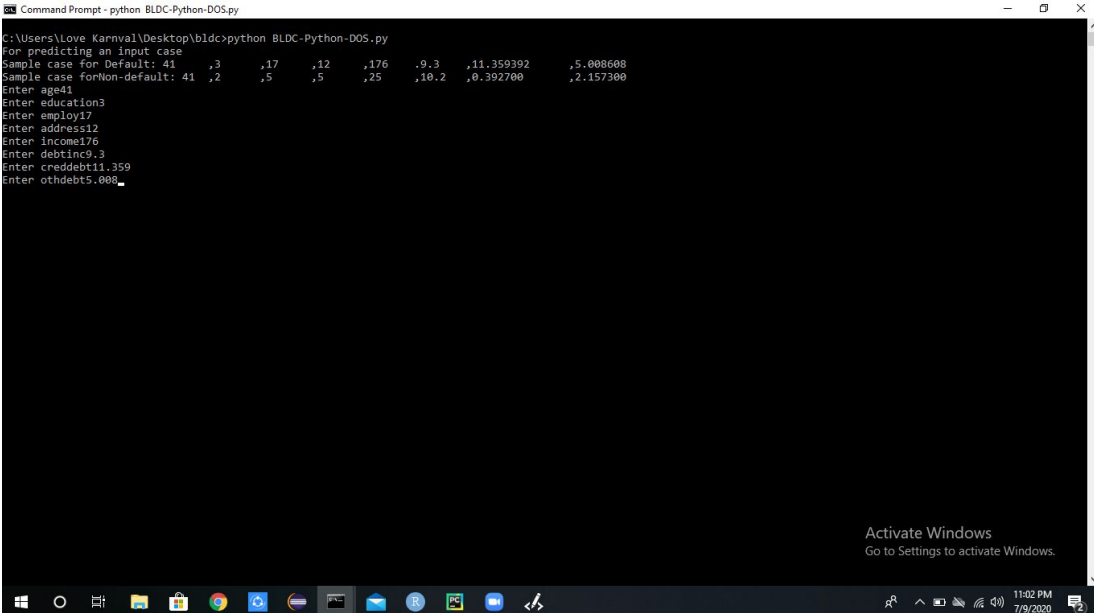
Just in case, if the R file charts are not able to work properly, so I've attached these two alternative Jupyter notebooks for the evaluation of both Python and R files. Also, the plots will not appear when we R script through dos and rather they will be stored in a pdf format (Rplots.pdf) in the current working directory whose snippet I've attached just below:



1.1 DOS executable code files

Python- BLDC-Python-DOS.py

Start



The screenshot shows a Windows Command Prompt window titled "Command Prompt - python BLDC-Python-DOS.py". The window displays the output of a Python script. The script first shows two sample cases for a default input. Then, it prompts the user to enter various input parameters: age, education, employment, address, income, debt income, credit debt, and other debt. The user has entered the following values: age=41, education=3, employment=17, address=12, income=176, debt income=9.3, credit debt=11.359, and other debt=5.008. The script is currently waiting for the user to press Enter after the last input.

```
C:\Users\Love Karnval\Desktop\blcd>python BLDC-Python-DOS.py
For predicting an input case
Sample case for Default: 41      ,3      ,17      ,12      ,176      ,9.3      ,11.359392      ,5.008608
Sample case for Non-default: 41 ,2      ,5      ,5      ,25      ,10.2      ,0.392700      ,2.157300
Enter age41
Enter education3
Enter employ17
Enter address12
Enter income176
Enter debtinc9.3
Enter creddebt11.359
Enter othdebt5.008
```

End

```
Command Prompt
NB Model No Skill: ROC AUC=0.500
NB Model ROC AUC=0.778
NB Model : f1=0.511 auc=0.519
NB Model
Default value for input data is: 0
col_0 0.0 1.0
row_0
0.0 116 8
1.0 22 24
Gradient Boosting Algorithm 82.0
Recall: 52.17291304367826
GB Model No Skill: ROC AUC=0.500
GB Model ROC AUC=0.823
GB Model : f1=0.615 auc=0.699
GB Model
Default value for input data is: 1
col_0 0.0 1.0
row_0
0.0 220 18
1.0 36 41
Accuracy of XGB Model 83.0
Recall: 53.246753246753244
XGB Model No Skill: ROC AUC=0.500
XGB Model ROC AUC=0.836
XGB Model : f1=0.603 auc=0.663
XGB Model
Default value for input data is: 1
SVC(C=2.79, break_ties=False, cache_size=200, class_weight=None, coef0=0.0,
    decision_function_shape='ovr', degree=3, gamma=0.5, kernel='rbf',
    max_iter=-1, probability=False, random_state=0, shrinking=True, tol=0.001,
    verbose=False)
col_0 0 1
row_0
0 125 7
1 14 25
Accuracy of SVM Model 88.0
Recall: 64.1025641025641
SVM Model No Skill: ROC AUC=0.500
SVM Model ROC AUC=0.884
SVM Model : f1=0.706 auc=0.779
SVM Model
Default value for input data is: 1
C:\Users\Love Karnval\Desktop\bldc>
```

For R : BLDC-R-DOS.r

Start

```
Command Prompt - Rscript BLDC-R-DOS.r
Microsoft Windows [Version 10.0.17134.1550]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\Love Karnval>cd C:\Users\Love Karnval\Desktop\bldc

C:\Users\Love Karnval\Desktop\bldc>Rscript BLDC-R-DOS.r
'data.frame': 850 obs. of 9 variables:
 $ age : int 41 27 40 41 24 41 39 43 24 36 ...
 $ ed : int 3 1 1 1 2 2 1 1 1 1 ...
 $ employ : int 17 10 15 15 2 5 20 12 3 0 ...
 $ address : int 12 6 14 14 0 5 9 11 4 13 ...
 $ income : int 176 31 55 120 28 25 67 38 19 25 ...
 $ debtinc : num 9.3 17.3 5.5 2.9 17.3 10.2 30.6 3.6 24.4 19.7 ...
 $ creddebt : num 11.359 1.362 0.856 2.659 1.787 ...
 $ othdebt : num 5.009 4.001 2.169 0.821 3.057 ...
 $ default : int 1 0 0 0 1 0 0 0 1 0 ...
 age ed employ address income debtinc creddebt othdebt default
845 23 1 3 4 13 3.1 0.045539 0.357461 NA
846 34 1 12 15 32 2.7 0.239328 0.624672 NA
847 32 2 12 11 116 5.7 4.026708 2.585292 NA
848 48 1 13 11 38 10.8 0.722304 3.381696 NA
849 35 2 1 11 24 7.8 0.417450 1.454544 NA
850 37 1 20 13 41 12.9 0.899130 4.389870 NA
[1] "For predicting an input case"
[1] "Sample case for Default: 41\t,3\t,17\t,12\t,176\t,9.3\t,11.359392\t,5.008608\t"
[1] "Sample case for Non-default: 41\t,2\t,5\t,5\t,25\t,10.2\t,0.392700\t,2.157300\t"
[1] "Enter age: "
```

End

```
Command Prompt
6      60 100.00 1.67      1
7      70 100.00 1.43      1
8      80 100.00 1.25      1
9      90 100.00 1.11      1
10     100 100.00 1.00      1
Default value from Naive Bayes Model for input data is: 1[1] "Final Accuracy = 79.34"
Recall 44.83  modnames dsids curvetypes  aucs
1      m1      1      ROC 0.6120250
2      m1      1      PRC 0.3096107

Area under PR-Curve of XGB Model : 0.3096107Setting levels: control = 0, case = 1
Setting direction: controls < cases
Population Gain Lift Score.Point
1      10 44.83 4.48      1
2      20 100.00 5.00      0
3      30 100.00 3.33      0
4      40 100.00 2.50      0
5      50 100.00 2.00      0
6      60 100.00 1.67      0
7      70 100.00 1.43      0
8      80 100.00 1.25      0
9      90 100.00 1.11      0
10     100 100.00 1.00      0
Default value from XGB Model for input data is: 1      predicted
observed 0      1
          0 122 8
          1 25 14
Accuracy from SVM Model      80.47337
Recall from SVM Model      35.89744
Area under PR-Curve of SVM Model : 0.2441538Setting levels: control = 0, case = 1
Setting direction: controls < cases
Population Gain Lift Score.Point
1      10 30 3.00      2
2      20 30 1.50      2
3      30 100 3.33      1
4      40 100 2.50      1
5      50 100 2.00      1
6      60 100 1.67      1
7      70 100 1.43      1
8      80 100 1.25      1
9      90 100 1.11      1
10     100 100 1.00      1

C:\Users\Love Karnval\Desktop\bldc>
```

1.2 Jupyter notebooks

For Python - BLDC-Python.ipynb

For R - BLDC-Python.ipynb

----- Thank you for your time to read the comprehensive report -----