

LABORATORY WORK BOOK

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		SE-B Semester	_		Roll Number				
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		Course Faculty					Faculty ID		1092
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5 5	Exercise Number	EXERCISE NAME	Aim/ Preparation	Algorithm / Procedure Performance in the Lab		Source Cod	te Program Execut Results and En	manufacture of the Park of the	Total
	7.13.114.01		4	Londina	4	and Graph:		4	20
1	7-1	Explore data f , visualize each) 4	4 1	1	u	mark "	14	20
2		attribute			Cr	9418	1295.74) 400	i T
3	7.2	Predict the test Set results and		281	1 2901	ov 1	w Leaf toy	1100	4
4		find the accuracy of the model		(Threat 2	CHIL	Wall - Kind		1
5	7.3	visualize the confusion matrix		2-1-50	Program C	2×1 h	Pall Ad	#1	
6		compute Precision, recall, f-measure		((2.8)	e agizi	PX1 37	rugis.H	7	
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Signature of the Student

Signature of the Faculty

START WRITING FROM HERE

```
7-3 Explore data and visualize each attribute
   import Pandas as 3d
   import matplotlib. Pyplot as Pit
           seaborn as sns
   to almi
   bd = pd. read-csv('bank.csv")
   Print ('First few rows of dataset:')
   Print (bd. nead (7)
   Print ( Dataset Info: 1)
   Print (bd.info())
                                          THE PARTY PROPERTY
   Point ('summary statistics: ')
                                               Mary 5 1875
   Point (bd. describe())
                                          12-37 TOP 1-16 DOOD
   Point ('Missing values'. 1)
                                         Lyb alloware + 10
                                        paration of hard
   Print (bd. isnul(),5 um())
                                           Court will to
                                             Silly and hard to
  for co in bd.columns:
                                         WINTERN NOTHERS
     if ba [ca.d type == 'obsect':
                                         definition 7 were the
        PIt. figure (figsize = (86))
                                         Marie William P. Marie
        sns.countplot (x = column, data = bd, Palette= 'set 2')
        PIt. title (&' Countriot of Eco3')
        PIt. xlabel (co)
         PIt. 4 label ('count')
         Plt. xticks (rotation = 45)
         PIt. Show()
       else:
          PIt. figure (figsize = (8,6))
         sns. histplot (bd [co], kde = True, color = 'skyblue',
                                        bins = 20)
```

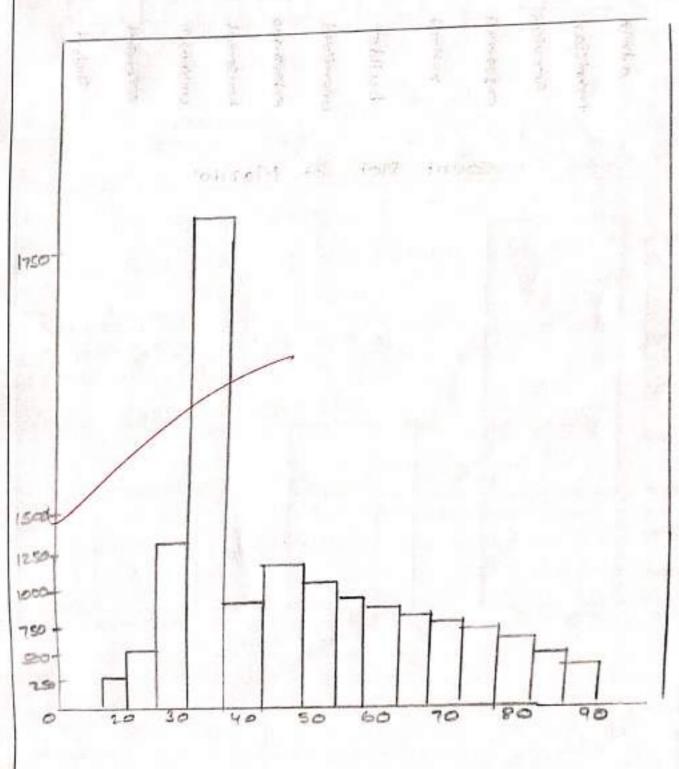
PIt. title (+ Histogram of 2 co3')

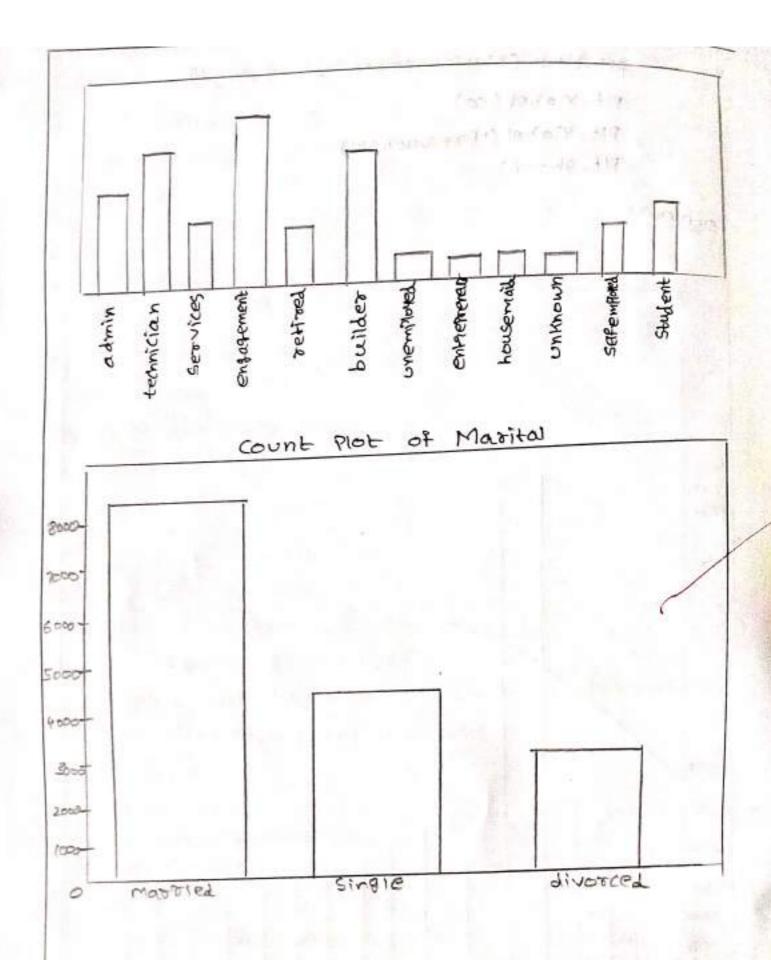
PIt. XIabel (co)

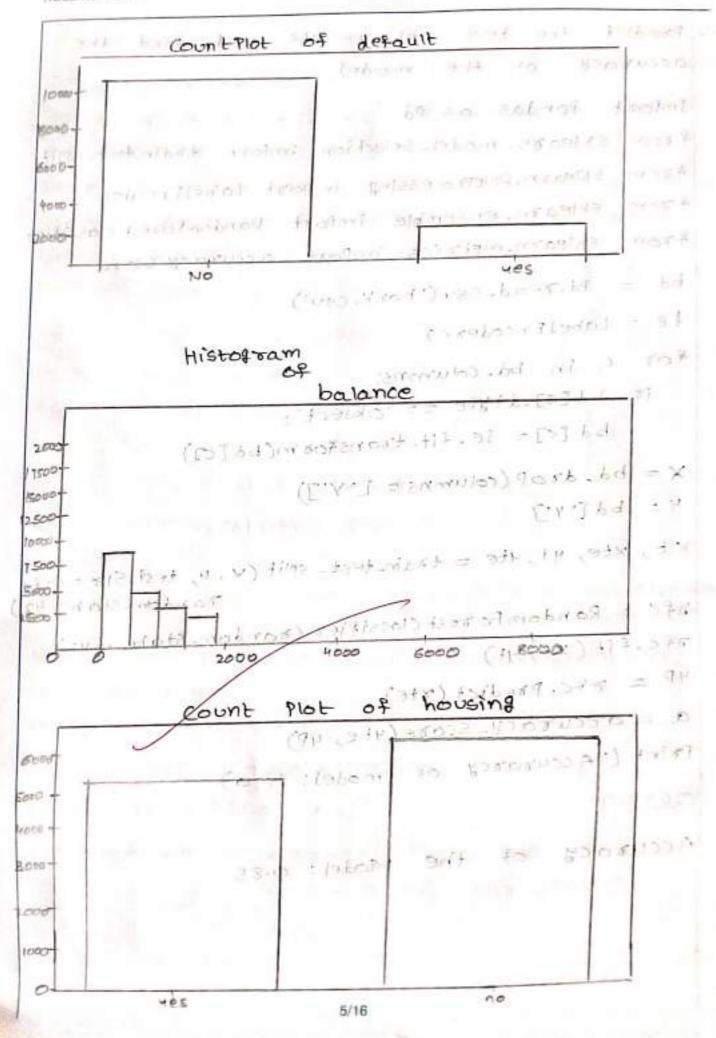
PIt. Ylabel ('Frequency')

PIt. Show()

OUTPUT:







7.2 Predict the test set results and find the accuracy of the model

import Pandas as Pd

from sxlearn-model-selection import train-test-split

from sklearn. Preprocessing import Label Encoder

from sklearn. ensemble import Randomforest classifier

or our first and

from sklearn. metrics import accuracy-score

bd = Pd. read_csv ('bank.csv')

le = Label Encoderc)

for c in bd. columns:

if pq[c].qfAbe == ,Opiecf.;

bd [c] = le. fit-transform(bd[a)

X = bd. drop (columns = ['Y'])

4 = bd[47

xt, xte, 4t, 4te = train_test_split (x, 4, test_5)ze=0.2,

ofc = RandomForest (lassifier (random-state = 42)
ofc.fit (xt, 4t)

4P = ofc. Predict (xte)

a = accuracy_score(4te, 4P)

Print ('Accurated of model: 1, a)

OUTPUT:

Accuracy of the model: 0.85

1-3 Visualize the Confusion matrix from sklearn model-selection import trained and from sklearn. Preprocessing import LabelEncoder from skleatnensemble import Randomfores cossiner from sklearn. metrics import confusion-matrix import matploblib. Pyplot as PIE import seaboon as sns bd = Pd. read-CSV('bank.CSV) le = Label Encoder() for c in bd. columns: if bd [c].dtrpe = = 'object': bd[c] = le.fit_townsform(bd[c]) X = bd.drop (columns = ['Y']) Y = bd ['Y'] x +, xte, yt, yte = train-test-split (x, 4, test-size=0.2 vandom-state= 42) 8FC = Random Forest Classifier (random_state=42) of c.fit (xx, 4t) 4P = ofc. Predict (xte) cm = confusion-matrix (4te, 4P) PIL-figure (figsize = (0,6)) sns. heatmap (cm, annot = Toue, fmt = 4', cmap = 'Blues', cbar = false)

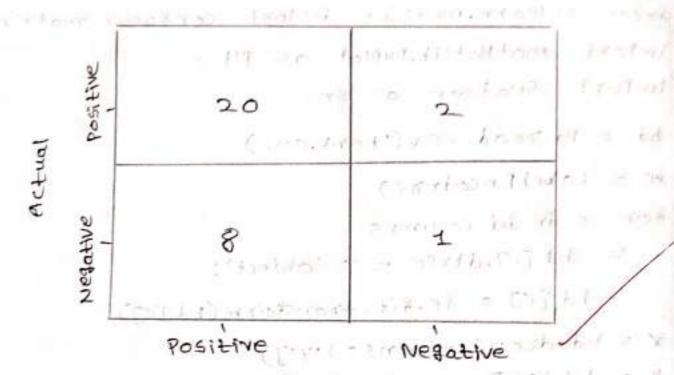
Pit-Litle (· confusion Matrix!)

Pit-xlabel (Pmedicked label')

Pit- Ylabel (Toue Label')

PIt. show()

QUIPUT:



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3 - FERT - 1019 - 7518 3

7.4 compute precision, recall, F-measure & support import Pandas as Pd from sklearn. model - selection import train-testant from skleam. PSTEPROCESSING import LabelEn coder from sklearn ensemble import Random Forest lassifier from sklearn-metrics import classification rest bd = Pd. read_ CSV ('bank. CSV') le = LabelEncoder() for c in bd. columns: if pacc] . The == , opiect : bd [c] = le.fit_transform (bd [c]) X = bd.doop (columns = ['4']) 9 = bd C'4'3 Xt, Xte, Yt, Yte = train_test_Spit (X, Y, test_size= vandom-state =42) TFC = Random Forest classifier (random_state=12) ofcfit (xt, yt) 4P = ofc. Posedict(xte) T = classification_ TEBT+ (4te, 4P) Print ('classification Reports') Print (0)