

Experiment 4

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Subject: DWM

Class: TE4

Roll no: 46

Batch: D

Code

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# Python 3.10.1
# Aditya Sawant
# Naive Bayesian Classification
from collections import Counter
import pandas as pd

def count(singlelist, combinelist):
    x = dict(Counter(tuple(i) for i in combinelist.tolist()))
    for i in x:
        if i[1] == 'yes':
            probY[i] = x[i]/TY
        else:
            probN[i] = x[i]/TN

def main():
    probY = dict()
    probN = dict()
    TY = 0 # total number of yes
    TN = 0 # total number of no

    dataset = pd.read_csv("DWM/AllElectronics.csv")
    target = -1
    targetdata = dataset.iloc[:, target].values
    temp = dict(Counter(targetdata.tolist()))
    for i in temp:
        if(i == 'no'):
            TN = temp[i]
        else:
            TY = temp[i]
```

```

    datalen = len(targetdata)
    PY = TY/datalen
    PN = TN/datalen
    for i in range(1, len(dataset.columns)-1):
        count(dataset.iloc[:, i].values, dataset.iloc[:, [i,
target]].values)
        inpt = []
        for j in range(1, len(dataset.columns)-1):
            inpt.append(input(
                f"Enter {dataset.columns[j]} ({
set(dataset.iloc[:,j].values.tolist()) } ): "))
        AY = PY
        for i in probY:
            if i[0] in inpt:
                AY = AY * probY[i]
        AN = PN
        for i in probN:
            if i[0] in inpt:
                AN = AN * probN[i]
        AY, AN = AY/(PY+PN), AN/(PY+PN)
        print("\n\n")
        if(AY > AN):
            print(dataset.columns[target], ": Yes - ", AY)
        else:
            print(dataset.columns[target], ": No - ", AN)

if __name__ == '__main__':
    main()

```

Output:

```

PS E:\Enggineering\SAKEC\SEM 5\DWM\Pracs> python -u "e:\Enggineering\SAKEC\SEM 5\DWM\Pracs\expt4.py"
Enter age ({'senior', 'youth', 'middle_aged'}): youth
Enter income ({'low', 'high', 'medium'}): medium
Enter student ({'no', 'yess'}): yes
Enter credit_rating ({'fair', 'excellent'}): fair

Buys_computer : Yes - 0.02821869488536155
PS E:\Enggineering\SAKEC\SEM 5\DWM\Pracs> |

```