KLASIFIKASI MENGGUNAKAN ALGORITMA NAÏVE BAYES
Soal No. 1

UAS
Mata Kuliah : Sistem Cerdas

Oleh:
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PROGRAM STUDI S1 – TEKNOLOGI INFORMASI

KEMENTERIAN RISTEK DAN PENDIDIKAN TINGGI
SEKOLAH TINGGI MANAJEMEN INFORMATIKA DAN KOMPUTER
STMIK PPKIA PRADNYA PARAMITA
MALANG
2021

1. Import Library yang dibutuhkan
2. Masukkan file serta directori-nya yang akan dibaca sebagai dataset
3. Ketik syntax “ data.head() ” untuk menampilkan isi file
4. Ketik syntax “ data.shape ” untuk menampilkan jumlah baris dan kolom
5. Data[‘Class (buy_computer)’].value_counts(), digunakan untuk menghitung value dari kolom ”Class (buy_computer)”

```
In [2]: import numpy as np
        import pandas as pd
        import matplotlib.pyplot as plt

In [9]: data = pd.read_excel('F:/SEMESTER 7/dataset_UAS-main/dataset_soal No.1.xls')

In [10]: data.head()

Out[10]:
```

	Age	Income	Student	Credit_rating	Class (buy_computer)
0	<= 30	High	No	Fair	No
1	<= 30	High	No	Excellent	No
2	31..40	High	No	Fair	Yes
3	> 40	Medium	No	Fair	Yes
4	> 40	Low	Yes	Fair	Yes

```
In [11]: data.shape
Out[11]: (51, 5)

In [12]: data['Class (buy_computer)'].value_counts()
Out[12]: Yes    29
         No     22
         Name: Class (buy_computer), dtype: int64

In [33]: PYes = 29/51
         PNo = 22/51
```

6. Menampilkan tabel yang berisi “Income” dan “Class (buy_computer)”, serta menghitung peluangnya.

```
In [42]: pd.crosstab(data['Income'], data['Class (buy_computer)'])
Out[42]:
```

Class (buy_computer)	No	Yes
Income		
High	6	5
Low	11	10
Medium	5	14

```
In [43]: PHighNo = 6/11
         PLowNo = 11/21
         PMediumNo = 5/19

         PHighYes = 5/11
         PLowYes = 10/21
         PMediumYes = 14/19

         PHigh = 11/51
         PLow = 21/51
         PMedium = 19/51
```

7. Menampilkan tabel yang berisi “Student” dan “Income”, serta menghitung peluangnya.

```
pd.crosstab(data['Student'], data['Income'])
```

Income	High	Low	Medium
Student			
No	9	1	14
Yes	2	20	5

```
PNoStudentHigh = 9/24
PNoStudentLow = 1/24
PNoStudentMedium = 14/24

PYesStudentHigh = 2/27
PYesStudentLow = 20/27
PYesStudentMedium = 5/27

PNoStudent = 24/51
PYesStudent = 27/51
```

8. Hitung peluang pembelian komputer dengan kriteria Student = Yes , dan Income = Low. Diperoleh hasil sebesar 0,64 atau 64%.

```
# Student Yes | Income Low
print(PYesStudentLow)
```

```
0.7407407407407407
```

```
# Kondisi B dimana
# Student = Yes
# Income =  Low
# P(A) = Buy = PYes
# P(B) = PYesStudent, PLow
# P(B|A)1 = (PYesStudent|Buy) = PYesStudentYes
# P(B|A)2 = (PLow|Buy) = PLowYes
# P(B) = PYesStudent
# P(B) = PLow

#ditanyakan P(A|B) ?
#Rumus -> P(A|B) = P(B|A)*P(A)/P(B)

PBuy = ((PYesStudentYes*PLowYes)*PYes)/(PYesStudent*PLow)
print(PBuy)
```

```
0.6424792139077854
```