```
from math import sqrt
from statistics import mode
l=[[33.6,50,1],[26.6,30,0],[23.4,40,0],[43.1,67,0],[35.3,23,1],[35.9,67,1],[36.7,45,
1],[25.7,46,0],[23.3,29,0],[31,56,1]]
n=[43.6,40]
k=3
m=[]
x=[]
for i in l:
    a=0
    for j in range(len(n)-1):
        a+= (i[j]-n[j])*(i[j]-n[j])
    m.append(sqrt(a))
a=sorted(m)
for i in range(k):
    x.append(m.index(a[i]))
y=[]
for i in x:
    print(l[i])
    y.append(l[i][-1])
print()
print("result -->",mode(y))
```

```
Python 3.10.11 (tags/v3.10.11:7d4cc5a, Apr  5 2023, 00:38:17) [MSC v.1929 64 bit
(AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
================ RESTART: C:\Users\Raghul\Desktop\ML\KNN(5).py ================
[43.1, 67, 0]
[36.7, 45, 1]
[35.9, 67, 1]

result --> 1
```

```
Python 3.10.11 (tags/v3.10.11:7d4cc5a, Apr  5 2023, 00:38:17) [MSC v.1929 64 bit
(AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
============ RESTART: C:\Users\Raghul\Desktop\ML\ID3 algorithm(3).py ===========
The decision tree for the dataset using ID3 algorithm is
The test instance: ['sunny', 'hot', 'high', 'weak', 'no']
The label for test instance:    The test instance: ['sunny', 'hot', 'high',
'strong', 'no']
The label for test instance:    The test instance: ['overcast', 'hot', 'high',
'weak', 'yes']
The label for test instance:    The test instance: ['rain', 'mild', 'high', 'weak',
'yes']
The label for test instance:    The test instance: ['rain', 'cool', 'normal',
'weak', 'yes']
The label for test instance:    The test instance: ['rain', 'cool', 'normal',
'strong', 'no']
The label for test instance:    The test instance: ['overcast', 'cool', 'normal',
'strong', 'yes']
The label for test instance:    The test instance: ['sunny', 'mild', 'high', 'weak',
'no']
The label for test instance:    The test instance: ['sunny', 'cool', 'normal',
'weak', 'yes']
The label for test instance:    The test instance: ['rain', 'mild', 'normal',
'weak', 'yes']
The label for test instance:    The test instance: ['sunny', 'mild', 'normal',
'strong', 'yes']
The label for test instance:    The test instance: ['overcast', 'mild', 'high',
'strong', 'yes']
The label for test instance:    The test instance: ['overcast', 'hot', 'normal',
'weak', 'yes']
The label for test instance:    The test instance: ['rain', 'mild', 'high',
'strong', 'no']
The label for test instance:
```

IDLE Shell 3.10.11

File Edit Shell Debug Options Window Help

```
Python 3.10.11 (tags/v3.10.11:7d4cc5a, Apr  5 2023, 00:38:17) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
================== RESTART: C:\Users\Raghul\Desktop\ML\KNN(5).py ================
[43.1, 67, 0]
[36.7, 45, 1]
[35.9, 67, 1]

result --> 1
>>>
```

Ln: 10 Col: 0