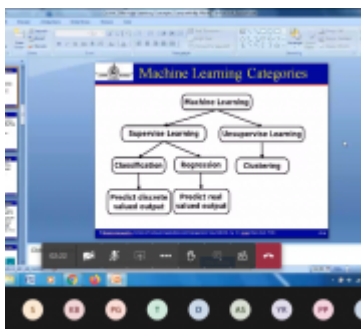




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Workshop on Machine Learning using Python



[1]

Mathematics of Naïve Bayes Algorithm

- Bayes Theorem

$$P(A|B) = \frac{P(B) \cdot P(A|B)}{P(B)}$$

- $P(A|B)$: Probability (conditional probability) of occurrence of event A given the event B is true.
- $P(A)$ and $P(B)$ are the probabilities of event A and B.
- $P(A,B)$: Probability (conditional probability) of occurrence of event B given the event A is true.

[2]

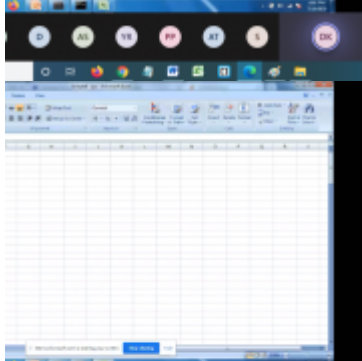
Fruit	Weight	Color	Length	Total
Mango	1400	1400	10	1400
Banana	400	500	500	1400
Others	50	100	50	150
Total	1850	2900	200	1200

- $P(\text{Mango}) = 0.7$
- $P(\text{Banana}) = 0.4$
- $P(\text{Others}) = 0.1$
- Information among the above probability is higher than 0.1 belongs to that class.
- $P(\text{Mango}|\text{Weight}) = P(\text{Mango}|\text{Color}) = P(\text{Mango}|\text{Length})$
- $P(\text{Mango}) = 0.7$
- $P(\text{Banana}) = 0.4$
- $P(\text{Others}) = 0.1$

[3]

```
def report_train_test_split(
    train_data, test_data, train_features, test_features,
    train_labels, test_labels):
    print('Train Data Summary')
    print(train_data.info())
    print(train_data.describe())
    print('Test Data Summary')
    print(test_data.info())
    print(test_data.describe())
```

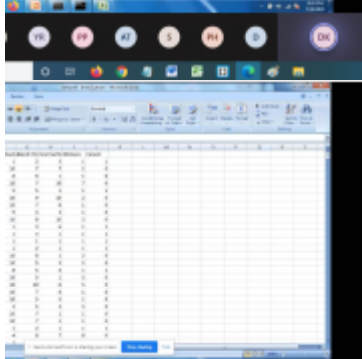
[4]



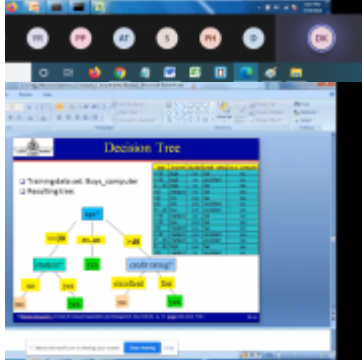
[5]

```
def report_train_test_split(
    train_data, test_data, train_features, test_features,
    train_labels, test_labels):
    print('Train Data Summary')
    print(train_data.info())
    print(train_data.describe())
    print('Test Data Summary')
    print(test_data.info())
    print(test_data.describe())
```

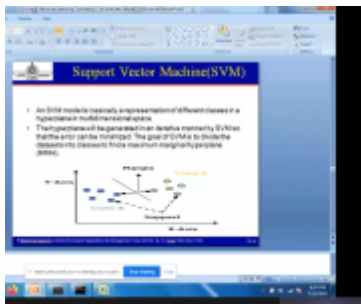
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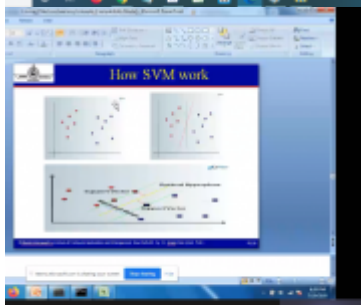
[7]



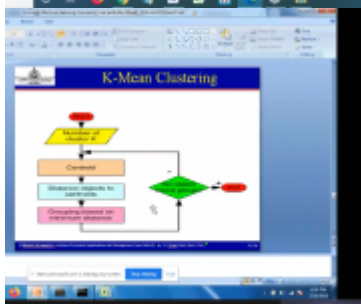
[8]



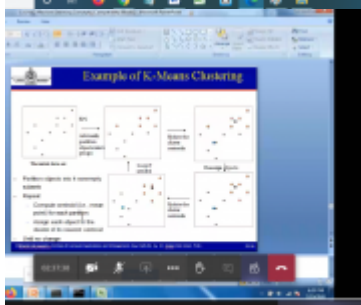
[9]



[10]



[11]



[12]



[13]

Source URL: <http://www.bvicam.in/content/workshop-machine-learning-using-python-0>

Links:

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