

# Decision Tree

CSE-0408 Summer 2021

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```
[4]: import pandas as pd
```

```
[11]: df = pd.read_csv('Holydataset.csv')
```

```
[12]: df
```

```
[12]:
```

	age	income	gender	m_status	buys
0	<25	high	male	single	no
1	<25	high	male	married	no
2	25-35	high	male	single	yes
3	>35	medium	male	single	yes
4	>35	low	female	single	yes
5	>35	low	female	single	no
6	25-35	low	female	married	yes
7	<25	medium	male	married	no
8	<25	low	female	single	yes
9	>35	medium	female	married	yes
10	<25	medium	female	single	yes
11	25-35	medium	male	married	yes
12	25-35	high	female	single	yes
13	>35	medium	male	married	no
14	<25	high	male	single	no

```
[14]: x = df.iloc[:, :-1]
```

```
[15]: x
```

```
[15]:
```

	age	income	gender	m_status
0	<25	high	male	single
1	<25	high	male	married
2	25-35	high	male	single

3	>35	medium	male	single
4	>35	low	female	single
5	>35	low	female	single
6	25-35	low	female	married
7	<25	medium	male	married
8	<25	low	female	single
9	>35	medium	female	married
10	<25	medium	female	single
11	25-35	medium	male	married
12	25-35	high	female	single
13	>35	medium	male	married
14	<25	high	male	single

```
[21]: y = df.iloc[:,4]
```

```
[22]: y
```

```
[22]: 0    no
      1    no
      2   yes
      3   yes
      4   yes
      5    no
      6   yes
      7    no
      8   yes
      9   yes
     10   yes
     11   yes
     12   yes
     13    no
     14    no
      Name: buys, dtype: object
```

```
[23]: from sklearn.preprocessing import LabelEncoder
```

```
[24]: Le_x = LabelEncoder
```

```
[25]: x = x.apply(LabelEncoder().fit_transform)
```

```
[26]: x
```

```
[26]:   age  income  gender  m_status
0     1       0       1         1
1     1       0       1         0
2     0       0       1         1
3     2       2       1         1
```

4	2	1	0	1
5	2	1	0	1
6	0	1	0	0
7	1	2	1	0
8	1	1	0	1
9	2	2	0	0
10	1	2	0	1
11	0	2	1	0
12	0	0	0	1
13	2	2	1	0
14	1	0	1	1

```
[27]: from sklearn.tree import DecisionTreeClassifier
```

```
[28]: import numpy as np
```

```
[29]: dtc = DecisionTreeClassifier()
```

```
[30]: dtc.fit(x.iloc[:,0:4],y)
```

```
[30]: DecisionTreeClassifier()
```

```
[31]: xinput = np.array([1,1,0,0])
```

```
[32]: y_predict = dtc.predict([xinput])
```

```
[33]: y_predict
```

```
[33]: array(['yes'], dtype=object)
```

```
[ ]:
```