```
Confusion Matrix:  [6, 7, 5, 2]
Accuracy:  0.65
Precision:  0.5454545454545454
Recall:  0.75
Sensitivity:  0.75
Specificity:  0.5833333333333334
Missclassification Error:  0.35
```

[2]
```
df = pd.DataFrame()
df['refund'] = ['yes', 'no', 'no', 'yes', 'no', 'no', 'yes', 'no', 'no', 'no']
df['martial_status'] = ['single', 'married', 'single', 'married','divorced', 'married','
df['taxable_income'] = [125000,100000,70000,120000,95000,60000,220000,85000,75000,90000]
df['evade'] = [ 'no','no','no','no','yes','no','no','yes','no','yes' ]
df
```

	refund	martial_status	taxable_income	evade
0	yes	single	125000	no
1	no	married	100000	no
2	no	single	70000	no
3	yes	married	120000	no
4	no	divorced	95000	yes
5	no	married	60000	no
6	yes	divorced	220000	no
7	no	single	85000	yes
8	no	married	75000	no
9	no	single	90000	yes

```
print('no : ',prb*pa(data,'evade','no'))
print('Evade of X is No')
```

```
yes :  0.0
no :  0.08163265306122447
Evade of X is No
```

```
for i in range(len(df)):
  df.loc[i,'taxable_income']=str(ceil(df.loc[i,'taxable_income']/100000))
df
```

	refund	martial_status	taxable_income	evade
0	yes	single	2	no
1	no	married	1	no
2	no	single	1	no
3	yes	married	2	no
4	no	divorced	1	yes
5	no	married	1	no
6	yes	divorced	3	no
7	no	single	1	yes
8	no	married	1	no
9	no	single	1	yes

```
data = pd.get_dummies(df[df.columns])
data
```

	refund_no	refund_yes	martial_status_divorced	martial_status_married	martial_status_single	taxable_income_1	taxable_income_2	taxable_income_3	evade_no	evade_yes
0	0	1	0	0	1	0	1	0	1	0
1	1	0	0	1	0	1	0	0	1	0
2	1	0	0	0	1	1	0	0	1	0
3	0	1	0	1	0	0	1	0	1	0
4	1	0	1	0	0	1	0	0	0	1
5	1	0	0	1	0	1	0	0	1	0
6	0	1	1	0	0	0	0	1	1	0
7	1	0	0	0	1	1	0	0	0	1
8	1	0	0	1	0	1	0	0	1	0
9	1	0	0	0	1	1	0	0	0	1

```
x=['no','married',140000]
x[2]=str(ceil(x[2]/100000))
x
```

```
['no', 'married', '2']
```