1.Create a list and tuple of the above table. Now map resistor to 0, inductors to 1 and capacitors to 2 using dictionary

```
In [4]: import pandas as pd
        import numpy as np
```

```
In [5]: dic={"resistor":0,"inductors":1,"capcitors":2}
```

```
In [6]: dic
```

Out[6]: `{'resistor': 0, 'inductors': 1, 'capcitors': 2}`

```
In [7]: df=pd.DataFrame([["CN1","Resistor",345,500],
                         ["CN2","Inductors",560,690],
                         ["CN3","Capcitors",700,750]],
                        columns=['Circuit No', 'Type','Cost Price','Selling Price'],)
```

```
In [8]: df
```

Out[8]:

	Circuit No	Type	Cost Price	Selling Price
0	CN1	Resistor	345	500
1	CN2	Inductors	560	690
2	CN3	Capcitors	700	750

```
In [ ]:
```

2.A sigmoidal function is given by $sigmoid=\sigma(z)=$ $1/(1+e^{-z})$(Actual)Define a sigmoidal function in Python. Now take $z=1, z=-1, z=0$ and calculate values of sigmoid function ($\sigma(z)$) defined by you.

```
In [9]: import math
        def sigmoid(z):
            n=1/(1+math.exp(-z))
            return n
```

```
In [10]: sigmoid(1)
```

Out[10]: `0.7310585786300049`

In [11]:
```python
sigmoid(-1)
```

Out[11]: 0.2689414213699951

In [13]:
```python
sigmoid(0)
```

Out[13]: 0.5

In [ ]:

3.. Now take z=[1,−1,0]. Now calculate value of sigmoid function ($\sigma(z)$) defined by you. What did you observed, now try to correct something in your code or input method to get the values? (Use numpy to fix the problem faced)

In [ ]:

In [14]:
```python
import numpy as np
import math
def sigmoid():
    z=np.array([1,-1,0])
    n=1/(1+np.exp(-z))
    print(n)
sigmoid()
```

[0.73105858 0.26894142 0.5   ]

In [ ]:

In [ ]:

In [ ]: