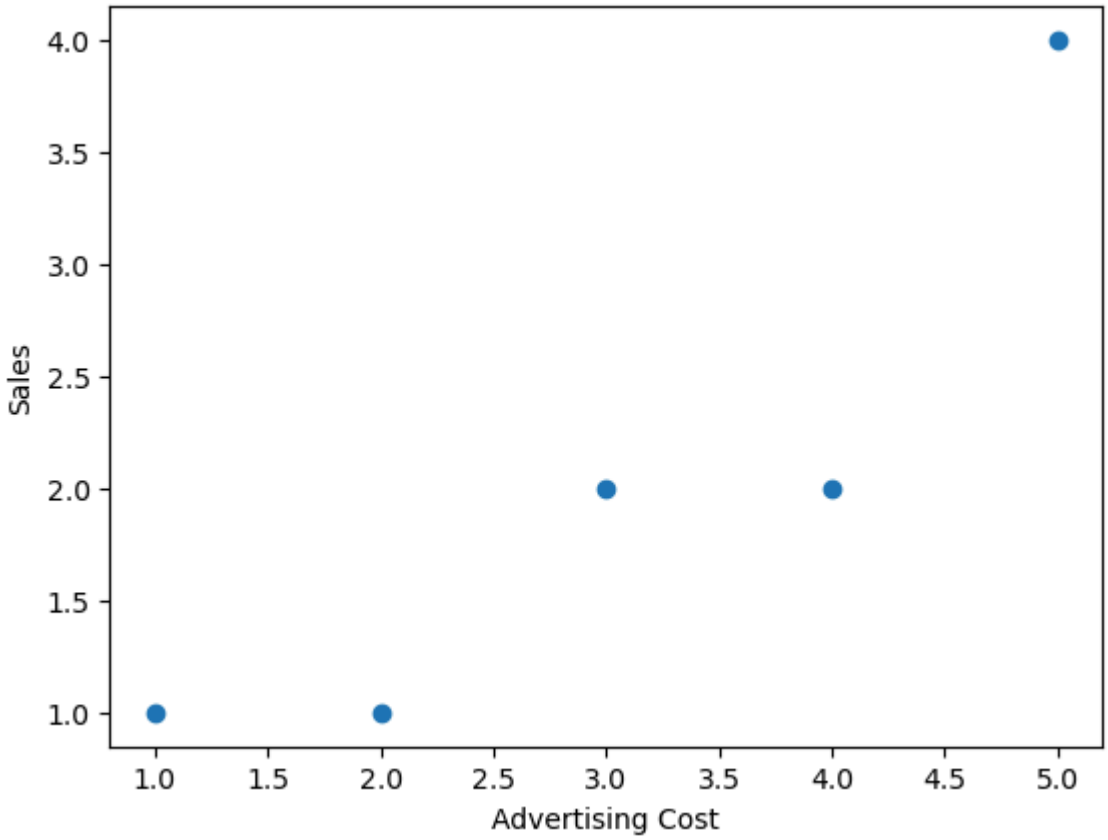
In [ ]:
```
Aim: To implement linear regression for car sales
```

In [ ]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import statsmodels.api as sm
from scipy import stats
```

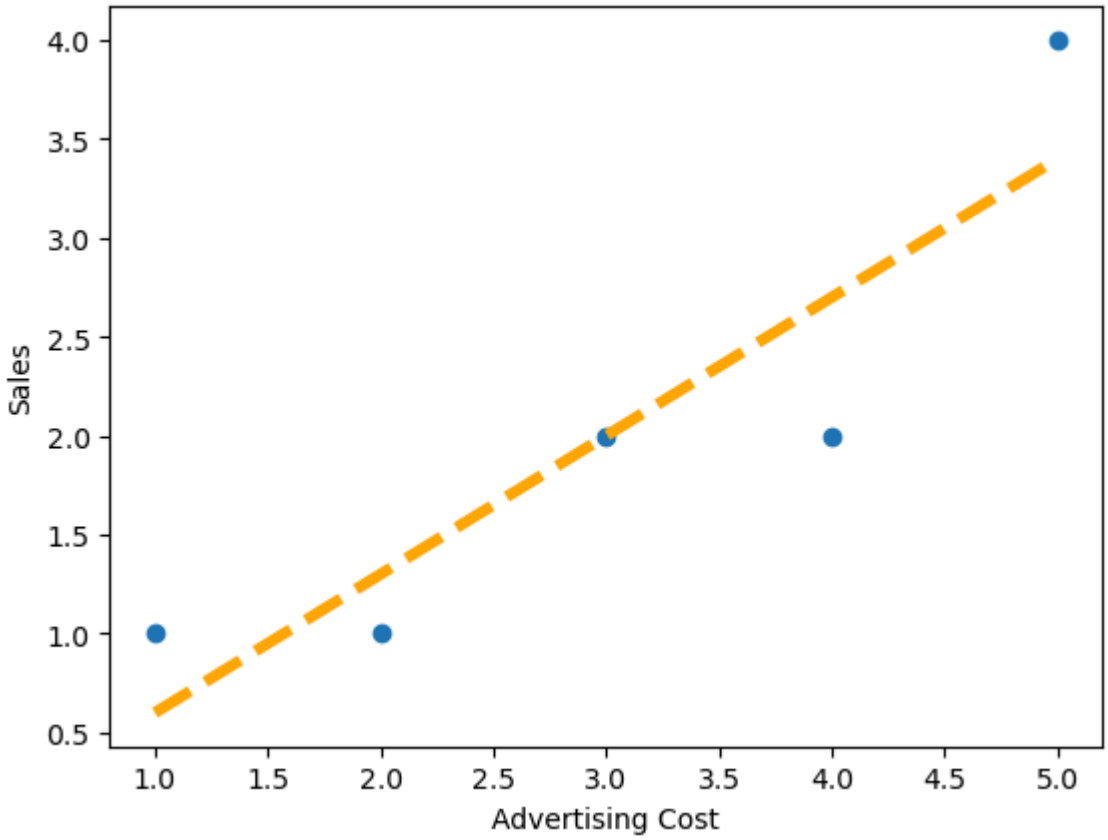
In [4]:
```
x=[1,2,3,4,5]
y=[1,1,2,2,4]
```

In [7]:
```
plt.scatter(x,y)
plt.xlabel("Advertising Cost")
plt.ylabel("Sales")
plt.show()
```



In [16]:
```
x1 = sm.add_constant(x)
results = sm.OLS(y,x1).fit()
results.summary
slope=0.7
intercept=-0.1
```

In [20]:
```
def myfun(x):
    return slope * x + intercept
mymodel = list(map(myfun,x))
mymodel
plt.scatter(x,y)
fig=plt.plot(x,mymodel,lw=4,c='orange',linestyle= '--')
plt.xlabel("Advertising Cost")
plt.ylabel("Sales")
plt.show()
```



In [21]:
```
slope,intercept,r,p,std_err=stats.linregress(x,y)
print('\n',slope,'\n',intercept,'\n',r,'\n',p,'\n',std_err)
```

```
 0.7000000000000001
-0.10000000000000009
0.903696114115064
0.03535284700251731
0.19148542155126758
```