Aim : Write a python program for simple linear regression and calculate slope and y-intercept.

In [1]:
```
import pandas as pd
import numpy as np
```

In [2]:
```
df=pd.read_excel('datasets/salary.xlsx')
df
```

Out[2]:

	X(exp)	Y(sal)
0	1	2
1	2	5
2	3	3
3	4	8
4	5	7

In [7]:
```
class MySLR :
    def __init__(self):
        self.m = None
        self.b = None

    def fit(self,x_train,y_train):

        num = 0
        den = 0
        for i in range(x_train.shape[0]):
            num = num + ((x_train[i] - x_train.mean())*(y_train[i]-y_train.mean()))
            den = den + (x_train[i] - x_train.mean())**2

        self.m = num/den
        self.b=y_train.mean() - (self.m*x_train.mean())
        print(self.m)
        print(self.b)

    def predict (self,x_test):
        return self.m * x_test + self.b
```

In [8]:
```
lr = MySLR()
```

In [9]:
```
lr.fit(df['X(exp)'],df['Y(sal)'])
```

```
1.3
1.0999999999999996
```

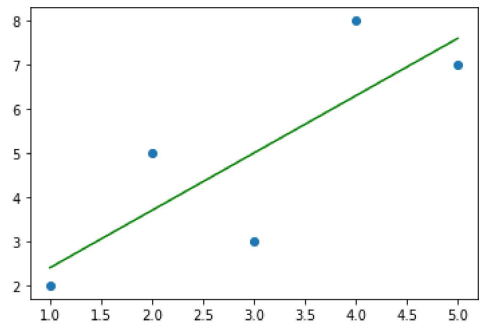
In [10]:
```
lr.predict(8)
```

Out[10]:
```
11.5
```

In [11]:
```
import matplotlib.pyplot as plt
```

In [13]:
```
plt.scatter(df['X(exp)'],df['Y(sal)'])
plt.plot(df['X(exp)'],lr.predict(df['X(exp)']),color = 'green')
```

Out[13]:
```
[<matplotlib.lines.Line2D at 0x20a67270430>]
```



In [ ]: