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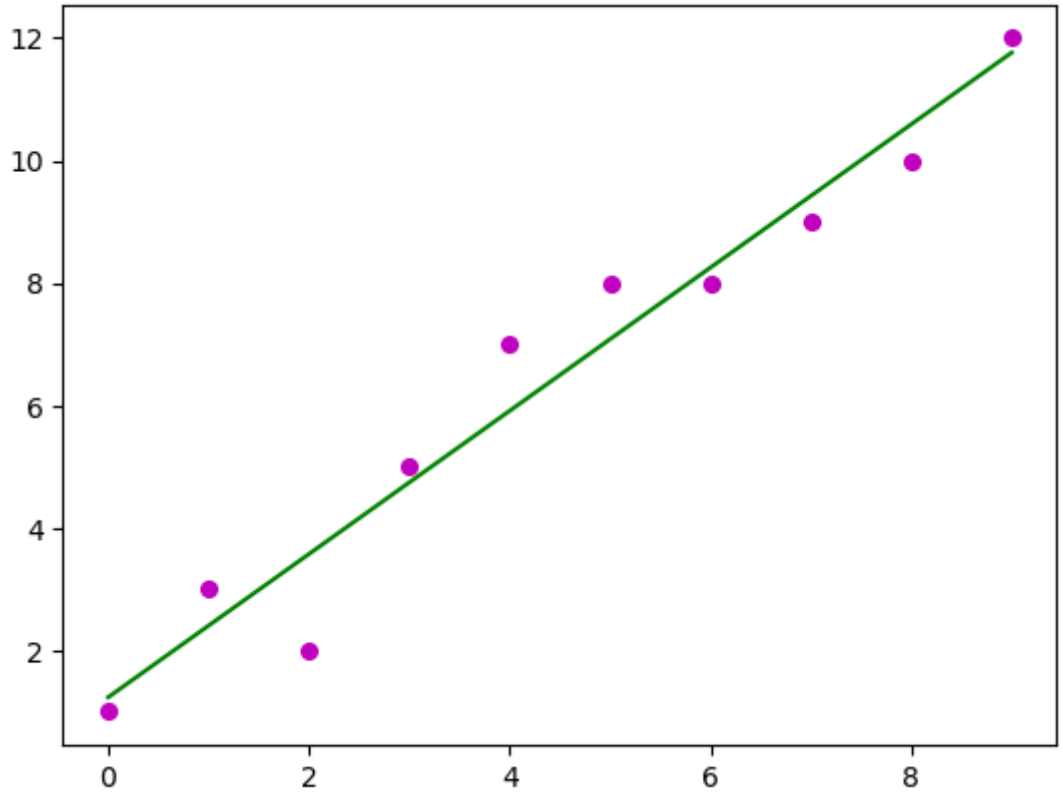
# Section B

# 1. Write a program to implement linear regression using python.

In [8]:
```
import numpy as np
import matplotlib.pyplot as plt
from sklearn.linear_model import LinearRegression
LR=LinearRegression()
x = np.array([0, 1, 2, 3, 4, 5, 6, 7, 8, 9]).reshape(-1,1)
y = np.array([1, 3, 2, 5, 7, 8, 8, 9, 10, 12]).reshape(-1,1)
LR.fit(x,y)
print("Regression slope and intercept are : ",LR.coef_,LR.intercept_)
ypred=LR.predict(x)
plt.scatter(x, y, color = "m",
   marker = "o", s = 30)
plt.plot(x, ypred, color = "g")
```

Out[8]:
```
Regression slope and intercept are :  [[1.16969697]] [1.23636364]
[<matplotlib.lines.Line2D at 0x1ba461e6070>]
```




# 2. Write a program to perform read and write operation with .csv file.

In [17]:
```
import pandas as pd

df=pd.read_csv("C:/Users/LENOVO/Downloads/Book1.csv")
df.head()
```

Out[17]:

| | Col1 | Col2 | Col3 |
|---|---|---|---|
| **0** | 20 | 40 | 60 |
| **1** | 30 | 60 | 90 |
| **2** | 40 | 80 | 120 |
| **3** | 17 | 34 | 51 |
| **4** | 60 | 120 | 180 |

In [32]:
```
import csv
with open('Book1.csv', 'w', newline='') as file:
    # Create a CSV writer object
    writer = csv.writer(file)

    # Write some data to the file
    writer.writerow(['John', 'Doe', '25'])
    writer.writerow(['Jane', 'Smith', '30'])
    writer.writerow(['Bob', 'Johnson', '45'])
```

# 3. Write a Program to enter multiple values-based data in multiple columns/rows and show that data in python using DataFrames and pandas.WAP in python to perform various statistical measures using pandas

In [37]:
```
import pandas as pd

# Create a dictionary with multiple columns and rows of data
data = {
    'Name': ['John', 'Jane', 'Bob'],
    'Age': [25, 30, 45],
    'City': ['New York', 'London', 'Paris'],
    'Country': ['USA', 'UK', 'France']
}

# Create a DataFrame from the dictionary
df = pd.DataFrame(data)
```

```
print(df)
print("Mean of the ages :",df.Age.mean())
print("Standard deviation of the ages :",df.Age.std())
```

```
   Name  Age      City Country
0  John   25  New York     USA
1  Jane   30    London      UK
2   Bob   45     Paris  France
Mean of the ages : 33.333333333333336
Standard deviation of the ages : 10.408329997330664
```

In [ ]: