Program No :- 6

Aim :- Program to implement linear and multiple regression techniques using any standard dataset available in the public domain and evaluate its performance (with using inbuilt function).

Program Code

```python
import numpy as np
from sklearn.linear_model import LinearRegression
x = np.array([5,15,25,35,45,55]).reshape((-1, 1))
y= np.array([5,20,14,32,22,38])
print(x)
print(y)
model = LinearRegression()
model.fit(x, y)
r_sq = model.score(x, y)
print('coefficient of determination :', r_sq)
print('intercept :' ,model.intercept_)
print('slope :' ,model.coef_)
y_pred = model.predict(x)
print('predicted response :', y_pred )

plt.scatter(x, y, color="m",
            marker="o", s=30)
plt.plot(x, y_pred, color="g")
plt.xlabel('x')
plt.ylabel('y')
plt.show()
```

Output

```
C:\Users\mca\PycharmProjects\pythonProject\venv\Scripts\python.exe C:/Users/mca/PycharmProjects/pythonProject1/linearreg.py
[[ 5]
 [15]
 [25]
 [35]
 [45]
 [55]]
[ 5 20 14 32 22 38]
coefficient of determination : 0.7158756137479542
intercept : 5.633333333333329
slope : [0.54]
predicted response : [ 8.33333333 13.73333333 19.13333333 24.53333333 29.93333333 35.33333333]

Process finished with exit code 0
```