

Date: 14/6/21

NL Lab Test - 2

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Linear Regression:

```
import numpy as np
import matplotlib.pyplot as plt

def coefficient(x, y):
    n = np.size(x)
    meanx = np.mean(x)
    meany = np.mean(y)
    SS_xy = np.sum(y*x) - n*meanx*meanx
    SS_xx = np.sum(x*x) - n*meanx*meanx
    t1 = SS_xy / SS_xx
    t0 = meany - t1*meanx
    return (t0, t1)
```

```
def plot_line(x, y, t):
```

```
    plt.scatter(x, y, color="blue", marker="o", s=20)
```

```
    ypred = t[0] + t[1]*x
```

```
    plt.plot(x, ypred, color="red")
```

```
    plt.xlabel('x')
```

```
    plt.ylabel('y')
```

```
    plt.show
```

```
def main():
```

```
data = pd.read_csv('path')
```

```
data['x']
```

```
x = np.array([41, 43, 21, 25, 42, 57, 89])
```

```
y = np.array([95, 68, 79, 75, 87, 81])
```

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ML Lab Test - 2
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VB

$t = \text{coefficient}(x, y)$

print("The estimated coefficients are: \n

$t_0 = \{ \} \setminus t_1 = \{ \}$ " .format( $t[0]$  +  $t[1]$ )

plot - ~~xy~~ line( $x, y, t$ )

$y = t[0] + t[1] * 55$

print("Predicted y value : "  $y$ )

if  $\_\_\text{name}\_\_ == \_\_\text{main}\_\_ :$

main()