

```
import matplotlib.pyplot as plt

# To Make The Plot Make Window Outside The Cell Use The Following Line
# %matplotlib qt

# To Make The Plot Make Window Inside The Cell Use The Following Line
%matplotlib inline
```

## What Is Matplotlib ?

- Matplotlib is a popular plotting library in Python used for creating high-quality visualizations and graphs. It offers various tools to generate diverse plots, facilitating data analysis, exploration, and presentation. Matplotlib is flexible, supporting multiple plot types and customization options, making it valuable for scientific research, data analysis, and visual communication. It can create different types of visualization reports like line plots, scatter plots, histograms, bar charts, pie charts, box plots, and many more different plots. This library also supports 3-dimensional plotting.

## What The Usage Of Matplotlib

- Creating High Quality Visualizations And Graphs
- Data Visualization Serves As a Getway To Understanding And Interpreting Complex Datasets

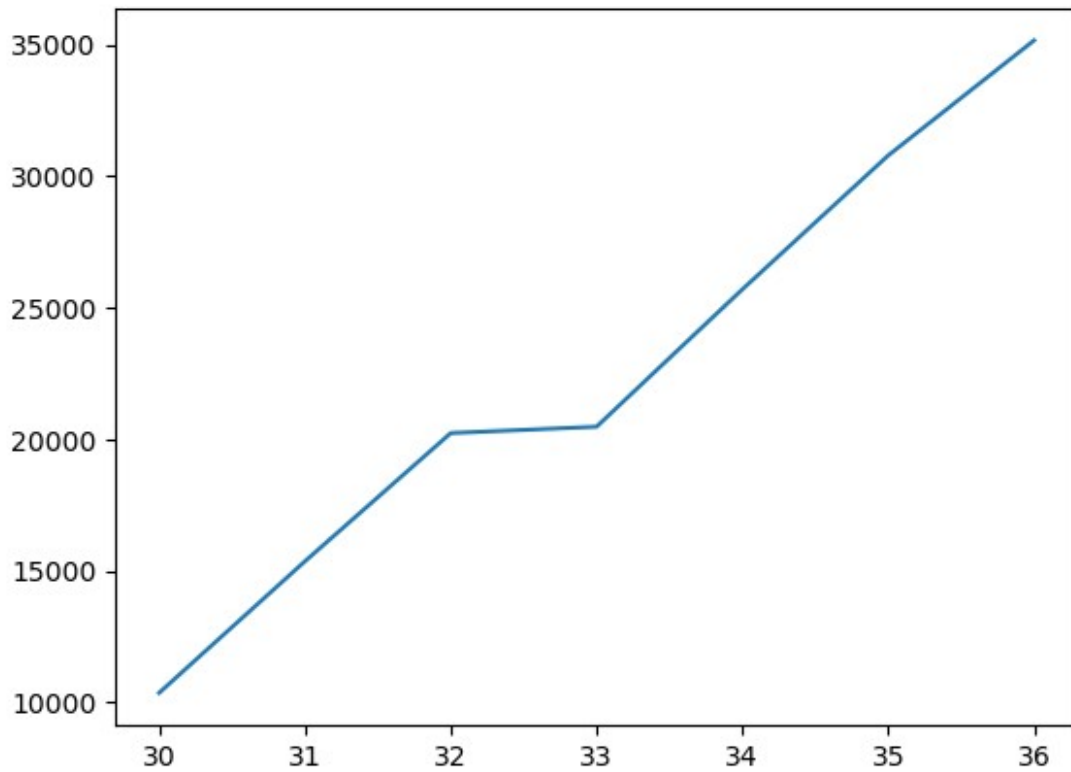
```
# this is the X-axis
x = [30, 31, 32, 33, 34, 35, 36]

# this is the Y-axis
y = [10365, 15364, 20236, 20478, 25698, 30785, 35156]
```

## Make Plot To The Data

```
plt.plot(x, y)

[<matplotlib.lines.Line2D at 0x2b6b5ed10a0>]
```



## Write Title To The Data

- Syntax: `plt.title("Write_Title_Here")`

```
plt.title("Salary For Age")
```

```
Text(0.5, 1.0, 'Salary For Age')
```



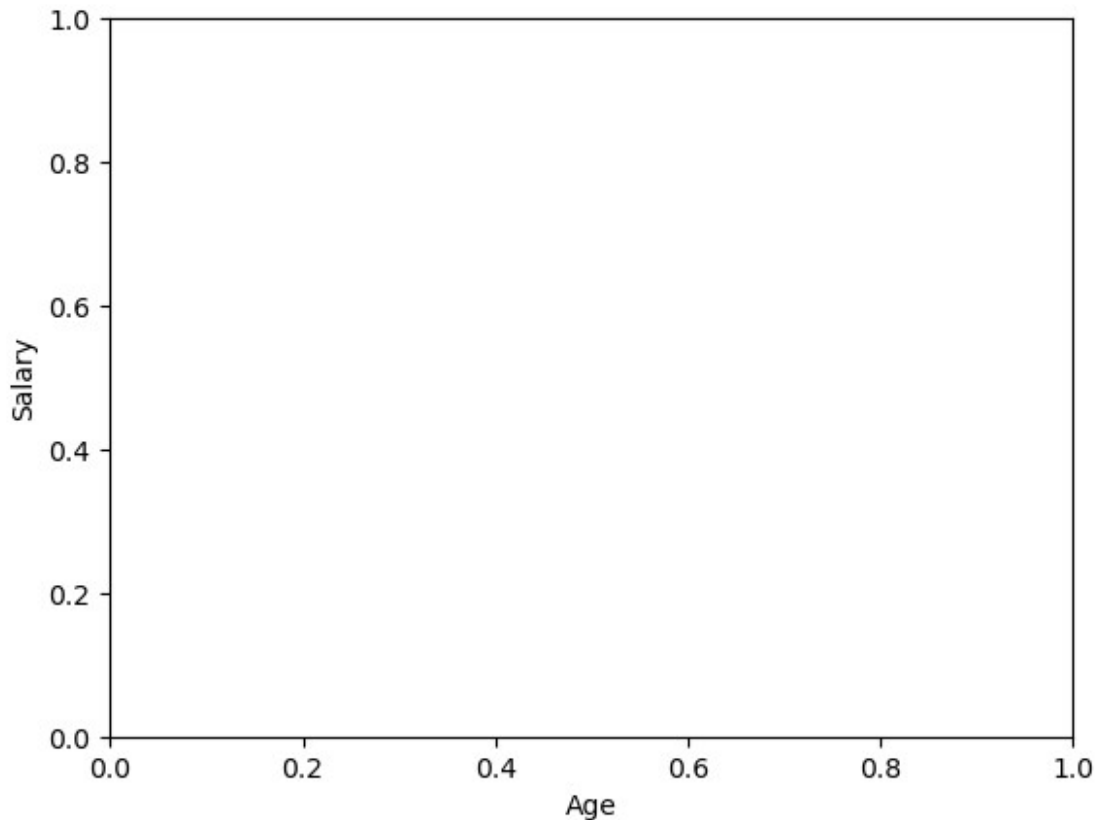
Write Title To X-axis

- Syntax: plt.xlabel("title")

Write Title To Y-axis

- Syntax: plt.ylabel("title")

```
plt.xlabel("Age")  
plt.ylabel("Salary")  
Text(0, 0.5, 'Salary')
```



At The End Of Each Graph Write The Following

- Each Code After `plt.show()`, Will Write It Into Another Graph

```
plt.show()
```

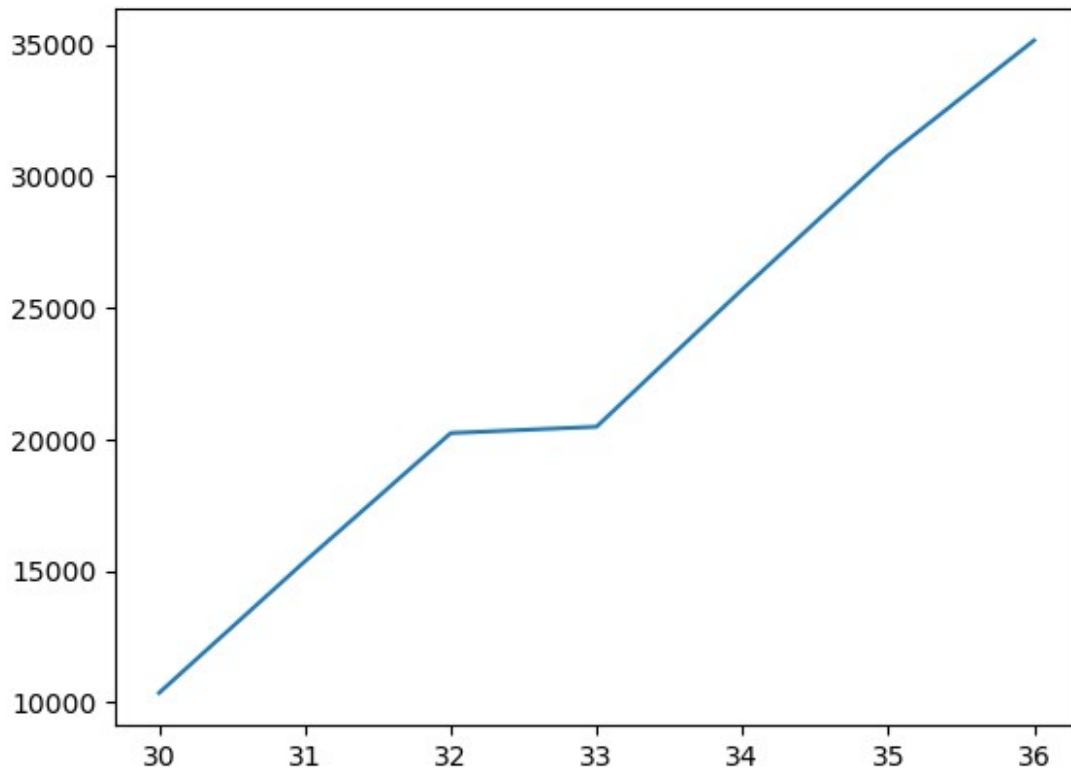
## Write More Than One Plot In The Same Graph

```
# this is the X-axis  
x = [30, 31, 32, 33, 34, 35, 36]  
  
# this is the Y-axis  
y = [10365, 15364, 20236, 20478, 25698, 30785, 35156]  
  
# write another data to make more than one plot  
x2 = [30, 31, 32, 33, 34, 35, 36]  
y2 = [30218, 35698, 39487, 43687, 45697, 55355, 66315]
```

Make The First Plot

```
plt.plot(x, y)
```

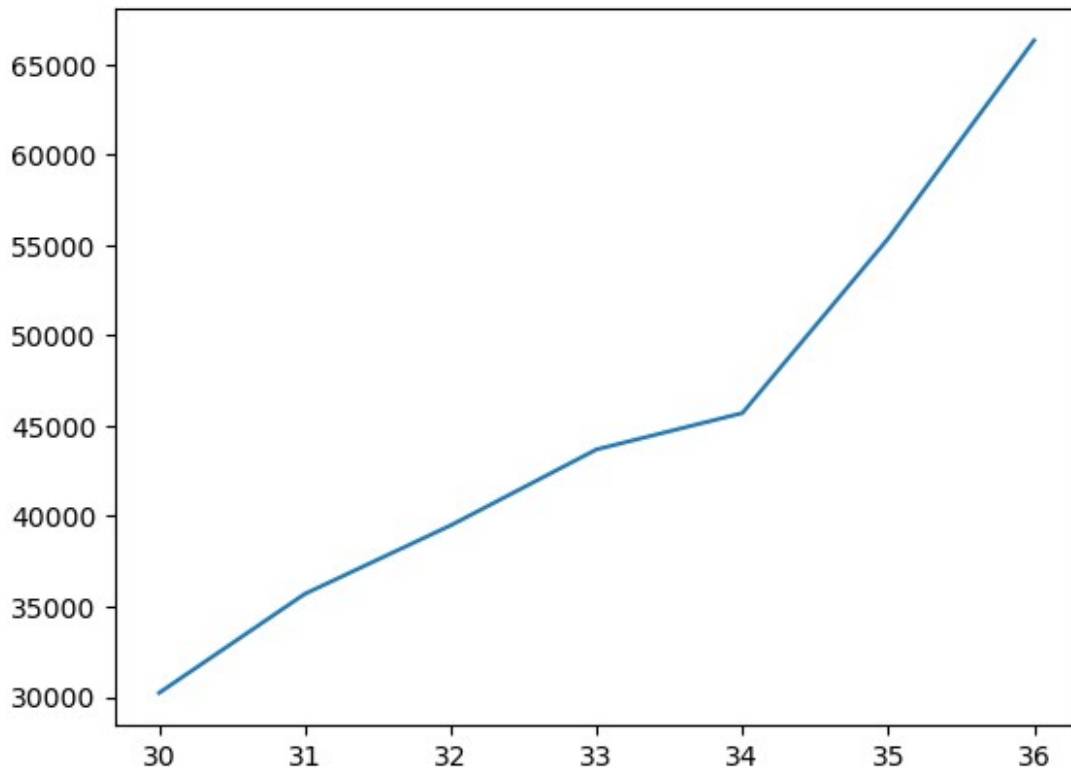
```
[<matplotlib.lines.Line2D at 0x2b6b6775820>]
```



Make The Second Plot

```
plt.plot(x2, y2)
```

```
[<matplotlib.lines.Line2D at 0x2b6b6883e60>]
```



## Mege The Two Plots

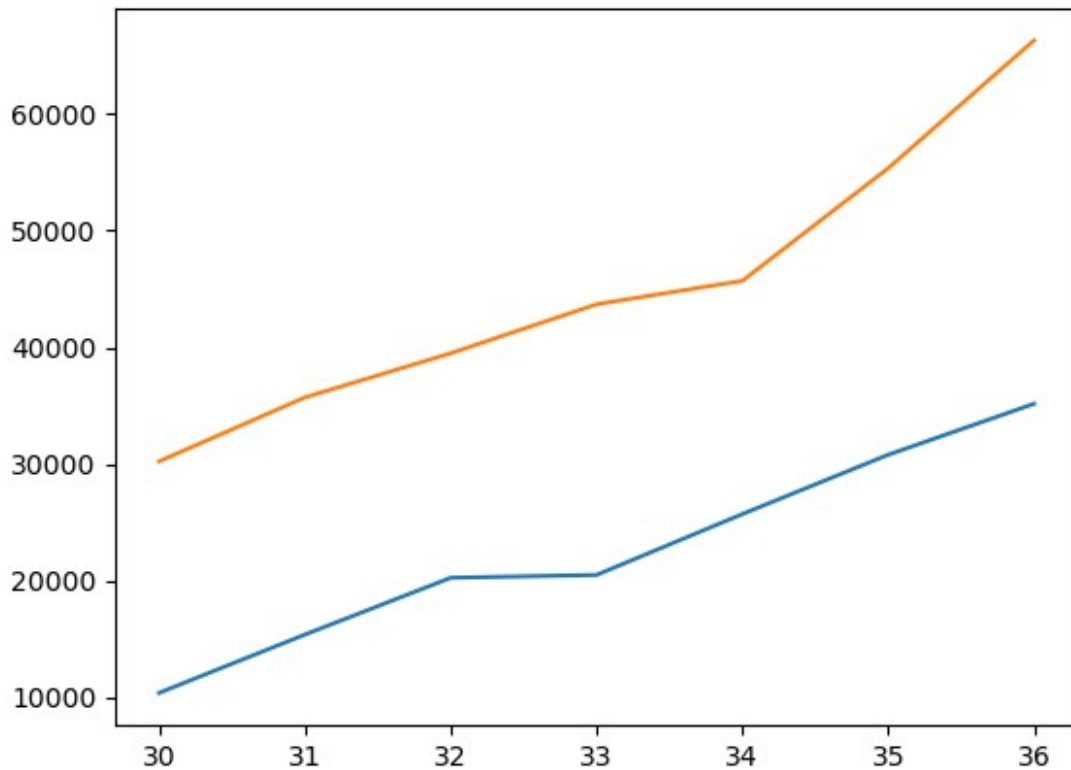
```
#  
=====
```

*# = To Merge Two Plots In One Graph, Write The Two Plots With Each Other =*

```
#  
=====
```

*==*

```
plt.plot(x, y)  
plt.plot(x2, y2)  
  
[<matplotlib.lines.Line2D at 0x2b6b5f260f0>]
```



## Determine Info About Each Plot

```
# At The First Write The Two Plots
plt.plot(x, y)
plt.plot(x2, y2)

# =====
# = Determine Info About Each Plot =
# =====
plt.legend(["Developer Salary", "Python Salary"])

<matplotlib.legend.Legend at 0x2b6b5ef75c0>
```



## You Can Male Label For Each Plot

```
plt.plot(x, y, label = "Developer Salary")  
plt.plot(x2, y2, label = "Python Salary")
```

```
# =====  
# == Then Write The Command To Show The Labels ==  
# =====  
plt.legend()
```

```
<matplotlib.legend.Legend at 0x2b6b5ff0710>
```





## Show The Grid On The Gragh

```
plt.plot(x, y, label = "Developer Salary")
plt.plot(x2, y2, label = "Python Salary")

# Then Write The Command To Show The Labels
plt.legend()

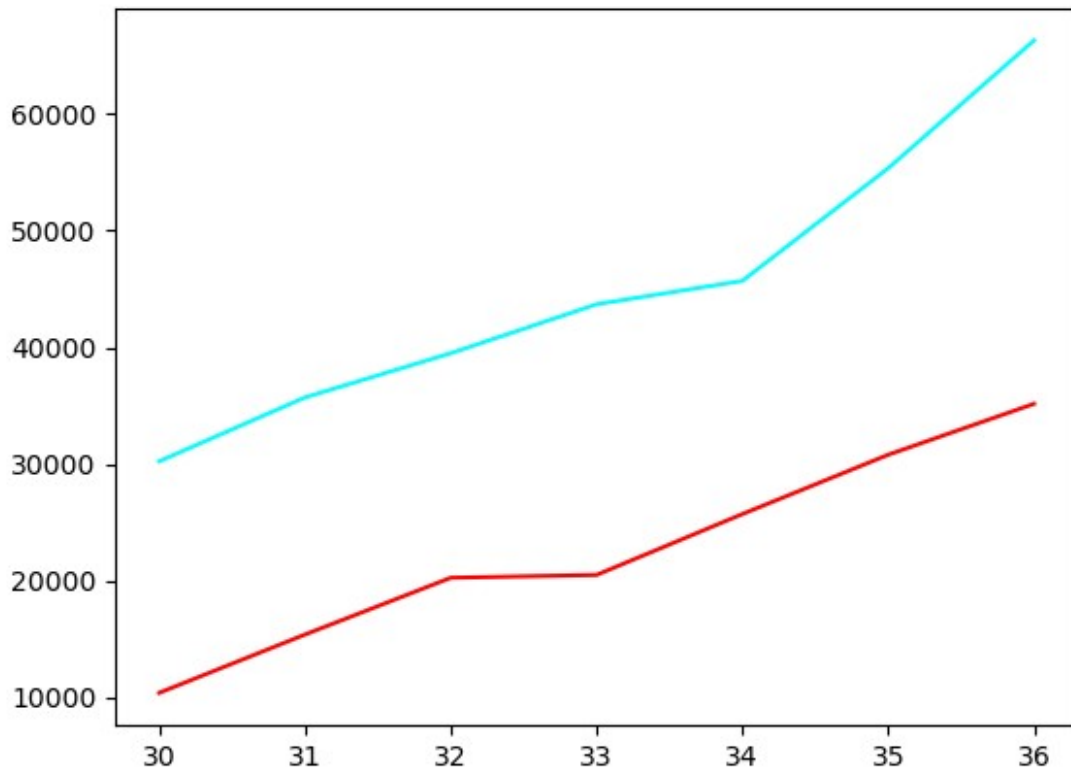
# =====
# == You Can Show The Grid On The Grapg ==
# =====
plt.grid()
```



## Change The Color Of The Plot

```
plt.plot(x, y, label = "Developer Salary", color = "red")  
plt.plot(x2, y2, label = "Python Salary", color = "cyan")
```

```
[<matplotlib.lines.Line2D at 0x2b6b69f6c60>]
```

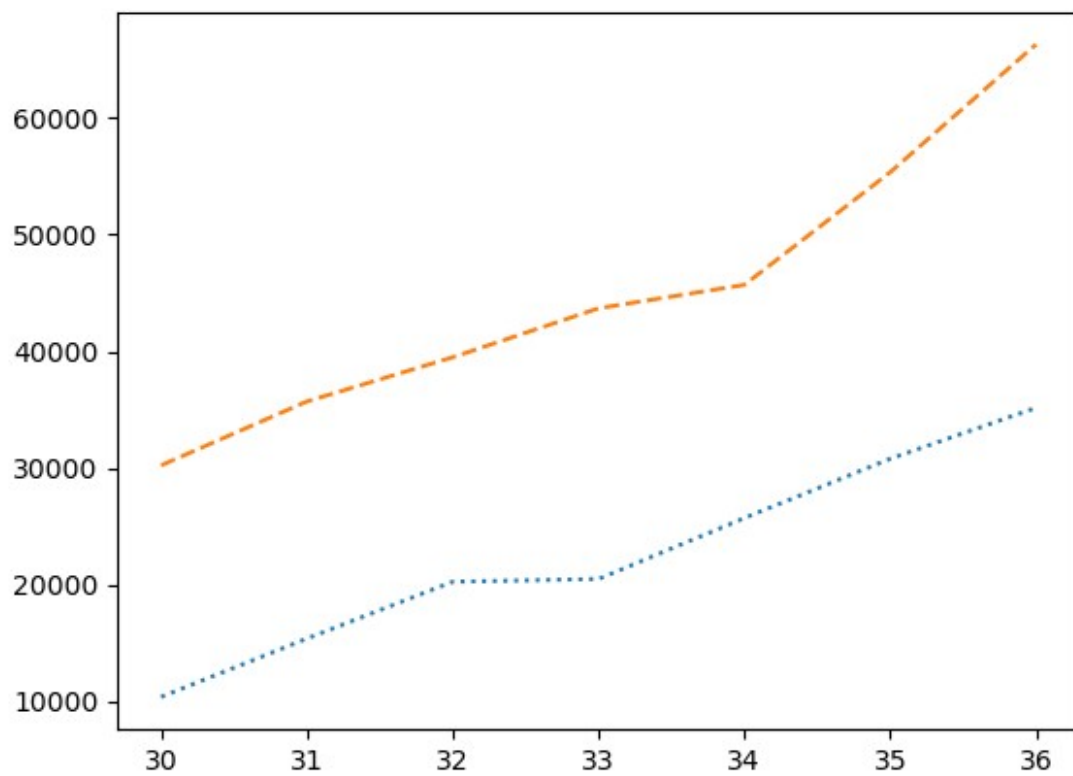


## Change The Type Of The Line























- solid
- dotted
- dashed
- dashdot
- loosely dotted
- densely dashed
- dashdotted























The default Value Is Solid

```
plt.plot(x, y, label = "Developer Salary", linestyle = "dotted")  
plt.plot(x2, y2, label = "Python Salary", linestyle = "dashed")  
[<matplotlib.lines.Line2D at 0x2b6b6970b30>]
```



# Put Marker On The Line Graph

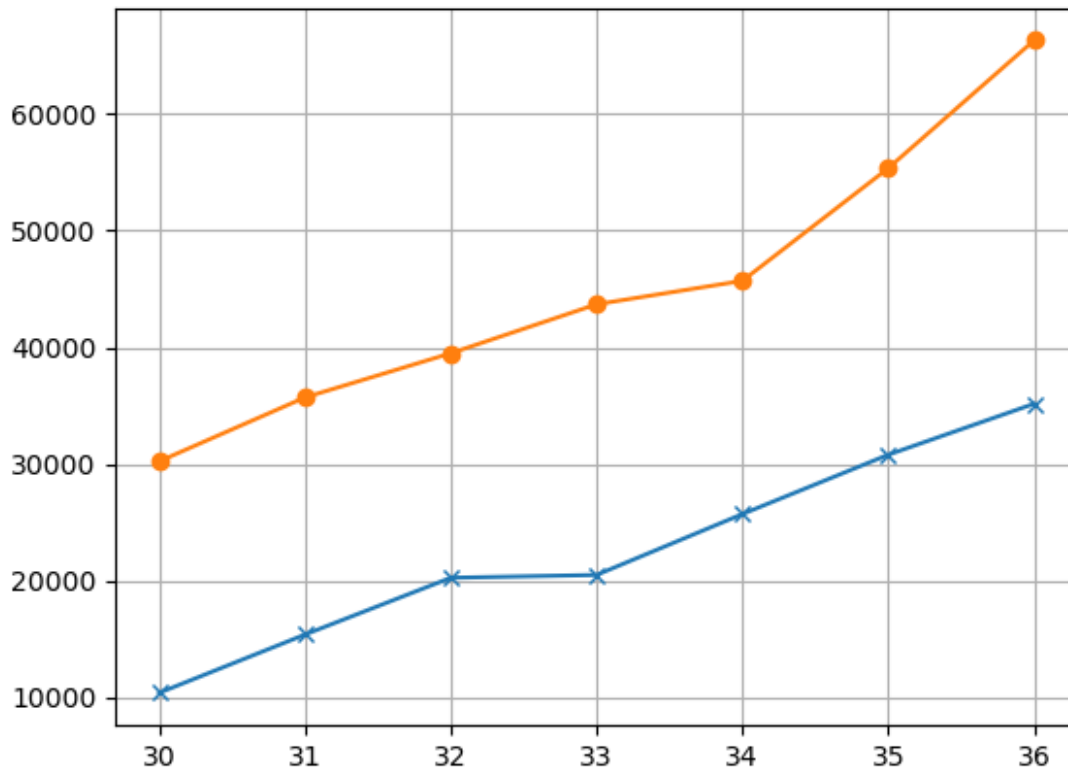
Marker	Symbol	Description	Marker	Symbol	Description
"."		Point	"g"		octagon
","		Pixel	"s"		square
"o"		Circle	"p"		pentagon
"v"		triangle_down	"P"		plus (filled)
"^"		triangle_up	"+"		star
"<"		triangle_left	"h"		hexagon1
">"		triangle_right	"H"		hexagon2
"1"		tri_down	"+"		plus
"2"		tri_up	"x"		x
"3"		tri_left	"X"		x (filled)
"4"		tri_right	"D"		diamond

Marker	Symbol	Description	Marker	Symbol	Description
"."		Point	"g"		octagon
","		Pixel	"s"		square
"o"		Circle	"p"		pentagon
"v"		triangle_down	"P"		plus (filled)
"^"		triangle_up	"+"		star
"<"		triangle_left	"h"		hexagon1
">"		triangle_right	"H"		hexagon2
"1"		tri_down	"+"		plus
"2"		tri_up	"x"		x
"3"		tri_left	"X"		x (filled)
"4"		tri_right	"D"		diamond

m02

circle

```
plt.plot(x, y, label = "Developer Salary", marker='x')  
plt.plot(x2, y2, label = "Python Salary", marker="o")  
plt.grid()
```



## Change The Line Width

```
plt.plot(x, y, label = "Developer Salary", linewidth=2)  
plt.plot(x2, y2, label = "Python Salary", linewidth=3)  
plt.legend()
```

<matplotlib.legend.Legend at 0x2b6b69bcbf0>



## Save The Plot

```
plt.plot(x, y, label = "Developer Salary", linewidth=2)
plt.plot(x2, y2, label = "Python Salary", linewidth=3)
plt.legend()
plt.savefig('SalaryGrid.png')
```



## Change The Graph Style

Show Available Styles

```
plt.style.available
```

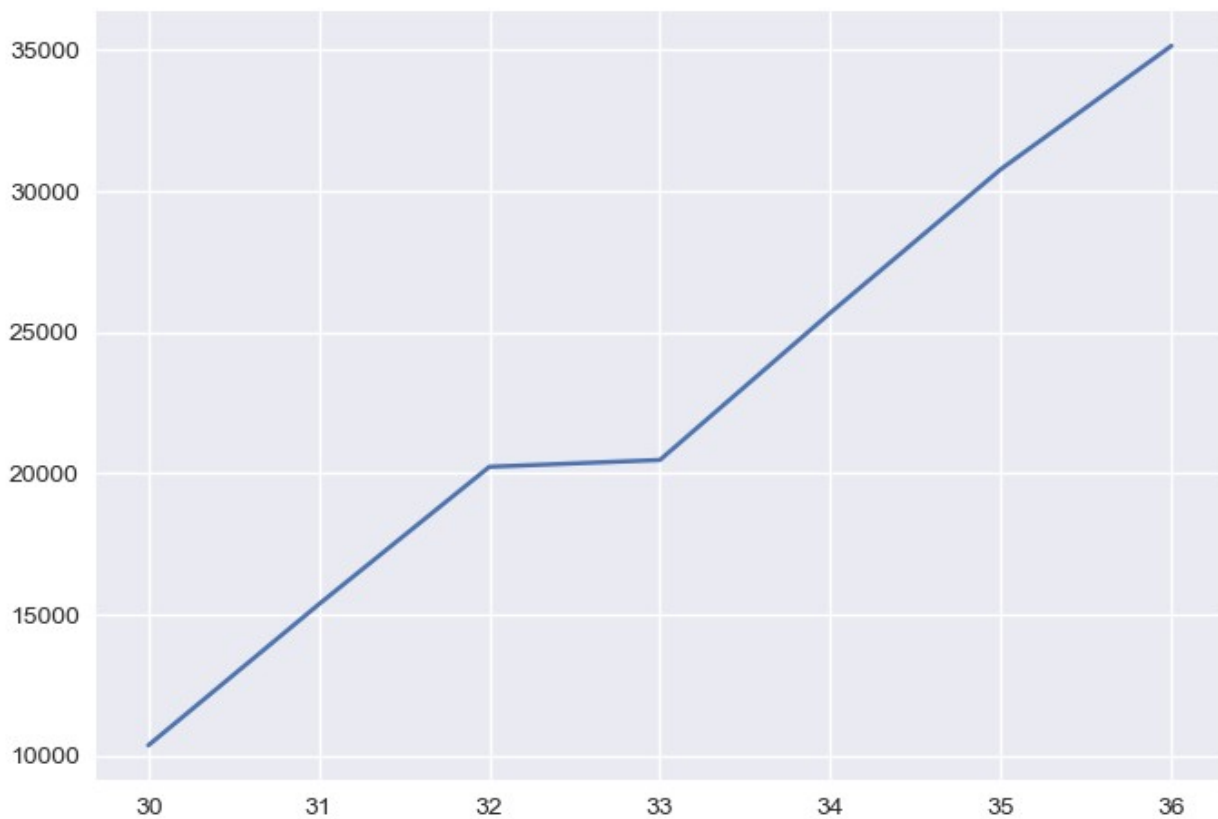
```
['Solarize_Light2',  
'_classic_test_patch',  
'_mpl-gallery',  
'_mpl-gallery-nogrid',  
'bmh',  
'classic',  
'dark_background',  
'fast',  
'fivethirtyeight',  
'ggplot',  
'grayscale',  
'seaborn-v0_8',  
'seaborn-v0_8-bright',  
'seaborn-v0_8-colorblind',  
'seaborn-v0_8-dark',  
'seaborn-v0_8-dark-palette',  
'seaborn-v0_8-darkgrid',  
'seaborn-v0_8-deep',
```



```
'seaborn-v0_8-muted',  
'seaborn-v0_8-notebook',  
'seaborn-v0_8-paper',  
'seaborn-v0_8-pastel',  
'seaborn-v0_8-poster',  
'seaborn-v0_8-talk',  
'seaborn-v0_8-ticks',  
'seaborn-v0_8-white',  
'seaborn-v0_8-whitegrid',  
'tableau-colorblind10']
```

### Change The Style Of The Grph

```
plt.style.use('seaborn-v0_8')  
plt.plot(x, y, label = "Developer Salary", marker='x')  
plt.show()
```



### Change The Style Of The Graph

```
plt.style.use('seaborn-v0_8-paper')  
plt.plot(x, y, label = "Developer Salary", marker='x')  
plt.show()
```

