16/9/22

classmate
Date
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Chapter : Plotting with Matplotlib

=) Creating line charts with different markers styles using for loop.

```
import matplotlib.pyplot as plt
x = ["a", "b", "c", "d"]
y = [10, 20, 30, 40]
markers = ['+', 'd', 's', 'h']

for i, j, k in zip(x, y, markers):
    plt.plot(i, j, markers = k)
plt.plot(x, y)
plt.show()
```

Qs. Write a python program to represent the GDP of two countries for the past five years.

Ans

```
import matplotlib.pyplot as plt

x = [2005, 2006, 2007, 2008, 2009]
c1 = [10, 8, 6, 7, 5]
c2 = [8, 4, 7, 10, 10]
plt.plot(x, c1, color = 'b', label = "India")
plt.plot(x, c2, color = 'c', label = "USA")
plt.legend(loc = "lower left")
plt.xlabel("Year")
plt.ylabel("GDP")
plt.title("Year wise GDP")
plt.show()
```

Creating Bar graph

```
import matplotlib.pyplot as plt
x = ['a', 'b', 'c', 'd', 'e']
c1 = [10, 20, 30, 40, 50]

plt.bar(x, c1)
plt.show()
```

=) In order to generate bar graph we need two parameters.

Changing width of the Bar in Bar Chart

=) In order to change the width of the bar graph, the following argument is used.

```
import matplotlib.pyplot as plt
x = ['a', 'b', 'c', 'd']
y = [10, 20, 30, 40]
plt.bar(x, y, width = [0.5])
plt.show()
```

=) Setting customised width or different width to different bars of a bar graph.

```
plt.bar(x, y, width = [0.5, 0.1, 0.3, 0.2])
```

Changing colour in a bargraph

```
plt.bar(x, y, color = 'w')
```

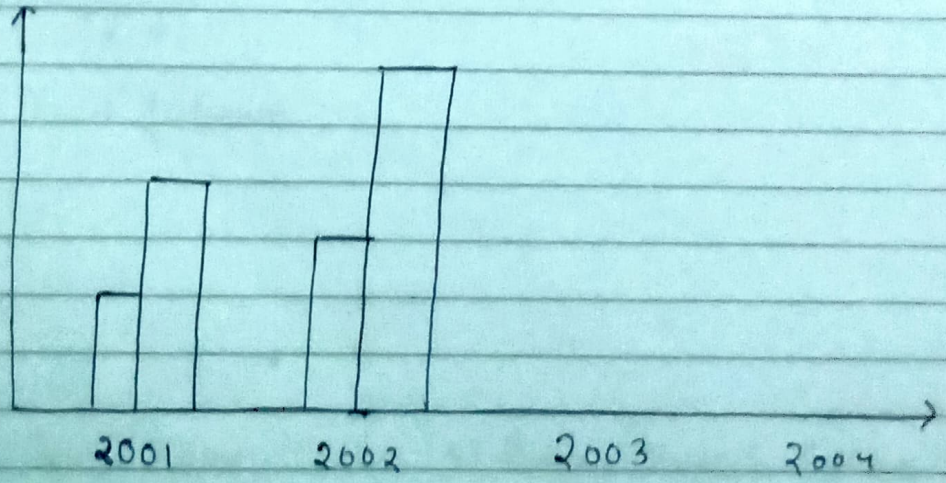
Changing different colors in bar graph

```
plt.bar(x, y, color = ['c', 'b', 'g', 'w'])
```

* Multiple bars

```
import matplotlib.pyplot as plt
import numpy as np
x = np.array(5, 10, 15, 20)
y_india = [10, 11, 15, 25]
y_China = [20, 23, 30, 50]
plt.bar(x, y_india, width = 0.5)
plt.bar(x+0.5, y_China, width = 0.5)
plt.xticks(x+0.25, [2001, 2002, 2003, 2004])
plt.show()
```

Output:



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Creating Stack Bars

```
import matplotlib.pyplot as plt

x = ["Mukesh", "Ram", "Alex", "Bob"]
team_1 = [10, 15, 20, 10]
team_2 = [5, 10, 10, 5]
plt.bar(x, team_1)
plt.bar(x, team_2)
plt.show()
```