Plots - IV

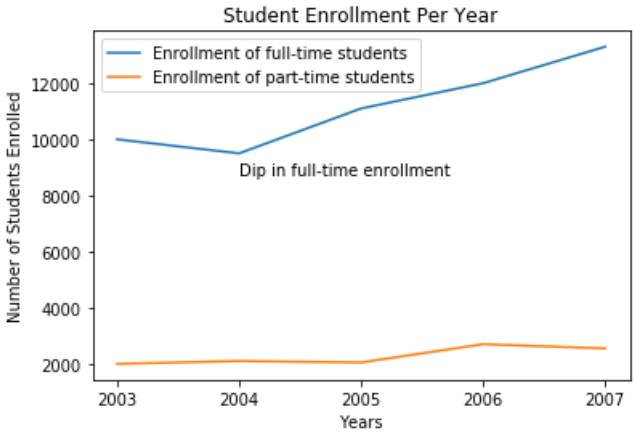
Additional Customizations - Highlighting portions of a graph using texts and arrows.

Specific portions of a graph can be highlighted with texts and/or arrows.

1. To add text to a specific location on the graph use the text() function. The first two arguments are the x and y co-ordinates where you want the text to display. The third argument is the text.
2. To draw a vertical line, use the axvline() function specifying the x-coordinate
3. To draw a horizontal line, use the axhline() function specifying the y-coordinate
4. The annotate() function links text to a specified data point by drawing an arrow from the text to the point.
    - The annotate() function accepts, the text, coordinates of the text and coordinates of the data point as arguments.

In [1]:

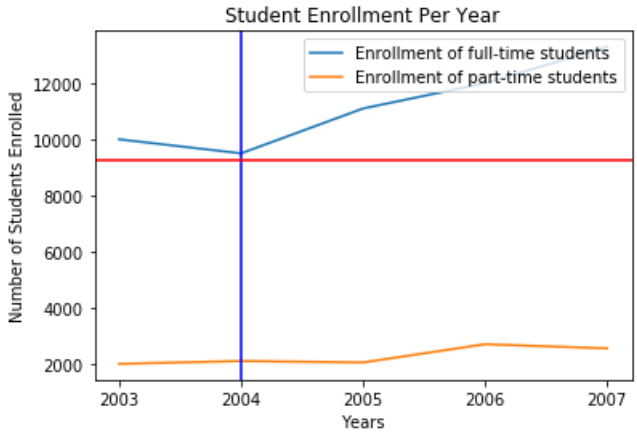
```
'''
To add text to a specific location on the graph use the text() function. The first two arguments a
re the x and y
co-ordinates where you want the text to display.  The third argument is the text.
'''

import matplotlib.pyplot as plt
#define the data for the two axes
years = ['2003', '2004', '2005', '2006', '2007']
full_time_students = [10000, 9500, 11100, 12000, 13300]
part_time_students = [2000, 2100, 2050, 2700, 2550]

#plot the two lines
plt.plot(years, full_time_students, label = "Enrollment of full-time students")
plt.plot(years, part_time_students, label = "Enrollment of part-time students")

#Assign the labels for the x-axis and the y-axis.  Set the graph title.  Display the legend
plt.xlabel('Years')
plt.ylabel('Number of Students Enrolled')
plt.title('Student Enrollment Per Year')
plt.legend(loc='best')

plt.text('2004', 8750, 'Dip in full-time enrollment')

# function to show the plot
plt.show()
```



In [3]:

```
'''
To add a vertical line use the axvline() function
To add a horizontal line use the axhline() function.

'''

import matplotlib.pyplot as plt
#define the data for the two axes
```

```
#define the data for the two axes
years = ['2003', '2004', '2005', '2006', '2007']
full_time_students = [10000, 9500, 11100, 12000, 13300]
part_time_students = [2000, 2100, 2050, 2700, 2550]

#plot the two lines
plt.plot(years, full_time_students, label = "Enrollment of full-time students")
plt.plot(years, part_time_students, label = "Enrollment of part-time students")

#Assign the labels for the x-axis and the y-axis.  Set the graph title
plt.xlabel('Years')
plt.ylabel('Number of Students Enrolled')
plt.title('Student Enrollment Per Year')

# show a legend on the plot
plt.legend(loc='upper right')

#use the axvline function to draw a vertical line at the specified x-coordinate
plt.axvline('2004', color='blue')

#Use the axhline() function to draw a horizontal line at the specified y-coordinate
plt.axhline(9250, color='red')

# function to show the plot
plt.show()
```



In [4]:

```
'''
To annotate a specific point in the plot use the annotate function.  The annotate function accepts
four arguments:
1. The text to be displayed
2. The xy coordinates of the point to be highlighted
3. The xy coordinates of the text
4. The arrowstyle properties.  This is a dictionary of the different style properties associated w
ith the arrow.
The keyword argument is 'arrowprops'
'''
import matplotlib.pyplot as plt
#define the data for the two axes
years = ['2003', '2004', '2005', '2006', '2007']
full_time_students = [10000, 9500, 11100, 12000, 13300]
part_time_students = [2000, 2100, 2050, 2700, 2550]

#plot the two lines
plt.plot(years, full_time_students, label = "Enrollment of full-time students")
plt.plot(years, part_time_students, label = "Enrollment of part-time students")

#Assign the labels for the x-axis and the y-axis.  Set the graph title
plt.xlabel('Years')
plt.ylabel('Number of Students Enrolled')
plt.title('Student Enrollment Per Year')

# show a legend on the plot
plt.legend(loc='best')

#Provide a dictionary of properties to specify the arrow style
arrow_properties = {
'facecolor': 'yellow',
```

```
'facecolor': 'yellow',
'headlength': 5,
'width': 4
}
# Use the annotate() function to link text to the specified coordinates on the graph.  Set the arr
owprops property value
plt.annotate('Dip in full-time enrollment', xy=('2004', 9250), xytext=('2005', 8500), arrowprops=ar
row_properties)


# function to show the plot
plt.show()
```