Assignment

American International University Bangladesh (AIUB)

***Subject*: PROGRAMMING IN PYTHON**

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Title: Creating a Grade Sheet

Section: A

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Creating a Grade Sheet

In [ ]:
```
f = open("stidents_info.csv")
```

Create or open file to read data

In [ ]:
```
output = []
output.append(["Name", "ID", "Grade"])
```

The append() method adds an item to the end of the list.

In [ ]:
```
for line in f:
  line = line.strip()
  line = line.split(",")
```

Iterate each line in file

In [ ]:
```
if(line[0] == "Name"):
    continue
```

Check that line first line or not

In [ ]:
```
total = int(line[2]) + int(line[3]) + int(line[4]) + int(line[5]) + int(line[6])

  grade = "F"
```

Calculate total marks

In [ ]:
```
if(total>=90 and total <=100):
    grade = "A+"
  elif(total>=85 and total <=89):
    grade = "A"
  elif(total>=80 and total <=84):
    grade = "B+"
  elif(total>=75 and total <=79):
    grade = "B"
  elif(total>=70 and total <=74):
    grade = "C+"
  elif(total>=65 and total <=69):
    grade = "C"
  elif(total>=60 and total <=64):
    grade = "D+"
  elif(total>=50 and total <=59):
    grade = "D"
  elif(total>=0 and total <=49):
    grade = "F"

  output.append([line[0], line[1], grade])
```

Assume grade according to total marks

In [ ]:
```
f = open("grade.xls", "w")
```

Create or open file to write data

In [ ]:
```
for line in output:
  f.write(line[0]+","+line[1]+","+line[2]+"\n")
```

Write output data to grade.xls file

In [ ]:
```
print("Output file is written.")
```

Print = "Output file is written."

In [ ]:
```
f.close()
```

Close opened file

Seaborn analysis

In [4]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns

%matplotlib inline
%reload_ext autoreload
%autoreload 2
```

In [5]:
```
print(sns.get_dataset_names())
```

```
['anagrams', 'anscombe', 'attention', 'brain_networks', 'car_crashes', 'diamonds', 'dots', 'exercise', 'flights', 'fmri', 'gammas', 'geyser', 'iris', 'mpg', 'penguins', 'planets',
'tips', 'titanic']
```

In [27]:
```
grade_sheet = sns.load_dataset("grade")
```

In [28]:
```
grade_sheet
```

Out[28]:

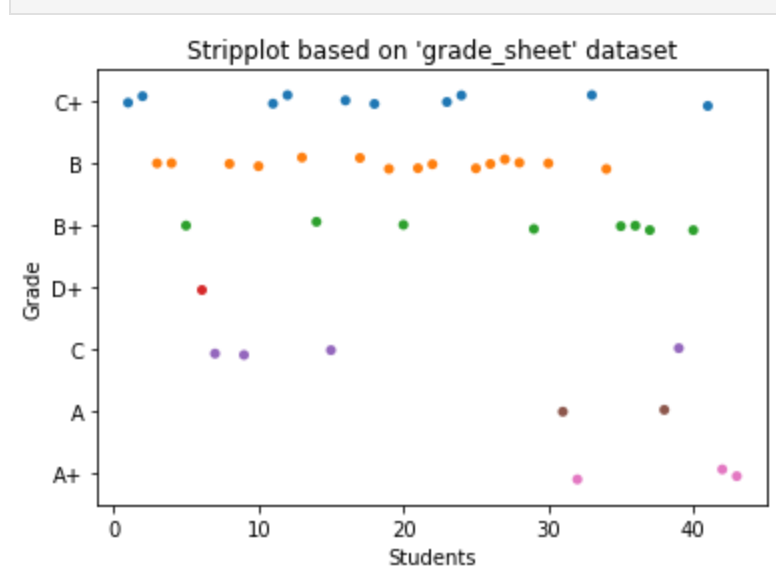
	Students	Name	Student ID	Quiz 1	Quiz 2	Quiz 3	Best 2 Quiz	Assignment	Lab Exam	Attendance	Total Mark	Grade
0	1	MASRUR, KHALID	17-34409-1	0	8	17	25	17	18	10	70	C+
1	2	PIYAS, SANJADUL ALOM	17-34746-2	12	6	15	27	15	21	10	73	C+
2	3	SUMNOON-E-TAHA	17-35536-3	14	12	15	29	20	18	10	77	B
3	4	NILOY, MEHEDI HASAN	17-35672-3	12	12	15	27	19	21	10	77	B
4	5	AMIN, MUHAMMAD AL	17-35677-3	16	14	15	31	19	24	10	84	B+
5	6	EHSAN, KHAN MD.	18-37027-1	0	0	15	15	17	21	10	63	D+
6	7	SIDDIQUE, HIZBULLAH ATIK	18-37051-1	12	10	12	24	19	15	10	68	C
7	8	KHAN, JAFRIN MONSUR	18-37144-1	12	12	13	25	17	24	10	76	B
8	9	TANVIR, MD. FARHAN	18-37827-2	14	14	11	28	19	9	10	66	C
9	10	HASAN, SAZZAD	18-37912-2	14	12	9	26	18	21	10	75	B
10	11	SHARAN, MEHRAB HOSSAIN	18-38923-3	14	14	15	29	18	15	10	72	C+
11	12	AMAN, MD. RATUL	18-39130-3	12	10	14	26	20	15	10	71	C+
12	13	HOSSAIN, MD. IMRAN	18-39243-3	14	8	17	31	20	18	10	79	B
13	14	SAUMIK, MD. ASIKUR RAHMAN	19-39342-1	18	16	20	38	20	15	10	83	B+
14	15	ANJUM, MD. SAMIN	19-39434-1	0	16	0	16	19	21	10	66	C
15	16	YEASDANI, NURA	19-39458-1	16	18	14	34	20	10	10	74	C+
16	17	MANNAN, LAMIA	19-39573-1	12	10	15	27	20	18	10	75	B
17	18	ARNOB, TAHMID SHAHRIAR	19-39674-1	18	0	15	33	16	15	10	74	C+
18	19	ASIF, ISHRAK AHMED	19-40055-1	10	16	15	31	19	15	10	75	B
19	20	ALI, MOHAMMAD	19-40186-1	10	16	15	31	19	21	10	81	B+
20	21	HASSAIN, HASIBUL	19-40194-1	14	0	15	29	20	18	10	77	B
21	22	HARUN, ASIF IQBAL BIN	19-40223-1	20	14	17	37	20	10	10	77	B
22	23	HAQUE, SAIF	19-40255-1	12	16	15	31	18	15	10	74	C+
23	24	PARAG, MD. AL-EMRAN	19-40296-1	14	12	15	29	18	15	10	72	C+
24	25	PRANTO, MOHAMMAED HASIB	19-40359-1	18	14	17	35	20	12	10	77	B
25	26	RATUL, READOAN KHAN	19-40544-1	18	0	12	30	19	18	10	77	B
26	27	SADIK, MD MEHRAB	19-40677-1	14	8	18	32	12	21	10	75	B
27	28	ONKITA, TAMIM SULTANA	19-40683-1	14	6	15	29	18	21	10	78	B
28	29	MEGHLA, REHENUMA TABASSUM	19-40703-1	16	6	18	34	17	21	10	82	B+
29	30	HASAN, MD. MAHMUDUL	19-40751-1	10	14	15	29	18	21	10	78	B
30	31	SOIKAT, SAFIQUL ISLAM	19-40804-2	18	8	15	32	19	24	10	85	A
31	32	UDDIN, MD. ARMAN	19-40836-2	20	14	20	40	19	24	10	93	A+
32	33	MAJID, ABDUL	19-40877-2	10	8	15	25	20	18	10	73	C+
33	34	WASEI, S. M. A.	19-40948-2	20	10	11	31	20	17	10	78	B
34	35	MOBARAK, BHUIYAN SAAD BIN	19-41059-2	20	8	14	34	20	20	10	84	B+
35	36	UDDIN, RAIHAN	19-41258-3	20	12	20	40	20	0	10	80	B+
36	37	KHAN, FARDIN HASAN	19-41275-3	8	12	17	29	20	21	10	80	B+
37	38	HASSAN, MD. IBNA JAHID	19-41284-3	18	14	15	33	19	24	10	86	A
38	39	BHOWMICK, MOHIM	19-41341-3	14	10	15	29	18	12	10	69	C
39	40	RAHMAN, MD. MAHFUZUR	19-41348-3	16	14	17	33	20	18	10	81	B+
40	41	SHUVO, ABDULLAH AL MAMUN	19-41450-3	14	12	8	26	19	15	10	70	C+
41	42	SAHA, BIJON	19-41479-3	20	10	20	40	20	21	10	91	A+
42	43	TARFI, KASIRA - TUT-	19-41516-3	20	14	20	40	20	24	10	94	A+

Lineplot

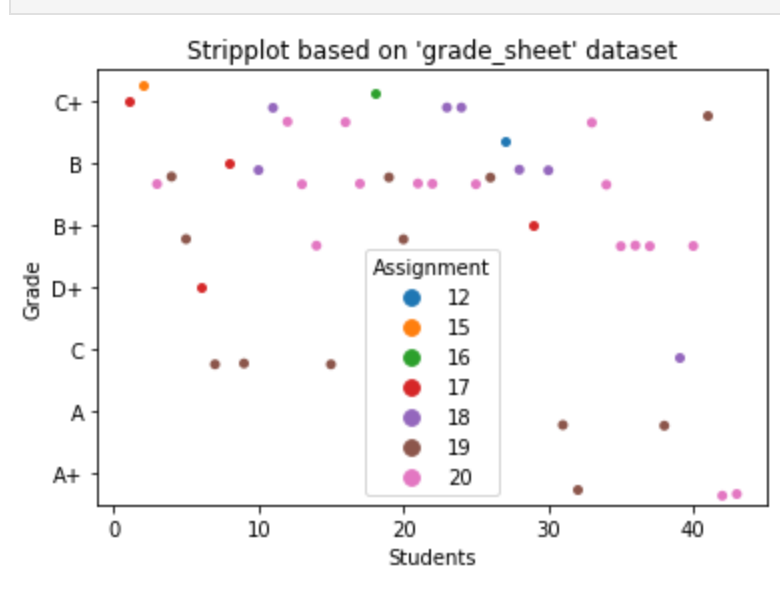
In [52]:
```
sns.lineplot(x="Grade", y="Students", data=grade_sheet)
# Setting title of the plot
plt.title("Lineplot based on 'grade_sheet' dataset");
```

Stripplot

In [30]:
```
sns.stripplot(x='Students', y='Grade', data=grade_sheet)
plt.title("Stripplot based on 'grade_sheet' dataset");
```

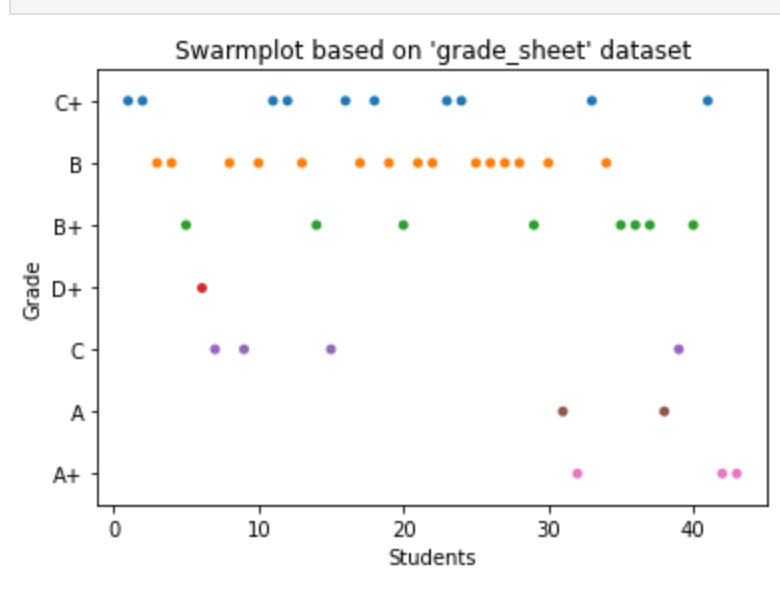


In [33]:
```
sns.stripplot(x='Students', y='Grade', data=grade_sheet,
 jitter=True,
 hue='Assignment',
 dodge=True
 )
plt.title("Stripplot based on 'grade_sheet' dataset");
```



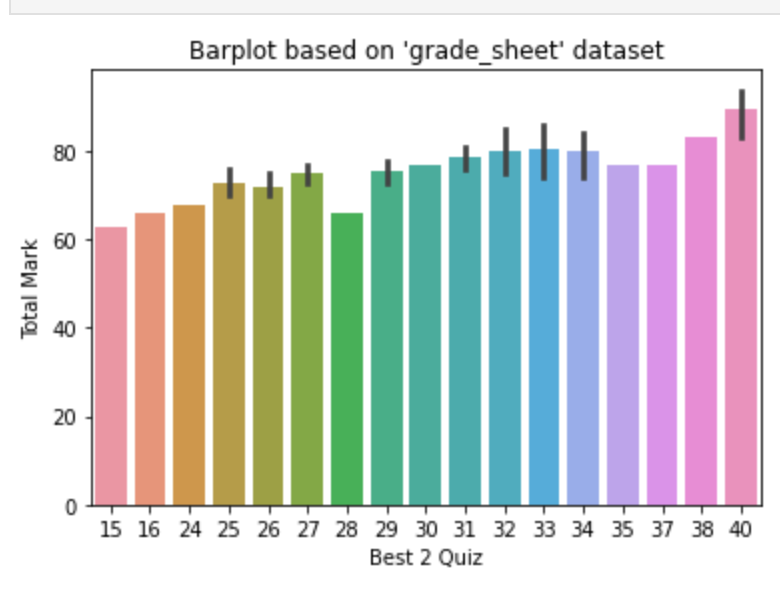
Swarmplot

In [34]:
```
sns.swarmplot(x='Students', y='Grade', data=grade_sheet)
plt.title("Swarmplot based on 'grade_sheet' dataset");
```



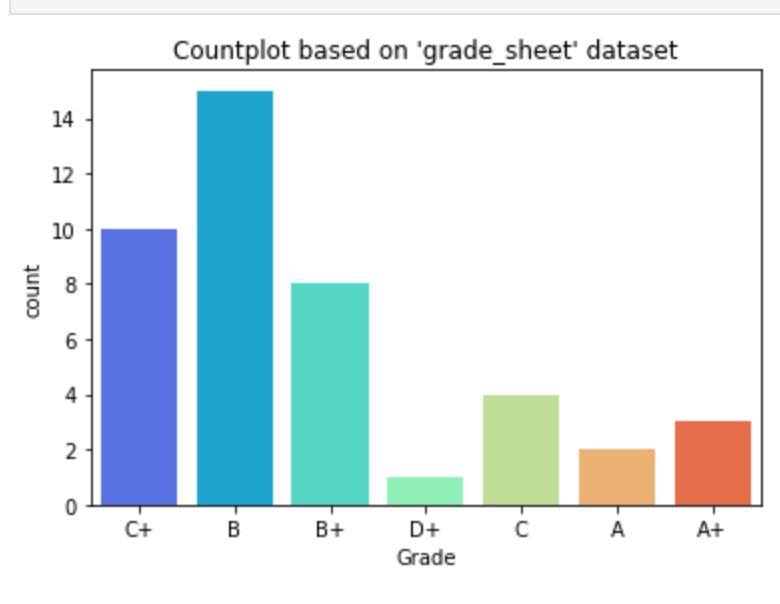
Barplot

In [35]:
```
sns.barplot(x="Best 2 Quiz", y="Total Mark", data=grade_sheet)
plt.title("Barplot based on 'grade_sheet' dataset");
```



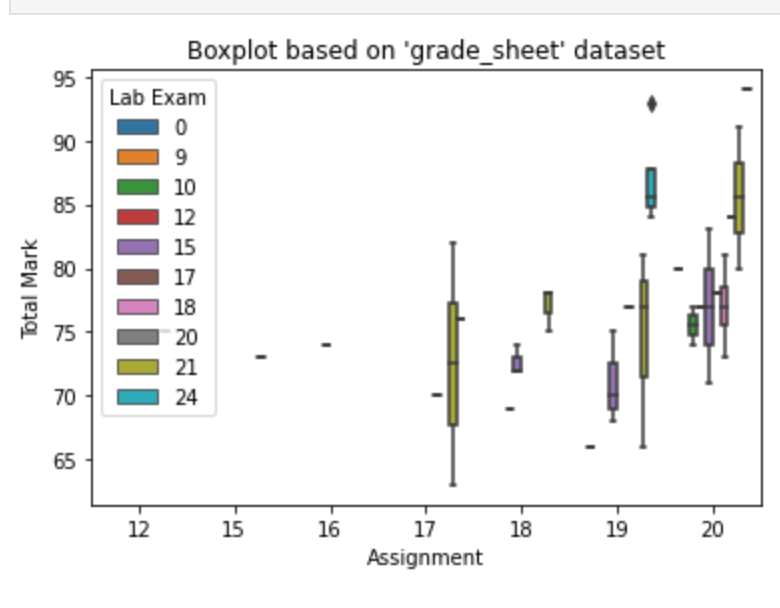
Countplot

In [36]:
```
sns.countplot(x="Grade", data=grade_sheet,
 palette="rainbow")
plt.title("Countplot based on 'grade_sheet' dataset");
```



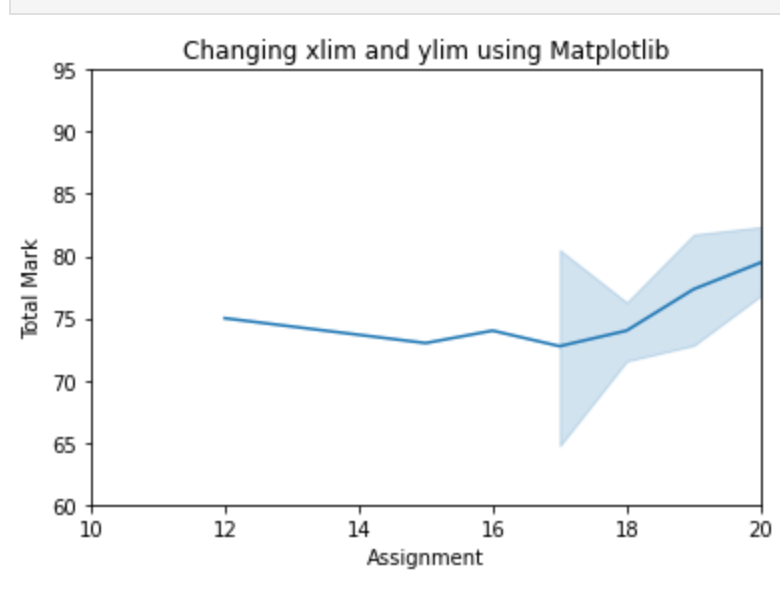
Boxplot

In [39]:
```
sns.boxplot(x="Assignment", y="Total Mark", data=grade_sheet,
 hue="Lab Exam")
plt.title("Boxplot based on 'grade_sheet' dataset");
```



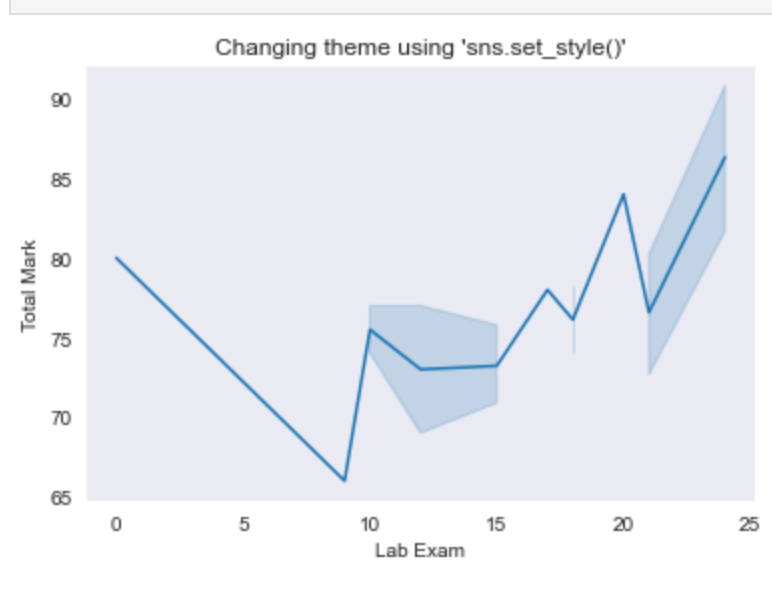
Setting xlim and ylim using Matplotlib Function

In [47]:
```
sns.lineplot(x='Assignment', y='Total Mark', data=grade_sheet)
plt.xlim(10, 20) # Setting xlim
plt.ylim(60, 95) # Setting ylim
plt.title("Changing xlim and ylim using Matplotlib");
```



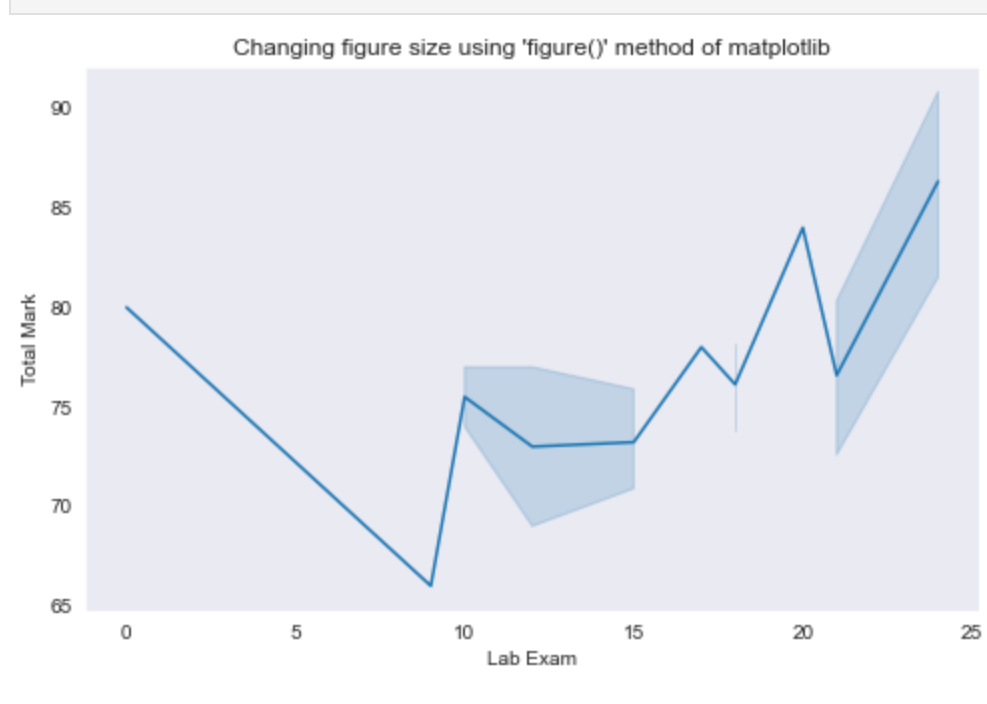
Changing Figure Aesthetic

In [48]:
```
# Changing the theme to "dark"
sns.set_style("dark")
# Draw a line plot
sns.lineplot(x='Lab Exam', y='Total Mark', data=grade_sheet)
plt.title("Changing theme using 'sns.set_style()'");
```



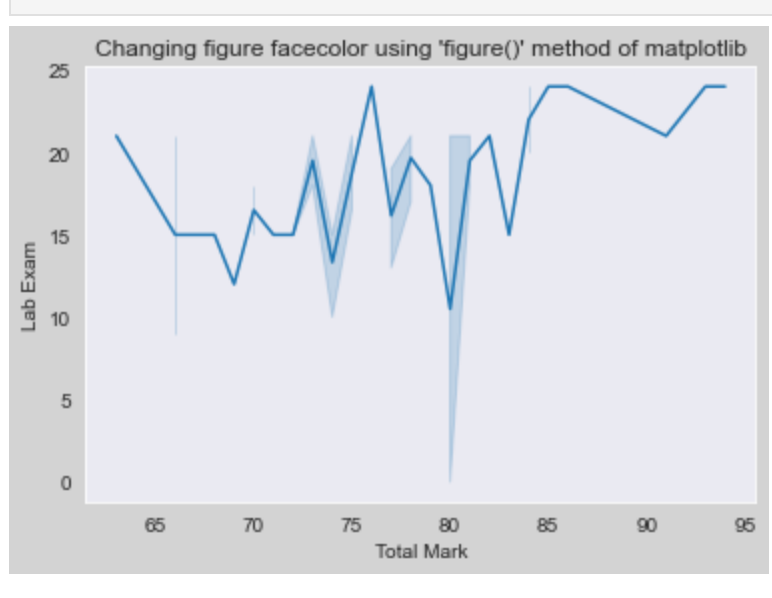
Changing Figure Size

In [50]:
```
# changing the figure size
plt.figure(figsize = (8, 5))
sns.lineplot(x="Lab Exam", y="Total Mark", data=grade_sheet)
plt.title("Changing figure size using 'figure()' method of matplotlib");
```



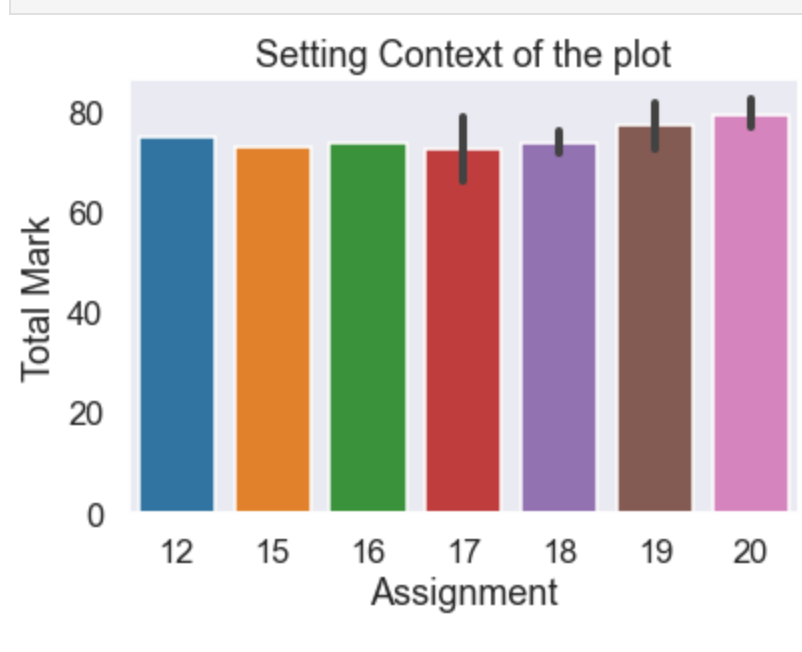
Changing Figure Facecolor

In [54]:
```
# changing the figure facecolor
plt.figure(facecolor="lightgray")
sns.lineplot(x="Total Mark", y="Lab Exam", data=grade_sheet)
plt.title("Changing figure facecolor using 'figure()' method of matplotlib");
```



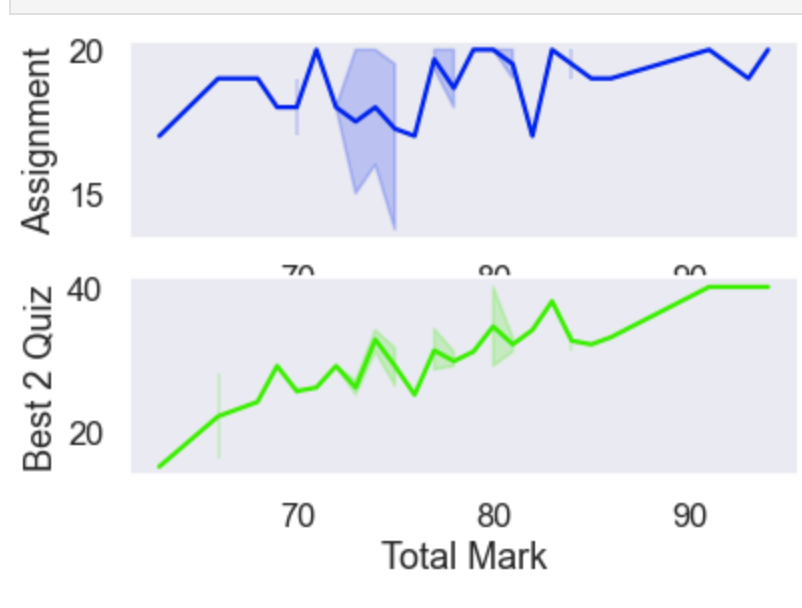
Scaling the plots

In [58]:
```
# changing context to "talk"
sns.set_context("talk")
bar_plot = sns.barplot(x='Assignment', y='Total Mark', data=grade_sheet)
bar_plot.set_title("Setting Context of the plot");
```



Setting the default Color Palette

In [61]:
```
# Changing color palette
sns.set_palette('winter')
plt.subplot(211)
sns.lineplot(x='Total Mark', y='Assignment', data=grade_sheet)
# Changing color palette
sns.set_palette('prism')
plt.subplot(212)
sns.lineplot(x='Total Mark', y='Best 2 Quiz', data=grade_sheet);
```



Linear Regression Model

In [63]:
```
 # Linear Regression Model using regplot()
sns.regplot(x="Total Mark", y="Students", data=grade_sheet);
```