In [1]:

pip install pandas

Requirement already satisfied: pandas in c:\users\sakshi potdarvc\anaconda3\lib\site-packages (1.3.4)

Requirement already satisfied: pytz>=2017.3 in c:\users\sakshi potdarvc\anaconda3\lib \site-packages (from pandas) (2021.3)

Requirement already satisfied: numpy>=1.17.3 in c:\users\sakshi potdarvc\anaconda3\li b\site-packages (from pandas) (1.20.3)

Requirement already satisfied: python-dateutil>=2.7.3 in c:\users\sakshi potdarvc\ana conda3\lib\site-packages (from pandas) (2.8.2)

Requirement already satisfied: six>=1.5 in c:\users\sakshi potdarvc\anaconda3\lib\sit e-packages (from python-dateutil>=2.7.3->pandas) (1.16.0)

Note: you may need to restart the kernel to use updated packages.

In [5]:

import pandas as pd
import numpy as np

In [7]:

a = pd.read_csv(r'Downloads\StudentsPerformance1 - StudentsPerformance1.csv')

In [9]:

a.describe()

Out[9]:

	matn score	reading score	writing score
count	19.000000	19.000000	17.000000
mean	61.421053	67.736842	65.294118
std	19.712703	18.902798	20.250817
min	18.000000	32.000000	28.000000
25%	46.500000	53.500000	46.000000
50%	65.000000	72.000000	70.000000
75 %	74.000000	82.000000	78.000000
max	90.000000	95.000000	93.000000

In [10]:

a.head(10)

Out[10]:

	gender	race/ethnicity	parental level of education	lunch	test preparation course	math score	reading score	writing score
0	female	group B	bachelor's degree	standard	none	72	72	NaN
1	female	group C	some college	standard	completed	69	90	88.0
2	female	group B	master's degree	standard	none	90	95	93.0
3	male	group A	associate's degree	free/reduced	none	47	57	44.0
4	male	group C	some college	standard	none	76	78	75.0
5	female	group B	associate's degree	standard	none	71	83	78.0

		gender	race/ethnicity	parental level of education	lunch	prepara co	ition	ath r ore	eading score	writing score
	6	female	group B	some college	standard	comp	leted	88	95	92.0
	7	male	group B	some college	free/reduced	I	none	40	43	39.0
	8	male	group D	high school	free/reduced	comp	leted	64	64	67.0
	9	female	group B	high school	free/reduced	ı	none	38	60	NaN
n [11]:	a.	isnull	().sum()							
ut[11]:	rac par lur tes mat rea wri	nch	level of eduction course e core core	0						
n [13]:	a	dtypes								
out[13]:	par lur tes mat rea wri	nch	level of eduction courselection courselection courselection core	cation ob ob se ob i i	ject ject ject ject nt64 nt64					
n [14]:	a	dronna								
		dropna	thod DataFran	ne.dropna of	gender i	race/ethn	icitv pa	rental	level	of educ
n [14]: out[14]:	 on	ound me	thod DataFram		_	race/ethn			level	of educa
	 b0	ound me	lunch \ e grou	ір В	bachelor's	s degree	sta	ndard	level	of educa
	 on	ound me	lunch \ e grou e grou	ір В ір С	bachelor's		sta sta		. level	of educ
	 on 0 1	femalo femalo femalo malo	lunch \ e grou e grou e grou e grou	up B up C up B	bachelor's some master's associate's	s degree college s degree s degree	sta sta	ndard ndard ndard	level	of educa
	 on 0 1 2 3 4	femalo femalo femalo malo malo	lunch \ e grou e grou e grou e grou e grou	up B up C up B up A up C	bachelor's some master's associate's	s degree college s degree s degree college	sta sta sta free/re sta	ndard ndard ndard duced ndard	. level	of educ
	 on 0 1 2 3 4 5	femalo femalo femalo malo malo femalo	lunch \ e grou e grou e grou e grou e grou e grou	up B up C up B up A up C	bachelor's some master's associate's some associate's	s degree college s degree s degree college s degree	sta sta sta free/re sta sta	ndard ndard ndard duced ndard ndard	. level	of educ
	 on 0 1 2 3 4 5 6	female female female male male female	lunch \ e grou	up B up C up B up A up C up B	bachelor's some master's associate's some associate's	s degree college s degree college s degree college	sta sta sta free/re sta sta	ndard ndard ndard duced ndard ndard	. level	of educa
	 on 0 1 2 3 4 5 6 7	female female female male male female female	lunch \ e grou	up B up C up B up A up C up B up B up B	bachelor's some master's associate's some associate's some some	s degree college s degree college s degree college college	sta sta sta free/re sta sta sta free/re	ndard ndard ndard duced ndard ndard ndard duced	level	of educ
	 on 0 1 2 3 4 5 6 7 8	femalo femalo femalo malo femalo femalo malo malo	lunch \ e grou	up B up C up B up A up C up B up B up B up B	bachelor's some master's associate's some associate's some some high	s degree college s degree college s degree college college h school	sta sta sta free/re sta sta free/re	ndard ndard ndard duced ndard ndard ndard duced	. level	of educ
	 on 0 1 2 3 4 5 6 7	female female female male male female female	lunch \ e grou	IP B IP C IP A IP C IP B IP B IP B IP B IP B IP B	bachelor's some master's associate's some associate's some high	s degree college degree college college college college college h school	sta sta sta free/re sta sta free/re free/re	ndard ndard ndard duced ndard ndard ndard duced	. level	of educ
	 on 0 1 2 3 4 5 6 7 8 9	female female female male female female male female	lunch \ e grou	IP B IP C IP A IP C IP B IP B IP B IP B IP B IP B IP C	bachelor's some master's associate's some associate's some some high	s degree college s degree college s degree college college college h school h school s degree	sta sta sta free/re sta sta free/re free/re	ndard ndard ndard duced ndard ndard duced duced duced duced	level	of educ
	 on 0 1 2 3 4 5 6 7 8 9 10	female female female male female female male male male	lunch \ e grou	IP B IP C IP B IP C IP B IP B IP B IP B IP B IP C IP D	bachelor's some master's associate's some associate's some high high associate's	s degree college s degree college s degree college college college h school h school s degree	sta sta free/re sta sta free/re free/re sta sta	ndard ndard duced ndard ndard duced duced duced duced duced	. level	of educ
	<pre></pre>	female female female male female female male female male male male male	lunch \ e grou	IP B IP C IP B IP C IP B IP B IP B IP B IP D IP B IP C IP B IP C IP B	bachelor's some master's associate's some associate's some high high associate's associate's high some	s degree college s degree college s degree college college h school h school s degree s degree college	sta sta sta free/re sta sta free/re free/re free/re sta sta	ndard ndard duced ndard ndard duced duced duced ndard ndard	. level	of educ
	<pre><book 0="" 1="" 10="" 11="" 12="" 13="" 14<="" 2="" 3="" 4="" 5="" 6="" 7="" 8="" 9="" on="" pre=""></book></pre>	female female female female female female male female male female female	lunch \ e grou	IP B IP C IP B IP C IP B IP B IP B IP B IP D IP B IP C IP B IP C IP A	bachelor's some master's associate's some associate's some high high associate's associate's high some	s degree college s degree college s degree college college h school h school s degree s degree college h school college s degree h school	sta sta sta free/re sta sta free/re free/re sta sta sta	ndard ndard duced ndard ndard duced duced duced ndard ndard	. level	of educ
	<pre><book 0="" 1="" 10="" 11="" 12="" 13="" 14="" 15<="" 2="" 3="" 4="" 5="" 6="" 7="" 8="" 9="" on="" pre=""></book></pre>	female female female male female male female male female female female	lunch \ e grou	IP B IP C IP B IP C IP B IP B IP B IP B IP D IP B IP C IP B IP C IP C	bachelor's some master's associate's some associate's some high high associate's associate's associate's associate's master's	s degree college s degree college s degree college college h school h school degree s degree h school college s degree h school	sta sta sta free/re sta sta free/re free/re sta sta sta sta	ndard ndard duced ndard ndard duced duced duced ndard ndard ndard ndard ndard	level	of educ
	<pre><boo 0="" 1="" 10="" 11="" 12="" 13="" 14="" 15="" 16<="" 2="" 3="" 4="" 5="" 6="" 7="" 8="" 9="" on="" pre=""></boo></pre>	female female female female female female male female male female female female	lunch \ e grou	IP B IP C IP B IP C IP B IP B IP B IP B IP D IP B IP C IP B IP C IP C IP C	bachelor's some master's associate's some associate's some high high associate's associate's high associate's high high high high high high high hig	s degree college s degree college college college college college h school h school college s degree h school college s degree h school	sta sta sta free/re sta sta free/re free/re free/re sta sta sta sta sta sta sta	ndard ndard ndard ndard ndard ndard duced duced ndard ndard ndard ndard ndard ndard	. level	of educ
	<pre><book 0="" 1="" 10="" 11="" 12="" 13="" 14="" 15<="" 2="" 3="" 4="" 5="" 6="" 7="" 8="" 9="" on="" pre=""></book></pre>	female female female male female male female male female female female	lunch \ e grou	IP B IP C IP B IP C IP B IP B IP B IP B IP B IP C IP B IP C IP B IP C IP C IP B IP C	bachelor's some master's associate's some associate's some high high associate's associate's high some master's	s degree college s degree college college college college college h school h school college s degree h school college s degree h school	sta sta sta free/re sta sta free/re free/re sta sta sta sta	ndard ndard ndard ndard ndard duced duced ndard ndard ndard ndard ndard ndard ndard	. level	of educ

completed

69

90

88.0

1

```
2
                                                   90
                                                                    95
                                                                                   93.0
                                   none
          3
                                   none
                                                   47
                                                                    57
                                                                                   44.0
          4
                                                   76
                                                                                   75.0
                                   none
                                                                    78
          5
                                   none
                                                   71
                                                                    83
                                                                                   78.0
          6
                              completed
                                                   88
                                                                    95
                                                                                   92.0
          7
                                                                                   39.0
                                   none
                                                   40
                                                                    43
          8
                                                                    64
                              completed
                                                   64
                                                                                   67.0
          9
                                                   38
                                   none
                                                                    60
                                                                                    NaN
          10
                                                   58
                                                                    54
                                                                                   52.0
                                   none
                                                   40
                                                                    52
                                                                                   43.0
          11
                                   none
          12
                                   none
                                                   65
                                                                    81
                                                                                   73.0
          13
                              completed
                                                   78
                                                                    72
                                                                                   70.0
                                                   50
          14
                                   none
                                                                    53
                                                                                   58.0
          15
                                   none
                                                   69
                                                                    75
                                                                                   78.0
          16
                                   none
                                                   88
                                                                    89
                                                                                   86.0
          17
                                                                    32
                                                                                   28.0
                                   none
                                                   18
          18
                              completed
                                                   46
                                                                    42
                                                                                   46.0
In [15]:
           a.describe()
Out[15]:
                  math score
                             reading score writing score
                   19.000000
                                 19.000000
                                              17.000000
           count
                   61.421053
                                 67.736842
                                              65.294118
           mean
                   19.712703
                                 18.902798
                                              20.250817
             std
                   18.000000
                                 32.000000
                                              28.000000
            min
            25%
                   46.500000
                                 53.500000
                                              46.000000
            50%
                   65.000000
                                 72.000000
                                              70.000000
                   74.000000
                                 82.000000
                                              78.000000
            75%
            max
                   90.000000
                                 95.000000
                                              93.000000
In [18]:
           print(a['gender'].value_counts())
          female
                      10
          Name: gender, dtype: int64
In [21]:
           a_Lunch = pd.get_dummies(a['lunch'])
           a_new = pd.concat([a, a_Lunch], axis=1)
           print(a new)
               gender race/ethnicity parental level of education
                                                                                lunch
                                                   bachelor's degree
          0
               female
                               group B
                                                                             standard
          1
               female
                               group C
                                                         some college
                                                                             standard
          2
               female
                                                     master's degree
                                                                             standard
                               group B
          3
                 male
                               group A
                                                  associate's degree
                                                                        free/reduced
          4
                 male
                               group C
                                                         some college
                                                                             standard
          5
               female
                                                  associate's degree
                                                                             standard
                               group B
          6
               female
                                                                             standard
                               group B
                                                         some college
          7
                 male
                                                         some college
                                                                        free/reduced
                               group B
          8
                                                                        free/reduced
                 male
                               group D
                                                          high school
          9
                                                                        free/reduced
               female
                               group B
                                                          high school
          10
                 male
                               group C
                                                  associate's degree
                                                                             standard
```

associate's degree

high school

standard

standard

male

female

group D

group B

11

12

```
13
      male
                    group A
                                             some college
                                                                 standard
   female
14
                    group A
                                         master's degree
                                                                 standard
15
    female
                    group C
                                                       NaN
                                                                 standard
16
      male
                   group C
                                              high school
                                                                 standard
17
    female
                   group B
                                         some high school free/reduced
18
      male
                                         master's degree free/reduced
                   group C
   test preparation course
                              math score
                                            reading score
                                                            writing score
0
                                        72
                                                        72
                                                                        NaN
                        none
                                        69
                                                        90
1
                  completed
                                                                       88.0
2
                                       90
                                                        95
                                                                       93.0
                        none
3
                        none
                                        47
                                                        57
                                                                       44.0
4
                        none
                                        76
                                                        78
                                                                       75.0
5
                        none
                                        71
                                                        83
                                                                       78.0
                                       88
                                                        95
6
                   completed
                                                                       92.0
7
                                        40
                                                        43
                                                                       39.0
                        none
8
                  completed
                                       64
                                                        64
                                                                       67.0
9
                                        38
                                                        60
                        none
                                                                        NaN
                                                                       52.0
10
                                        58
                                                        54
                        none
                                       40
                                                        52
11
                        none
                                                                       43.0
12
                        none
                                       65
                                                        81
                                                                       73.0
13
                  completed
                                       78
                                                        72
                                                                       70.0
                                       50
                                                        53
                                                                       58.0
14
                        none
                                                        75
15
                        none
                                        69
                                                                       78.0
16
                        none
                                        88
                                                        89
                                                                       86.0
                                       18
                                                        32
                                                                       28.0
17
                        none
18
                  completed
                                        46
                                                        42
                                                                       46.0
    free/reduced
                   standard
0
                0
                           1
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                           1
1
2
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3
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4
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5
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6
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7
                1
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8
                1
                           0
9
                1
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10
                           1
                0
                0
                           1
11
                           1
12
                0
                0
                           1
13
14
                0
                           1
15
                0
                           1
                0
                           1
16
17
                1
                           0
18
                1
```

MATPLOTLIB

```
In [22]: import matplotlib.pyplot as plt
In [23]: b = pd.read_csv(r'Downloads\Iris - Iris.csv')
In [24]: b.describe()
```

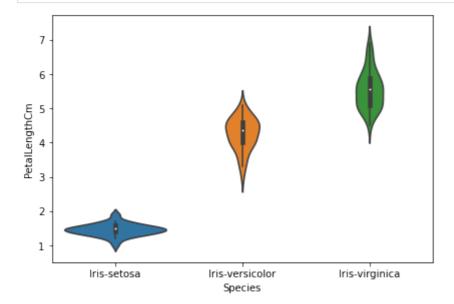
Out[24]:			Id	Sepa	lLengthCm	Sepa	alWidthCm	Peta	lLengthCm	Peta	alWidthCm
	cou	nt	150.000000		150.000000		150.000000		150.000000		150.000000
	me	an	75.500000		5.843333		3.054000		3.758667		1.198667
	std 43.445368			0.828066		0.433594		1.764420		0.763161	
	min 1.000000			4.300000		2.000000		1.000000	0.100		
	25% 38.250000		38.250000		5.100000		2.800000 1.600000		0.300000		
	50% 75.50000		75.500000		5.800000		3.000000		4.350000		1.300000
	75	5%	112.750000		6.400000		3.300000		5.100000		1.800000
	m	ах	150.000000		7.900000		4.400000		6.900000		2.500000
n [25]:	b.	hea	d(20)								
ıt[25]:		Id	SepalLengt	hCm	SepalWidtl	nCm	PetalLengt	hCm	PetalWidth	Cm	Species
	0	1		5.1		3.5		1.4		0.2	Iris-setosa
	1	2		4.9		3.0		1.4		0.2	Iris-setosa
	2	3		4.7		3.2		1.3		0.2	Iris-setosa
	3	4		4.6		3.1		1.5		0.2	Iris-setosa
	4	5		5.0		3.6		1.4		0.2	Iris-setosa
	5	6		5.4		3.9		1.7		0.4	Iris-setosa
	6	7		4.6		3.4		1.4		0.3	Iris-setosa
	7	8		5.0		3.4		1.5		0.2	Iris-setosa
	8	9		4.4		2.9		1.4		0.2	Iris-setosa
	9	10		4.9		3.1		1.5		0.1	Iris-setosa
	10	11		5.4		3.7		1.5		0.2	Iris-setosa
	11	12		4.8		3.4		1.6		0.2	Iris-setosa
	12	13		4.8		3.0		1.4		0.1	Iris-setosa
	13	14		4.3		3.0		1.1		0.1	Iris-setosa
	14	15		5.8		4.0		1.2		0.2	Iris-setosa
	15	16		5.7		4.4		1.5		0.4	Iris-setosa
	16	17		5.4		3.9		1.3		0.4	Iris-setosa
	17	18		5.1		3.5		1.4		0.3	Iris-setosa
	18	19		5.7		3.8		1.7		0.3	Iris-setosa
	19	20		5.1		3.8		1.5		0.3	Iris-setosa
n [27]:	b['Sp	ecies'].un	ique(()						
ut[27]:	arr	ay(['Iris-set	osa',	'Iris-ve	rsic	olor', 'I	ris-v	virginica'], (dtype=obje

In [28]:

import seaborn as sns

```
In [36]:
```

```
plt.figure(figsize=(15,10))
plt.subplot(2,2,1)
sns.violinplot(x='Species',y='PetalLengthCm',data=b)
# plt.subplot(2,2,2)
# sns.violinplot(x='Species',y='PetalLengthCm',data=b)
# plt.subplot(2,2,3)
# sns.violinplot(x='Species',y='PetalLengthCm',data=b)
# plt.subplot(2,2,4)
# sns.violinplot(x='Species',y='PetalLengthCm',data=b)
plt.show()
```



```
In [43]:
```

```
plt.subplots(figsize=(10,7))
sns.violinplot(data=b)
sns.swarmplot(data=b)
plt.show()
```

C:\Users\Sakshi Potdarvc\anaconda3\lib\site-packages\seaborn\categorical.py:1296: Use rWarning: 80.0% of the points cannot be placed; you may want to decrease the size of the markers or use stripplot.

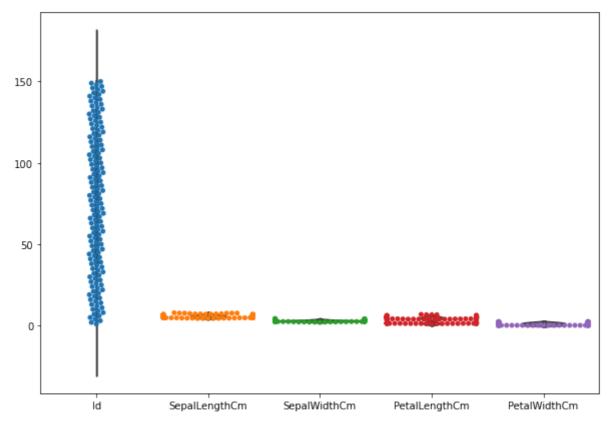
warnings.warn(msg, UserWarning)

C:\Users\Sakshi Potdarvc\anaconda3\lib\site-packages\seaborn\categorical.py:1296: Use rWarning: 88.7% of the points cannot be placed; you may want to decrease the size of the markers or use stripplot.

warnings.warn(msg, UserWarning)

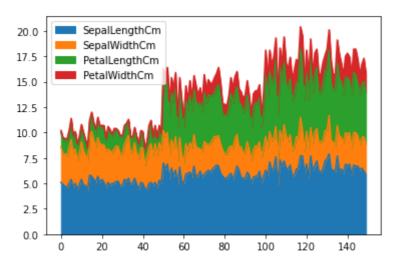
C:\Users\Sakshi Potdarvc\anaconda3\lib\site-packages\seaborn\categorical.py:1296: Use rWarning: 74.0% of the points cannot be placed; you may want to decrease the size of the markers or use stripplot.

warnings.warn(msg, UserWarning)



In [44]: b.plot.area(y=['SepalLengthCm','SepalWidthCm', 'PetalLengthCm', 'PetalWidthCm'])

Out[44]: <AxesSubplot:>



In [45]:	b.corr()
----------	----------

Out[45]:		Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm
	Id	1.000000	0.716676	-0.397729	0.882747	0.899759
	SepalLengthCm	0.716676	1.000000	-0.109369	0.871754	0.817954
	SepalWidthCm	-0.397729	-0.109369	1.000000	-0.420516	-0.356544
	PetalLengthCm	0.882747	0.871754	-0.420516	1.000000	0.962757
	PetalWidthCm	0.899759	0.817954	-0.356544	0.962757	1.000000

In []:

In []: