assignment1ai

June 3, 2024

##Basic Python

Task 1

[4]:
```
n=int(input("Enter a number: "))
if n%2==0:
  print(n," is even")
else:
  print(n," is odd")
```

```
Enter a number: 4
4  is even
```

Task 2

[5]:
```
a= int(input("Enter 1st number: "))
b=int(input("Enter 2nd number: "))
c=int(input("Enter 3rd number: "))
if a>b and a>c:
  print(a," is greater")
elif b>a and b>c:
  print(b," is greater")
else:
  print(c," is greater")
```

```
Enter 1st number: 3
Enter 2nd number: 7
Enter 3rd number: 5
7  is greater
```

##Numpy

[5]:
```
import numpy as np
```

Task 1

[7]:
```
arr=np.array([[1,4,7],[2,5,8],[3,6,9]])
print('Array is : \n',arr)
print('Shape :',arr.shape)
print("Mean is : ",np.mean(arr))
print("Standard deviation is : ",np.std(arr))
```

```
print("Median is : ",np.median(arr))
```

```
Array is :
 [[1 4 7]
 [2 5 8]
 [3 6 9]]
Shape : (3, 3)
Mean is :  5.0
Standard deviation is :  2.581988897471611
Median is :  5.0
```

Task 2

[8]:
```
arr1=np.array([[1,4],[5,9]])
print(arr1)
arr2=np.array([[2,6],[8,3]])
print(arr2)
print("Matrix multiplication is:")
print(np.dot(arr1,arr2))
```

```
[[1 4]
 [5 9]]
[[2 6]
 [8 3]]
Matrix multiplication is:
[[34 18]
 [82 57]]
```

##Pandas

[9]:
```
import pandas as pd
```

Task 1

[10]:
```
k=pd.read_csv('/content/organizations-100.csv')
k
```

[10]:

	Index	Organization Id	Name
0	1	FAB0d41d5b5d22c	Ferrell LLC
1	2	6A7EdDEA9FaDC52	Mckinney, Riley and Day
2	3	0bFED1ADAE4bcC1	Hester Ltd
3	4	2bFC1Be8a4ce42f	Holder-Sellers
4	5	9eE8A6a4Eb96C24	Mayer Group
..	…	…	…
95	96	0a0bfFbBbB8eC7c	Holmes Group
96	97	BA6Cd9Dae2Efd62	Good Ltd
97	98	E7df80C60Abd7f9	Clements-Espinoza
98	99	AFc285dbE2fEd24	Mendez Inc
99	100	e9eB5A60Cef8354	Watkins-Kaiser

```
                          Website                       Country  \
0              https://price.net/             Papua New Guinea
1   http://www.hall-buchanan.info/                      Finland
2        http://sullivan-reed.com/                        China
3              https://becker.com/                   Turkmenistan
4           http://www.brewer.com/                     Mauritius
..                             …                           …
95           https://mcdowell.org/                     Ethiopia
96               http://duffy.com/                     Anguilla
97         http://www.flowers.net/  Falkland Islands (Malvinas)
98          https://www.burke.net/               Kyrgyz Republic
99         http://www.herring.com/                         Togo

                                    Description  Founded  \
0              Horizontal empowering knowledgebase     1990
1              User-centric system-worthy leverage     2015
2                   Switchable scalable moratorium     1971
3   De-engineered systemic artificial intelligence     2004
4               Synchronized needs-based challenge     1991
..                                             …      …
95          Right-sized zero tolerance focus group     1975
96         Reverse-engineered composite moratorium     1971
97                         Progressive modular hub     1991
98                 User-friendly exuding migration     1993
99                   Synergistic background access     2009

                      Industry  Number of employees
0                      Plastics                3498
1   Glass / Ceramics / Concrete                4952
2                Public Safety                5287
3                   Automotive                 921
4               Transportation                7870
..                         …                   …
95                 Photography                2988
96           Consumer Services                4292
97             Broadcast Media                 236
98         Education Management                 339
99           Financial Services                2785

[100 rows x 9 columns]
```

[11]:
```
k[0:5]
```

[11]:
```
   Index  Organization Id                     Name  \
0      1  FAB0d41d5b5d22c              Ferrell LLC
1      2  6A7EdDEA9FaDC52  Mckinney, Riley and Day
```

```
2      3  0bFED1ADAE4bcC1              Hester Ltd
3      4  2bFC1Be8a4ce42f          Holder-Sellers
4      5  9eE8A6a4Eb96C24             Mayer Group

                         Website           Country  \
0             https://price.net/  Papua New Guinea
1  http://www.hall-buchanan.info/           Finland
2      http://sullivan-reed.com/             China
3            https://becker.com/      Turkmenistan
4         http://www.brewer.com/         Mauritius

                                    Description  Founded  \
0             Horizontal empowering knowledgebase     1990
1             User-centric system-worthy leverage     2015
2                  Switchable scalable moratorium     1971
3  De-engineered systemic artificial intelligence     2004
4              Synchronized needs-based challenge     1991

                    Industry  Number of employees
0                   Plastics                3498
1  Glass / Ceramics / Concrete                4952
2               Public Safety                5287
3                  Automotive                 921
4              Transportation                7870
```

[12]:
```
k.describe()
```

[12]:
```
            Index      Founded  Number of employees
count  100.000000   100.000000           100.000000
mean    50.500000  1995.410000          4964.860000
std     29.011492    15.744228          2850.859799
min      1.000000  1970.000000           236.000000
25%     25.750000  1983.500000          2741.250000
50%     50.500000  1995.000000          4941.500000
75%     75.250000  2010.250000          7558.000000
max    100.000000  2021.000000          9995.000000
```

Task 2

[13]:
```
k[k.Founded>2000]
```

[13]:
```
    Index  Organization Id                          Name  \
1       2  6A7EdDEA9FaDC52       Mckinney, Riley and Day
3       4  2bFC1Be8a4ce42f                 Holder-Sellers
6       7  219233e8aFF1BC3                 Hansen-Everett
10     11  AE61b8Ffebbc476                     Kidd Group
11     12  eb3B7D06cCdD609                   Crane-Clarke
```

12	13	8D0c29189C9798B	Keller, Campos and Black
13	14	D2c91cc03CA394c	Glover-Pope
19	20	c1Ce9B350BAc66b	Weiss and Sons
21	22	Aad86a4F0385F2d	Harrell LLC
22	23	22aC3FFd64fD703	Eaton, Reynolds and Vargas
24	25	5fDBeA8BB91a000	Jenkins Inc
25	26	dFfD6a6F9AC2d9C	Greene, Benjamin and Novak
28	29	f9F7bBCAEeC360F	Ayala LLC
34	35	9E6Acb51e3F9d6F	Glass, Barrera and Turner
35	36	4D4d7E18321eaeC	Pineda-Cox
36	37	485f5d06B938F2b	Baker, Mccann and Macdonald
38	39	6883A965c7b68F7	Hahn PLC
40	41	decab0D5027CA6a	Arroyo Inc
42	43	A2D89Ab9bCcAd4e	Mitchell, Warren and Schneider
43	44	77aDc905434a49f	Prince PLC
45	46	1eD64cFe986BBbE	Walton-Barnett
47	48	49aECbDaE6aBD53	Wallace, Madden and Morris
50	51	7D9FBF85cdC3871	Lawson and Sons
52	53	EF5B55FadccB8Fe	Charles-Phillips
53	54	f8D4B99e11fAF5D	Odom Ltd
55	56	B9BdfEB6D3Ca44E	Sampson Ltd
56	57	2a74D6f3D3B268e	Cherry, Le and Callahan
58	59	aeBe26B80a7a23c	Melton-Nichols
59	60	aAeb29ad43886C6	Potter-Walsh
64	65	cBfe4dbAE1699da	Erickson, Andrews and Bailey
66	67	5DCb8A5a5ca03c0	Floyd Ltd
72	73	dfcA1c84AdB61Ac	Mccall-Holmes
76	77	DDB19Be7eeB56B4	Cummings-Rojas
80	81	Ea3f6D52Ec73563	Montes-Hensley
81	82	bC0CEd48A8000E0	Velazquez-Odom
85	86	B97a6CF9bf5983C	Davila Inc
86	87	a0a6f9b3DbcBEb5	Mays-Preston
99	100	e9eB5A60Cef8354	Watkins-Kaiser

	Website	Country
1	http://www.hall-buchanan.info/	Finland
3	https://becker.com/	Turkmenistan
6	https://www.kidd.org/	Pakistan
10	http://www.lyons.com/	Bouvet Island (Bouvetoya)
11	https://www.sandoval.com/	Denmark
12	https://www.garner.info/	Liberia
13	http://www.silva.biz/	United Arab Emirates
19	https://barrett.com/	Korea
21	http://www.frey-rosario.com/	Guadeloupe
22	http://www.freeman.biz/	Monaco
24	http://www.kirk.biz/	South Africa
25	http://www.kent.net/	Romania

28	http://www.zhang.com/	Philippines
34	https://dunlap.com/	Kyrgyz Republic
35	http://aguilar.org/	Bolivia
36	http://www.anderson-barker.com/	Kenya
38	http://newman.com/	Belarus
40	https://www.turner.com/	Grenada
42	https://fox.biz/	Trinidad and Tobago
43	https://www.watts.com/	Sweden
45	https://ashley-schaefer.com/	Western Sahara
47	http://www.blevins-fernandez.biz/	Germany
50	https://www.wong.com/	French Southern Territories
52	https://bowman.com/	Cote d'Ivoire
53	https://www.humphrey-hess.com/	Cote d'Ivoire
55	https://blevins.com/	Cayman Islands
56	https://waller-delacruz.biz/	Nigeria
58	https://kennedy.com/	Palau
59	http://thomas-french.org/	Turkey
64	https://www.hobbs-grant.com/	Eritrea
66	http://www.whitney.com/	Falkland Islands (Malvinas)
72	http://www.dean.com/	Benin
76	https://simon-pearson.com/	Svalbard & Jan Mayen Islands
80	https://krueger.org/	Liechtenstein
81	https://stokes.com/	Djibouti
85	https://mcconnell.info/	Cocos (Keeling) Islands
86	http://www.browning-key.com/	Mali
99	http://www.herring.com/	Togo

	Description	Founded	\
1	User-centric system-worthy leverage	2015	
3	De-engineered systemic artificial intelligence	2004	
6	Seamless disintermediate collaboration	2018	
10	Proactive foreground paradigm	2001	
11	Front-line clear-thinking encryption	2014	
12	Ameliorated directional emulation	2020	
13	Persevering contextually-based approach	2013	
19	Sharable optimal functionalities	2011	
21	Reverse-engineered mission-critical moratorium	2018	
22	Self-enabling multi-tasking process improvement	2014	
24	Front-line systematic help-desk	2002	
25	Centralized leadingedge moratorium	2012	
28	Open-source zero administration hierarchy	2021	
34	Multi-channeled 3rdgeneration open system	2020	
35	Fundamental asynchronous capability	2010	
36	Cross-group user-facing focus group	2013	
38	Organic logistical leverage	2012	
40	Managed demand-driven website	2006	
42	Enhanced intangible time-frame	2021	

43	Profit-focused coherent installation	2016
45	Right-sized clear-thinking flexibility	2001
47	Persistent real-time customer loyalty	2016
50	Compatible analyzing intranet	2021
52	Monitored client-server implementation	2012
53	Advanced static process improvement	2012
55	Intuitive local adapter	2005
56	Universal human-resource collaboration	2017
58	User-friendly clear-thinking productivity	2021
59	Optional non-volatile open system	2008
64	Vision-oriented secondary project	2014
66	Function-based fault-tolerant concept	2017
72	Object-based value-added database	2009
76	User-centric modular customer loyalty	2012
80	Multi-tiered secondary productivity	2009
81	Streamlined 6thgeneration function	2002
85	Profit-focused dedicated frame	2017
86	User-centric heuristic focus group	2006
99	Synergistic background access	2009

	Industry	Number of employees
1	Glass / Ceramics / Concrete	4952
3	Automotive	921
6	Publishing Industry	7832
10	Primary / Secondary Education	7473
11	Food / Beverages	9011
12	Museums / Institutions	2862
13	Medical Practice	9079
19	Plastics	5984
21	Construction	2185
22	Luxury Goods / Jewelry	8987
24	Insurance	1215
25	Museums / Institutions	4941
28	Legal Services	7664
34	Utilities	2610
35	Human Resources / HR	1312
36	Legislative Office	1638
38	Electrical / Electronic Manufacturing	3715
40	Writing / Editing	9067
42	Capital Markets / Hedge Fund / Private Equity	3816
43	Individual / Family Services	7645
45	Luxury Goods / Jewelry	1746
47	Pharmaceuticals	9443
50	Arts / Crafts	3527
52	Mental Health Care	3450
53	Management Consulting	1825
55	Farming	1418

```
56                Entertainment / Movie Production                7202
58                             Legislative Office                 8741
59                          Human Resources / HR                  6923
64                          Consumer Electronics                  7829
66                        Public Relations / PR                   2911
72                               Legal Services                    696
76                            Financial Services                  7529
80                                    Printing                    8433
81                  Alternative Dispute Resolution                4044
85                          Consumer Electronics                  2215
86                             Military Industry                  5786
99                            Financial Services                  2785
```

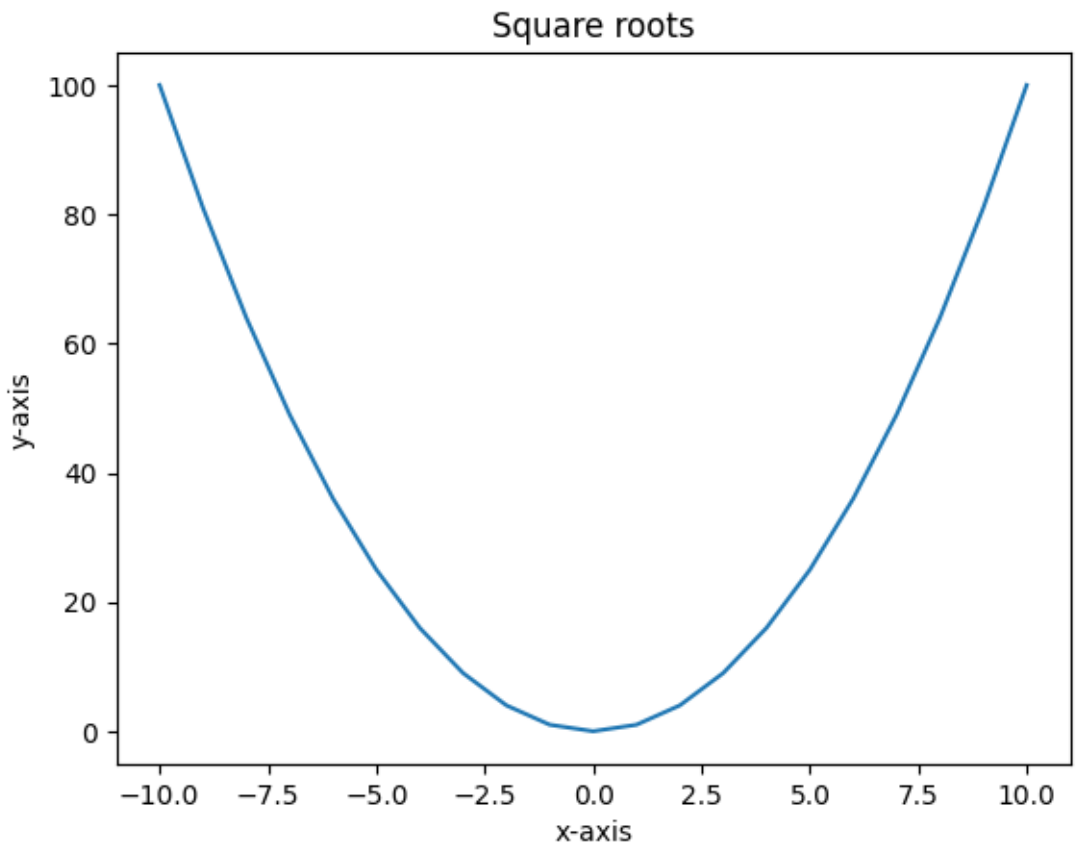
##Matplotlib

[3]:
```
import matplotlib.pyplot as plt
import seaborn as sns
```

Task 1

[6]:
```
x=np.array([-10,-9,-8,-7,-6,-5,-4,-3,-2,-1,0,1,2,3,4,5,6,7,8,9,10])
y=x**2
plt.plot(x,y)
plt.xlabel('x-axis')
plt.ylabel('y-axis')
plt.title('Square roots')
```

[6]:
```
Text(0.5, 1.0, 'Square roots')
```



Task 2

[7]:
```
df=sns.load_dataset('penguins')
df
```

[7]:

	species	island	bill_length_mm	bill_depth_mm	flipper_length_mm	body_mass_g	sex
0	Adelie	Torgersen	39.1	18.7	181.0	3750.0	Male
1	Adelie	Torgersen	39.5	17.4	186.0		
2	Adelie	Torgersen	40.3	18.0	195.0		
3	Adelie	Torgersen	NaN	NaN	NaN		
4	Adelie	Torgersen	36.7	19.3	193.0		
..	…	…	…	…	…		
339	Gentoo	Biscoe	NaN	NaN	NaN		
340	Gentoo	Biscoe	46.8	14.3	215.0		
341	Gentoo	Biscoe	50.4	15.7	222.0		
342	Gentoo	Biscoe	45.2	14.8	212.0		
343	Gentoo	Biscoe	49.9	16.1	213.0		

```
1          3800.0  Female
2          3250.0  Female
3             NaN     NaN
4          3450.0  Female
..            …     …
339           NaN     NaN
340        4850.0  Female
341        5750.0    Male
342        5200.0  Female
343        5400.0    Male

[344 rows x 7 columns]
```

[8]:
```
df3=df.flipper_length_mm.head(10)
print(df3)
df4=df.bill_length_mm.head(10)
print(df4)
```

```
0    181.0
1    186.0
2    195.0
3      NaN
4    193.0
5    190.0
6    181.0
7    195.0
8    193.0
9    190.0
Name: flipper_length_mm, dtype: float64
0    39.1
1    39.5
2    40.3
3     NaN
4    36.7
5    39.3
6    38.9
7    39.2
8    34.1
9    42.0
Name: bill_length_mm, dtype: float64
```

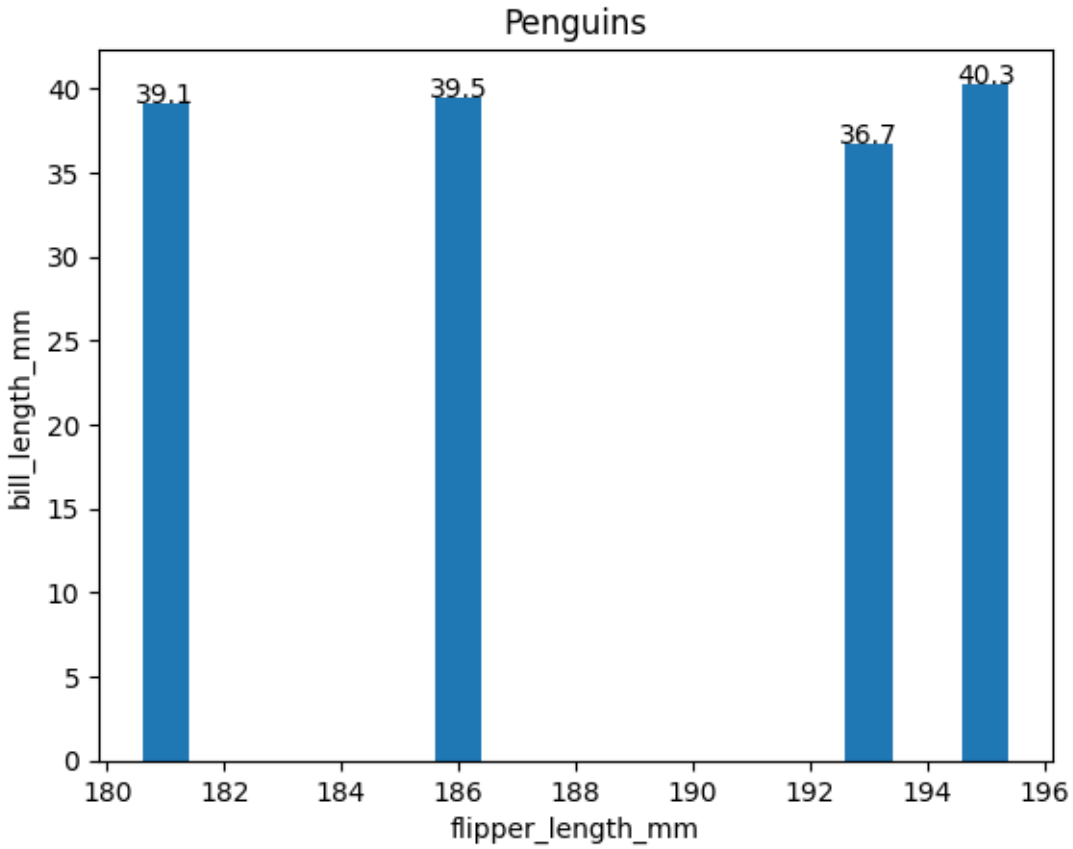
[1]:
```
from importlib import reload
import matplotlib.pyplot as plt
plt=reload(plt)
```

[9]:
```
x=list(df3.head())
y=list(df4.head())
```

```
def addlabels(x,y):
   for i in range(len(x)):
    plt.text(x[i],y[i],y[i],ha='center')
plt.bar(x,y)
addlabels(x,y)
plt.xlabel("flipper_length_mm")
plt.ylabel("bill_length_mm")
plt.title('Penguins')
```

[9]:
```
Text(0.5, 1.0, 'Penguins')
```

```
WARNING:matplotlib.text:posx and posy should be finite values
WARNING:matplotlib.text:posx and posy should be finite values
WARNING:matplotlib.text:posx and posy should be finite values
```



##Seaborn

Task 1

[21]:
```
dff=sns.load_dataset('mpg')
dff
```

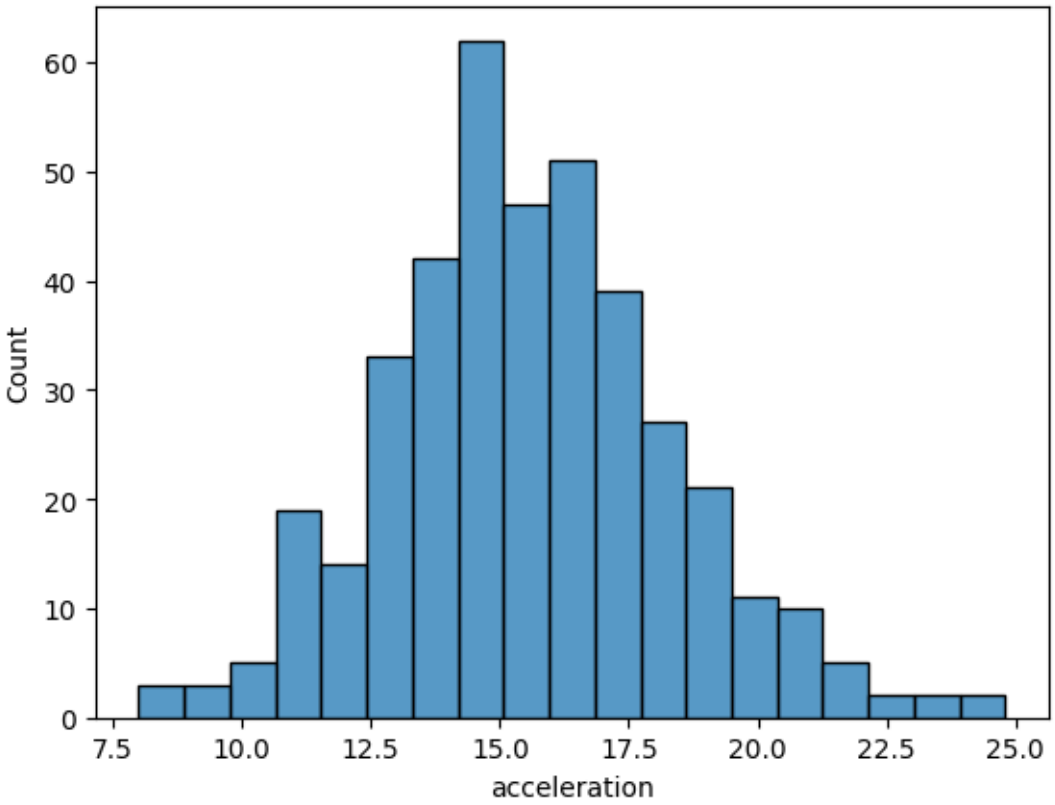
[21]:
```
      mpg  cylinders  displacement  horsepower  weight  acceleration  \
0    18.0          8         307.0       130.0    3504          12.0
1    15.0          8         350.0       165.0    3693          11.5
2    18.0          8         318.0       150.0    3436          11.0
3    16.0          8         304.0       150.0    3433          12.0
4    17.0          8         302.0       140.0    3449          10.5
..    …          …           …          …        …             …
393  27.0          4         140.0        86.0    2790          15.6
394  44.0          4          97.0        52.0    2130          24.6
395  32.0          4         135.0        84.0    2295          11.6
396  28.0          4         120.0        79.0    2625          18.6
397  31.0          4         119.0        82.0    2720          19.4

     model_year  origin                       name
0            70     usa  chevrolet chevelle malibu
1            70     usa          buick skylark 320
2            70     usa         plymouth satellite
3            70     usa              amc rebel sst
4            70     usa                ford torino
..          …     …                          …
393          82     usa            ford mustang gl
394          82  europe                  vw pickup
395          82     usa              dodge rampage
396          82     usa                ford ranger
397          82     usa                chevy s-10

[398 rows x 9 columns]
```

[23]:
```
sns.histplot(dff.acceleration)
```

[23]:
```
<Axes: xlabel='acceleration', ylabel='Count'>
```



Task 2

[24]:
```
df1=dff.iloc[:,:7]
df1
```

[24]:

	mpg	cylinders	displacement	horsepower	weight	acceleration	model_year
0	18.0	8	307.0	130.0	3504	12.0	70
1	15.0	8	350.0	165.0	3693	11.5	70
2	18.0	8	318.0	150.0	3436	11.0	
3	16.0	8	304.0	150.0	3433	12.0	
4	17.0	8	302.0	140.0	3449	10.5	
..	…	…	…	…	…	…	
393	27.0	4	140.0	86.0	2790	15.6	
394	44.0	4	97.0	52.0	2130	24.6	
395	32.0	4	135.0	84.0	2295	11.6	
396	28.0	4	120.0	79.0	2625	18.6	
397	31.0	4	119.0	82.0	2720	19.4	

```
2             70
3             70
4             70
..           ...
393           82
394           82
395           82
396           82
397           82

[398 rows x 7 columns]
```

[25]:
```
sns.heatmap(df1.corr(),annot=True,cmap='crest')
```

[25]:
```
<Axes: >
```