```python
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
```

```python
ds=pd.read_csv("D:\president_heights.csv")
```

```python
ds
```

```
Out[3]:
```

	order	name	height(cm)
0	1	George Washington	189
1	2	John Adams	170
2	3	Thomas Jefferson	189
3	4	James Madison	163
4	5	James Monroe	183
5	6	John Quincy Adams	171
6	7	Andrew Jackson	185
7	8	Martin Van Buren	168
8	9	William Henry Harrison	173
9	10	John Tyler	183
10	11	James K. Polk	173
11	12	Zachary Taylor	173
12	13	Millard Fillmore	175
13	14	Franklin Pierce	178
14	15	James Buchanan	183
15	16	Abraham Lincoln	193
16	17	Andrew Johnson	178
17	18	Ulysses S. Grant	173
18	19	Rutherford B. Hayes	174
19	20	James A. Garfield	183
20	21	Chester A. Arthur	183
21	23	Benjamin Harrison	168
22	25	William McKinley	170
23	26	Theodore Roosevelt	178
24	27	William Howard Taft	182
25	28	Woodrow Wilson	180
26	29	Warren G. Harding	183
27	30	Calvin Coolidge	178
28	31	Herbert Hoover	182
29	32	Franklin D. Roosevelt	188
30	33	Harry S. Truman	175
31	34	Dwight D. Eisenhower	179
32	35	John F. Kennedy	183
33	36	Lyndon B. Johnson	193
34	37	Richard Nixon	182
35	38	Gerald Ford	183
36	39	Jimmy Carter	177
37	40	Ronald Reagan	185
38	41	George H. W. Bush	188

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	order	name	height(cm)
39	42	Bill Clinton	188
40	43	George W. Bush	182
41	44	Barack Obama	185

In [3]:
```python
import seaborn as sns
```

In [7]:
```python
sns.barplot(x='name',y='height(cm)',data=ds)
plt.figure(figsize=(15,50))
```

Out[7]:
```
<Figure size 1500x5000 with 0 Axes>
```



```
<Figure size 1500x5000 with 0 Axes>
```
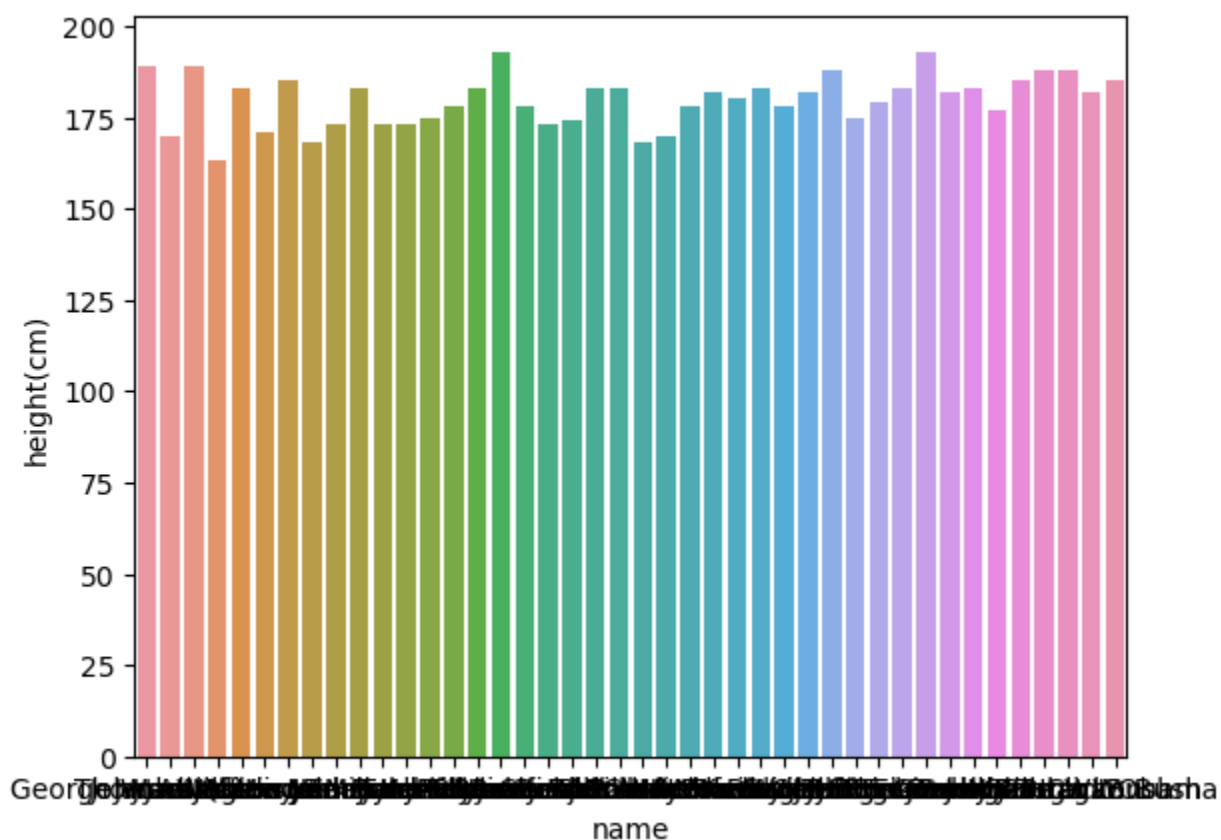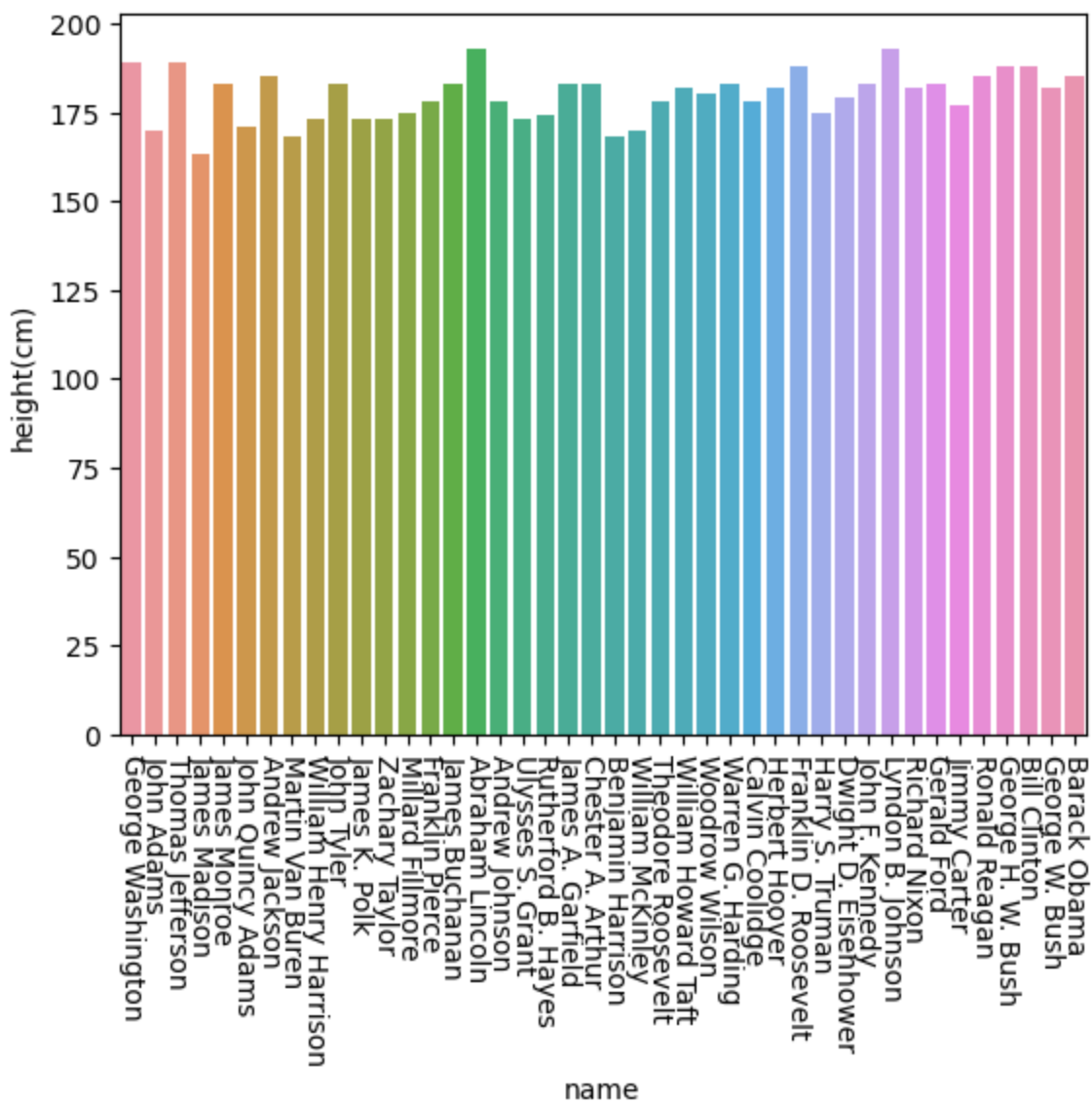
In [8]:
```python
sns.barplot(x='name',y='height(cm)',data=ds)
plt.xticks(rotation=270)  #rotate xlabel by 90 deg
plt.figure(figsize=(15,5))
```

Out[8]:
```
<Figure size 1500x500 with 0 Axes>
```

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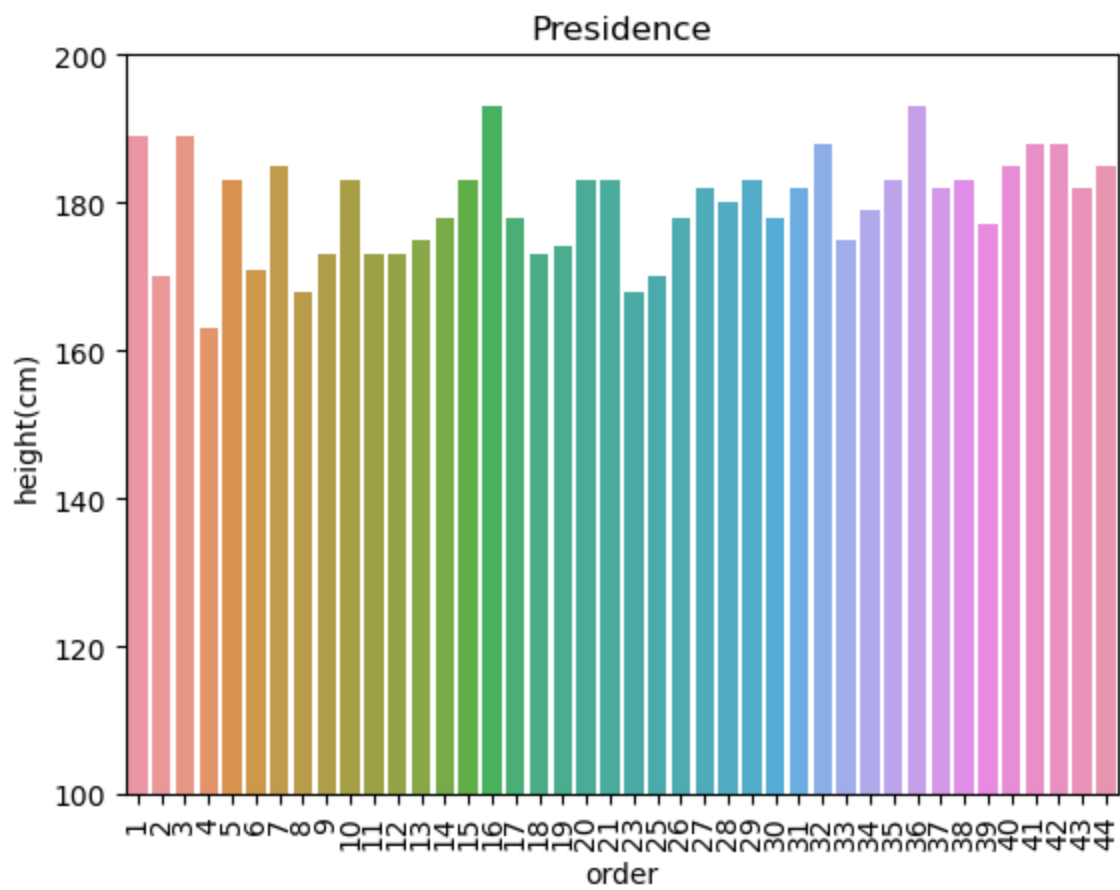
```
<Figure size 1500x500 with 0 Axes>
```

In [20]:
```
sns.barplot(x='name',y='height(cm)',data=ds)
plt.xticks(rotation=90)
plt.ylim(100,200)
plt.figure(figsize=(15,5))
plt.show()
```

```
<Figure size 1500x500 with 0 Axes>
```

In [24]:
```python
sns.barplot(x='order',y='height(cm)',data=ds)
plt.title('Presidence')
plt.xticks(rotation=90)
plt.ylim(100,200)
plt.figure(figsize=(15,5))
plt.show()
```

Presidence

```
<Figure size 1500x500 with 0 Axes>
```

In [26]:
```python
sns.barplot(x='order',y='height(cm)',data=ds)
plt.title('Presidence')
plt.xticks(rotation=90)
plt.ylim(100,200)
plt.figure(figsize=(15,5))
plt.show()
```
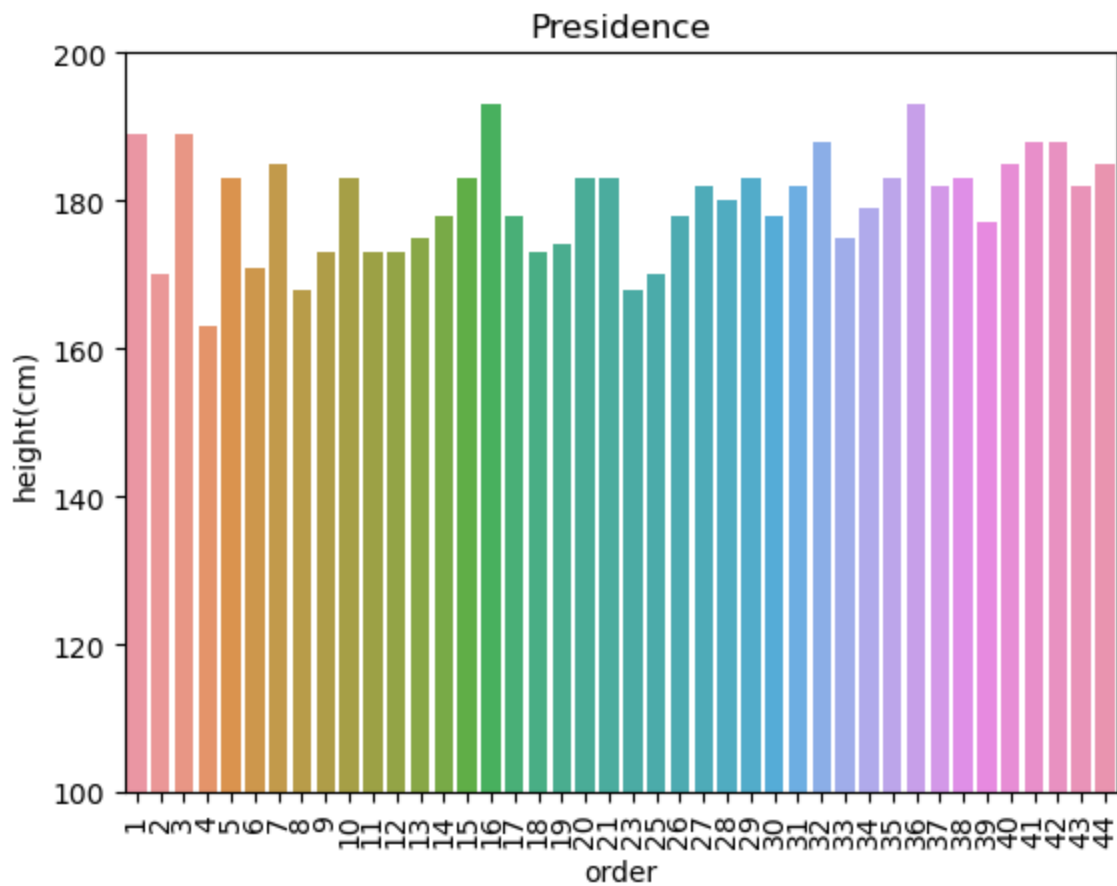
Presidence

<Figure size 1500x500 with 0 Axes>
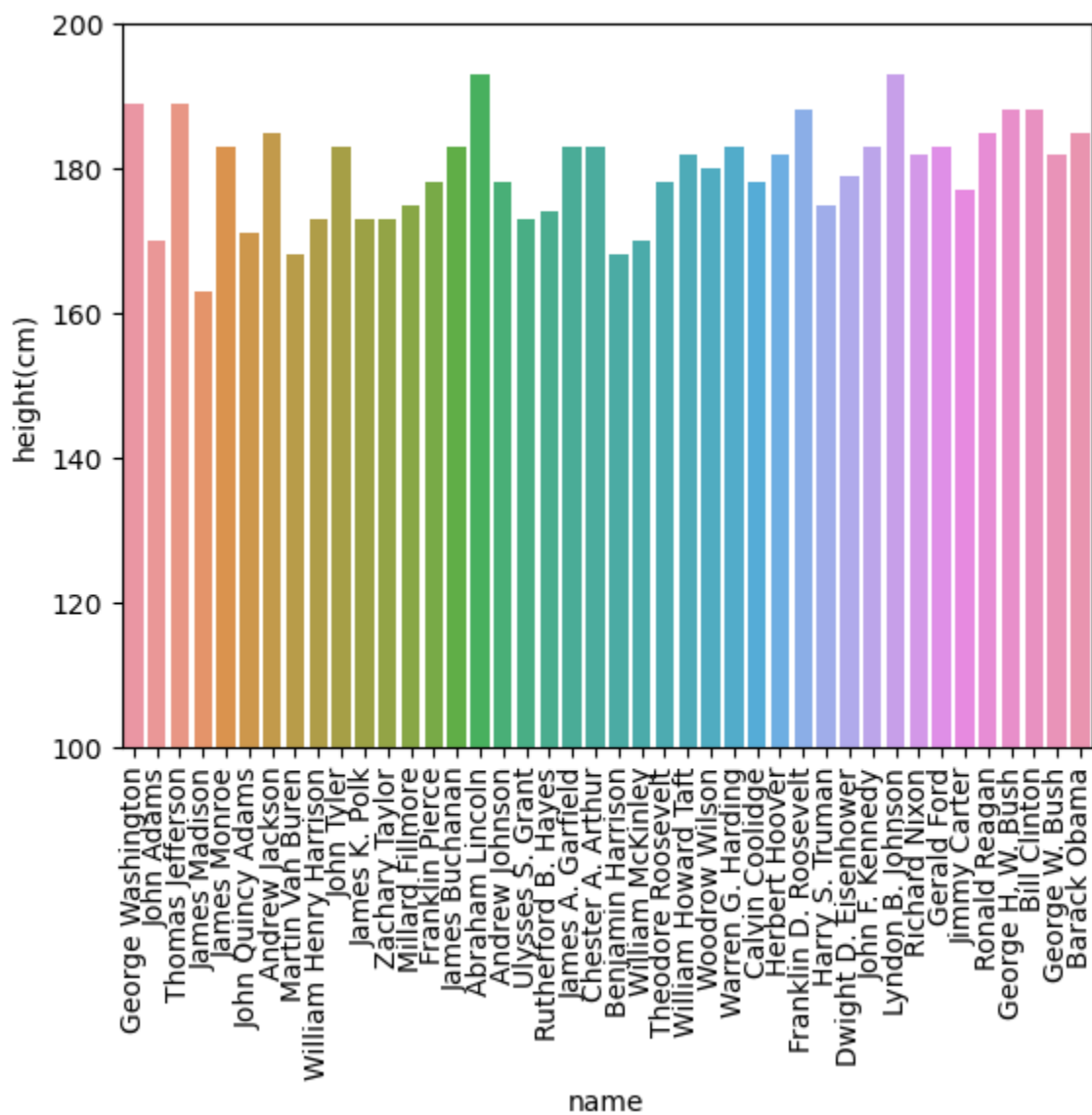
```
In [28]:  data=pd.Series([1.0,1.5,1.75,2.0],index=['a','b','c','d'])    #creating index values
```

```
In [29]:  data
```

```
Out[29]:  a    1.00
          b    1.50
          c    1.75
          d    2.00
          dtype: float64
```

```
In [30]:  data['b']
```

```
Out[30]:  1.5
```

```
In [31]:  'a' in data
```

```
Out[31]:  True
```

```
In [32]:  'f' in data
```

```
Out[32]:  False
```

```
In [33]:  data.keys()
```

```
Out[33]:  Index(['a', 'b', 'c', 'd'], dtype='object')
```

```
In [34]:  list(data.items())
```

```
Out[34]:  [('a', 1.0), ('b', 1.5), ('c', 1.75), ('d', 2.0)]
```

```
In [42]:  data.values
```

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```
Out[42]:  array([1.  , 1.5 , 1.75, 2.  , 2.25])

In [44]:  data['e']=2.25

In [45]:  data

Out[45]:  a    1.00
          b    1.50
          c    1.75
          d    2.00
          e    2.25
          dtype: float64

In [46]:  data['c':'e']

Out[46]:  c    1.75
          d    2.00
          e    2.25
          dtype: float64

In [47]:  data[0:3]

Out[47]:  a    1.00
          b    1.50
          c    1.75
          dtype: float64

In [48]:  data[(data>1.5)&(data<2.25)]

Out[48]:  c    1.75
          d    2.00
          dtype: float64

In [49]:  data[1]

Out[49]:  1.5

In [50]:  data[1:3]

Out[50]:  b    1.50
          c    1.75
          dtype: float64

In [51]:  area=({'Chennai':91,'Banglore':92,'Kerala':93,'Mumbai':94,'Delhi':96})

In [52]:  area

Out[52]:  {'Chennai': 91, 'Banglore': 92, 'Kerala': 93, 'Mumbai': 94, 'Delhi': 96}

In [53]:  area.keys()

Out[53]:  dict_keys(['Chennai', 'Banglore', 'Kerala', 'Mumbai', 'Delhi'])

In [55]:  pop=area=pd.Series(({'Chennai':91,'Banglore':92,'Kerala':93,'Mumbai':94,'Delhi':96}))  #

In [56]:  area
```

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```
Out[56]:  Chennai    91
          Banglore   92
          Kerala     93
          Mumbai     94
          Delhi      96
          dtype: int64
```

In [57]: `data=pd.DataFrame({'area':area,'pop':pop})`   *#convert to dataframe*

In [58]: `data`

Out[58]:

	area	pop
Chennai	91	91
Banglore	92	92
Kerala	93	93
Mumbai	94	94
Delhi	96	96

In [59]: `data[4]='Hydrebad'`

In [60]: `data`

Out[60]:

	area	pop	4
Chennai	91	91	Hydrebad
Banglore	92	92	Hydrebad
Kerala	93	93	Hydrebad
Mumbai	94	94	Hydrebad
Delhi	96	96	Hydrebad

In [61]: `del data[4]`

In [62]: `data`

Out[62]:

	area	pop
Chennai	91	91
Banglore	92	92
Kerala	93	93
Mumbai	94	94
Delhi	96	96

In [63]: `data['density']=data['pop']+data['area']` *#new column density*

In [64]: `data`

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	area	pop	density
Chennai	91	91	182
Banglore	92	92	184
Kerala	93	93	186
Mumbai	94	94	188
Delhi	96	96	192

In [67]:
```python
data.values
```

Out[67]:
```
array([[ 91,  91, 182],
       [ 92,  92, 184],
       [ 93,  93, 186],
       [ 94,  94, 188],
       [ 96,  96, 192]], dtype=int64)
```

In [69]:
```python
data.values[3]
```

Out[69]:
```
array([ 94,  94, 188], dtype=int64)
```

In [70]:
```python
data.values[:,1]
```

Out[70]:
```
array([91, 92, 93, 94, 96], dtype=int64)
```

In [75]:
```python
data.iloc[0]
```

Out[75]:
```
area        91
pop         91
density    190
Name: Chennai, dtype: int64
```

In [81]:
```python
data.iloc[0][2]=160 #or data.values[0][2] or data.iloc[0,2]
```

In [82]:
```python
data
```

Out[82]:

	area	pop	density
Chennai	91	91	160
Banglore	92	92	184
Kerala	93	93	186
Mumbai	94	94	188
Delhi	96	96	192

In [83]:
```python
data['density']
```

Out[83]:
```
Chennai     160
Banglore    184
Kerala      186
Mumbai      188
Delhi       192
Name: density, dtype: int64
```

In [84]:
```python
data[data['density']>180]
```

Out[84]:

	area	pop	density
Banglore	92	92	184
Kerala	93	93	186
Mumbai	94	94	188
Delhi	96	96	192

In [86]:
```python
data1=pd.Series([1,np.nan,2,None,3],index=['a','b','c','d','e'])
```

In [87]:
```python
data1
```

Out[87]:
```
a    1.0
b    NaN
c    2.0
d    NaN
e    3.0
dtype: float64
```

In [88]:
```python
data1.fillna(0) #null values replaced with 0.0
```

Out[88]:
```
a    1.0
b    0.0
c    2.0
d    0.0
e    3.0
dtype: float64
```

In [89]:
```python
data1.fillna(method='ffill') #null values replaced with value behind it
```

Out[89]:
```
a    1.0
b    1.0
c    2.0
d    2.0
e    3.0
dtype: float64
```

In [90]:
```python
data1.fillna(method='bfill') #null values replaced with value after it
```

Out[90]:
```
a    1.0
b    2.0
c    2.0
d    3.0
e    3.0
dtype: float64
```

In [ ]:

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