In [4]:

```
import pandas as pd
import matplotlib.pyplot as plt
%matplotlib inline
parking = pd.read_excel('parking.xlsx')
```

In [6]:

```
parking.head() # viewing the top 5 data
```

Out[6]:

	Bldg City	Bldg State	Bldg Status	Property Type	Total Parking Spaces	Owned/Leased
0	HARTFORD	CT	ACTIVE	BUILDING	29	OWNED
1	NEW HAVEN	CT	ACTIVE	BUILDING	0	OWNED
2	WATERBURY	CT	ACTIVE	BUILDING	2	LEASED
3	WILLIMANTIC	CT	ACTIVE	BUILDING	0	LEASED
4	HARTFORD	CT	ACTIVE	BUILDING	103	OWNED

In [7]:

```
parking.tail() #viewing the last 5 data
```

Out[7]:

	Bldg City	Bldg State	Bldg Status	Property Type	Total Parking Spaces	Owned/Leased
9055	FALLON	NV	ACTIVE	BUILDING	12	LEASED
9056	ELKO	NV	ACTIVE	BUILDING	2	LEASED
9057	LAS VEGAS	NV	ACTIVE	BUILDING	3	LEASED
9058	LAS VEGAS	NV	ACTIVE	BUILDING	24	LEASED
9059	LAS VEGAS	NV	ACTIVE	BUILDING	7	LEASED

In [12]:

```
parking['Bldg Status'].value_counts() #viewing a particular column and seeing the descri
```

Out[12]:

```
ACTIVE            8981
EXCESS              70
DECOMMISSIONED       9
Name: Bldg Status, dtype: int64
```

In [14]:

```
parking.columns #this gives you the list of columns in the data
```

Out[14]:

```
Index(['Bldg City', 'Bldg State', 'Bldg Status', 'Property Type',
       'Total Parking Spaces', 'Owned/Leased'],
      dtype='object')
```

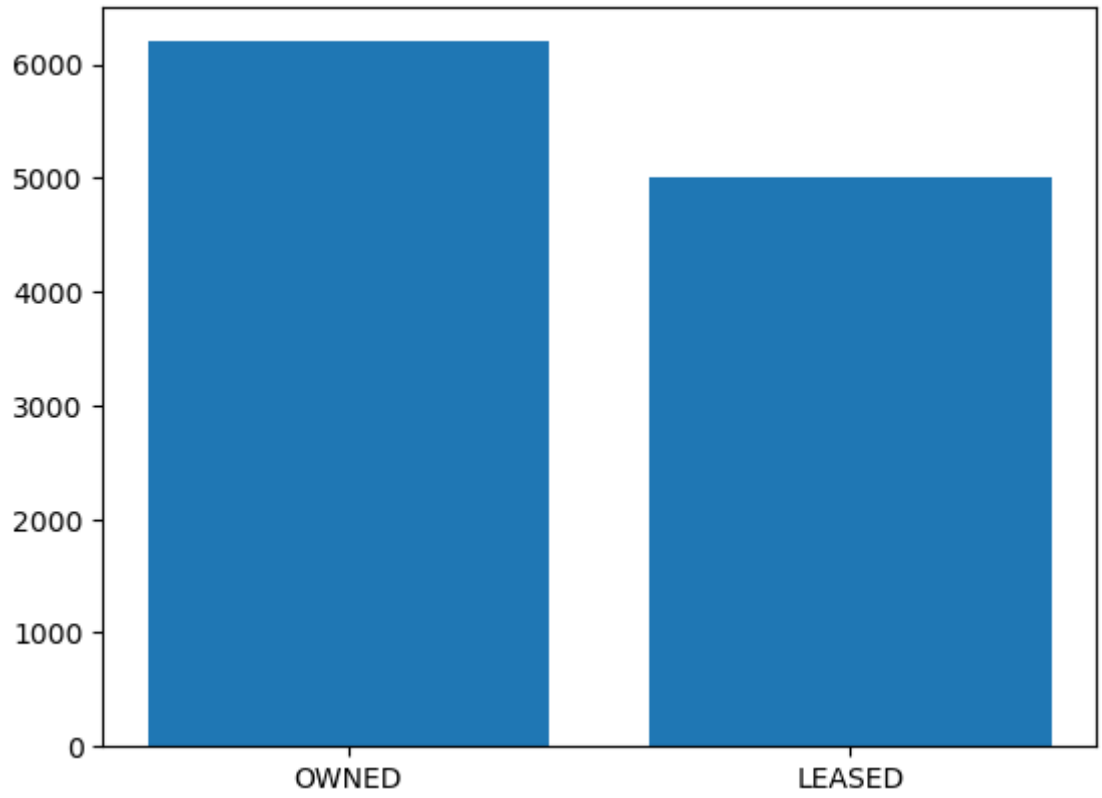
1. What is the distribution / values for owned/leased

In [18]:

```
plt.bar(parking['Owned/Leased'], parking['Total Parking Spaces']) #plots owned/leased on
```

Out[18]:

```
<BarContainer object of 9060 artists>
```



In [41]:

```
owned_leased= pd.pivot_table(parking, index = 'Owned/Leased', values = 'Total Parking Sp
owned_leased
```

Out[41]:

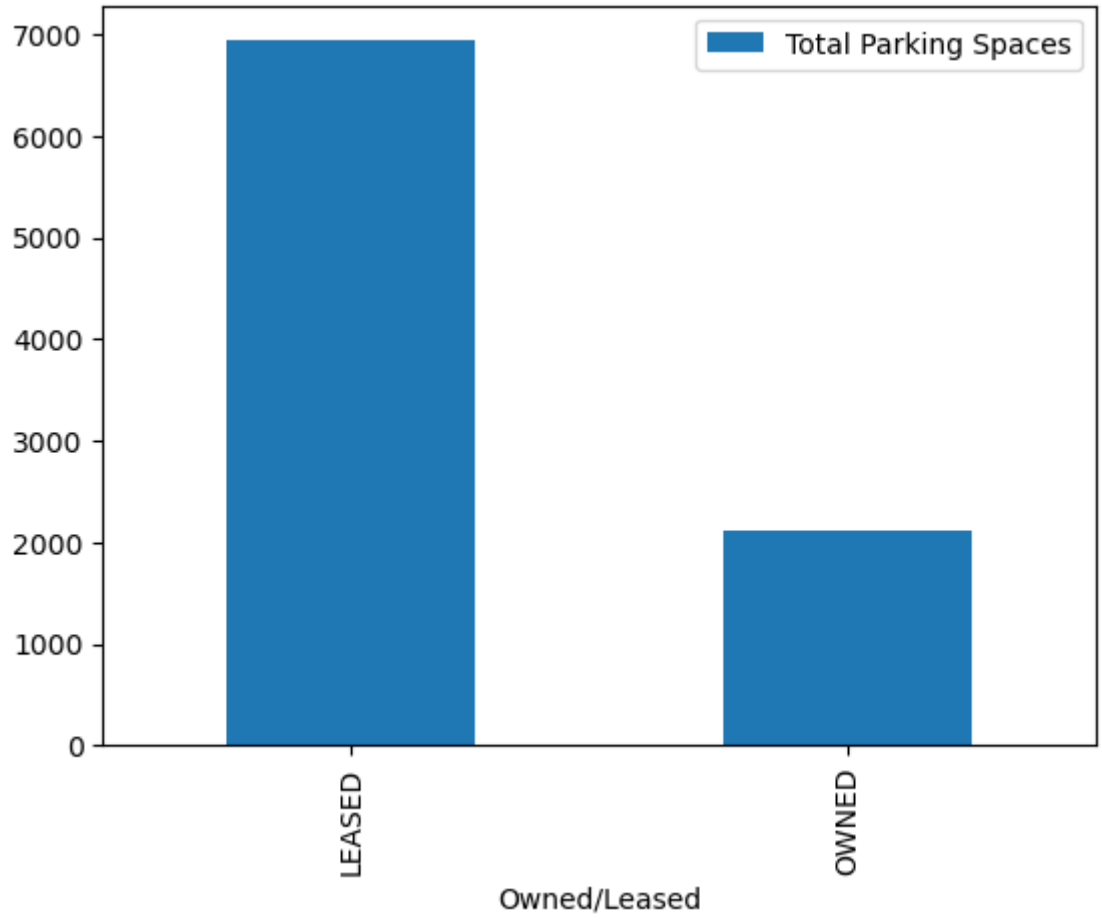
Owned/Leased	Total Parking Spaces
LEASED	6940
OWNED	2120

In [44]:

```
owned_leased.plot(kind= 'bar')
```

Out[44]:

```
<Axes: xlabel='Owned/Leased'>
```



2 In which building state is parking situation in excess. Have it in order

In [45]:

```
parking
```

Out[45]:

	Bldg City	Bldg State	Bldg Status	Property Type	Total Parking Spaces	Owned/Leased
0	HARTFORD	CT	ACTIVE	BUILDING	29	OWNED
1	NEW HAVEN	CT	ACTIVE	BUILDING	0	OWNED
2	WATERBURY	CT	ACTIVE	BUILDING	2	LEASED
3	WILLIMANTIC	CT	ACTIVE	BUILDING	0	LEASED
4	HARTFORD	CT	ACTIVE	BUILDING	103	OWNED
...	...	...	...	...	...	...
9055	FALLON	NV	ACTIVE	BUILDING	12	LEASED
9056	ELKO	NV	ACTIVE	BUILDING	2	LEASED
9057	LAS VEGAS	NV	ACTIVE	BUILDING	3	LEASED
9058	LAS VEGAS	NV	ACTIVE	BUILDING	24	LEASED
9059	LAS VEGAS	NV	ACTIVE	BUILDING	7	LEASED

9060 rows × 6 columns

In [57]:

```
excess_parking = pd.pivot_table(parking, index = 'Bldg State', columns = 'Bldg Status',
excess_parking
```

Out[57]:

Bldg Status	ACTIVE	DECOMMISSIONED	EXCESS
Bldg State			
AL	62.357724	NaN	59.000000
AR	37.000000	NaN	NaN
AZ	32.256757	NaN	NaN
CA	60.493298	NaN	NaN
CO	78.936709	NaN	22.200000
CT	29.327586	NaN	NaN
DC	41.255144	NaN	NaN
DE	15.750000	NaN	NaN
FL	51.905569	NaN	NaN
GA	76.408257	NaN	NaN
IA	27.202703	NaN	NaN
ID	39.274194	0.000000	NaN
IL	45.000000	NaN	21.000000
IN	44.069444	NaN	0.000000
KS	55.216216	NaN	NaN
KY	46.277372	NaN	NaN
LA	43.684932	NaN	68.666667
MA	55.905512	NaN	NaN
MD	104.185090	0.000000	43.166667
ME	16.917526	NaN	NaN
MI	41.608511	NaN	NaN
MN	43.418367	NaN	NaN
MO	121.200000	815.333333	254.272727
MS	43.908046	NaN	NaN
MT	15.326667	NaN	NaN
NC	34.995283	NaN	NaN
ND	13.475000	NaN	NaN
NE	54.060000	NaN	19.000000
NH	43.666667	NaN	NaN
NJ	32.169118	NaN	4.300000
NM	45.742647	NaN	NaN
NV	48.648649	NaN	173.000000
NY	39.635854	0.000000	0.000000
OH	38.621891	NaN	NaN
OK	39.108527	NaN	14.000000
OR	31.828571	NaN	NaN

Bldg Status	ACTIVE	DECOMMISSIONED	EXCESS
Bldg State			
PA	38.315574	NaN	0.000000
RI	25.148148	NaN	NaN
SC	36.768421	NaN	NaN
SD	22.742424	NaN	NaN
TN	53.934211	NaN	NaN
TX	54.639140	0.000000	0.000000
UT	83.260417	NaN	NaN
VA	70.731818	NaN	NaN
VT	34.666667	NaN	NaN
WA	43.938017	NaN	NaN
WI	23.247934	NaN	22.000000
WV	31.320755	NaN	NaN
WY	26.044444	NaN	NaN

In [58]:

```
excess_parking = excess_parking[excess_parking.EXCESS > 0]
excess_parking
```

Out[58]:

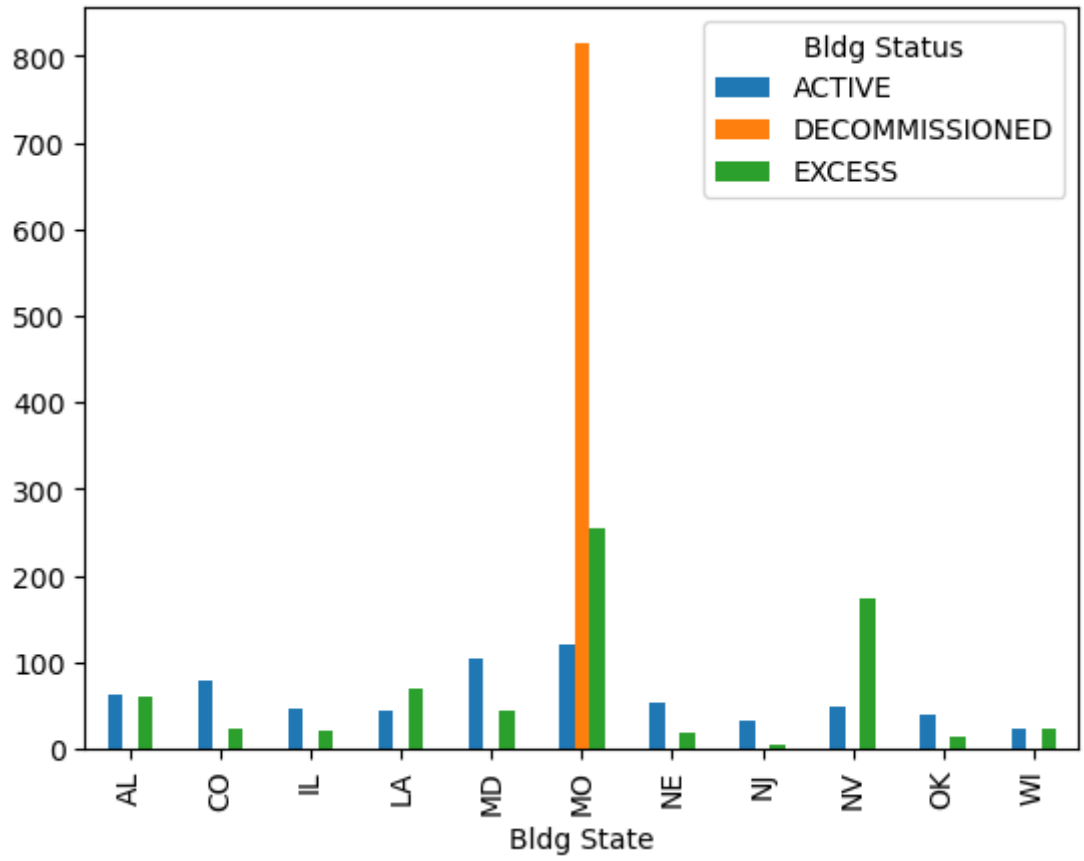
Bldg Status	ACTIVE	DECOMMISSIONED	EXCESS
Bldg State			
AL	62.357724	NaN	59.000000
CO	78.936709	NaN	22.200000
IL	45.000000	NaN	21.000000
LA	43.684932	NaN	68.666667
MD	104.185090	0.000000	43.166667
MO	121.200000	815.333333	254.272727
NE	54.060000	NaN	19.000000
NJ	32.169118	NaN	4.300000
NV	48.648649	NaN	173.000000
OK	39.108527	NaN	14.000000
WI	23.247934	NaN	22.000000

In [59]:

```
excess_parking.plot(kind= 'bar')
```

Out[59]:

```
<Axes: xlabel='Bldg State'>
```



3. The bldg cities that have been decomissioned along with total parking

In [63]:

```
decom_city = parking[parking['Bldg Status'] == 'DECOMMISSIONED']
decom_city
```

Out[63]:

	Bldg City	Bldg State	Bldg Status	Property Type	Total Parking Spaces	Owned/Leased
429	PORTHILL	ID	DECOMMISSIONED	BUILDING	0	OWNED
1933	MOOERS	NY	DECOMMISSIONED	BUILDING	0	OWNED
1934	MOOERS	NY	DECOMMISSIONED	BUILDING	0	OWNED
2338	CURTIS BAY	MD	DECOMMISSIONED	BUILDING	0	OWNED
2348	CURTIS BAY	MD	DECOMMISSIONED	BUILDING	0	OWNED
5716	OVERLAND	MO	DECOMMISSIONED	BUILDING	2089	OWNED
5725	SAINT LOUIS	MO	DECOMMISSIONED	BUILDING	357	OWNED
5726	SAINT LOUIS	MO	DECOMMISSIONED	BUILDING	0	OWNED
6752	FORT WORTH	TX	DECOMMISSIONED	BUILDING	0	OWNED

In which property is the parking space in excess

In [65]:

```
excess_parking_property = pd.pivot_table(parking[parking['Bldg Status']=='EXCESS'], inde
excess_parking_property
```

Out[65]:

	Total Parking Spaces
Property Type	
BUILDING	57.791045
STRUCTURE	37.000000

Where is more active parking- owned/leased

In [68]:

```
active_parking = pd.pivot_table(parking[parking['Bldg Status'] == 'ACTIVE'], index = 'Ow
active_parking
```

Out[68]:

	Total Parking Spaces
Owned/Leased	
LEASED	44.707349
OWNED	74.365997

Which states have more leased parking

In [76]:

```
state_parking = pd.pivot_table(parking[parking['Owned/Leased'] == 'LEASED'], index = 'Bl
state_parking
```

Out[76]:

Bldg State	Total Parking Spaces
AL	64.055556
AR	28.098592
AZ	38.025806
CA	44.639810
CO	58.647727
CT	26.134615
DC	42.562914
DE	15.592593
FL	49.102828
GA	62.425414
IA	19.941176
ID	38.092593
IL	41.822967
IN	33.365385
KS	48.242857
KY	35.764228
LA	42.666667
MA	38.774775
MD	51.461224
ME	17.448276
MI	33.827225
MN	25.833333
MO	107.762821
MS	37.168831
MT	24.064935
NC	32.611111
ND	10.477273
NE	45.239130
NH	39.029412
NJ	30.475806
NM	51.926316
NV	40.086957
NY	29.940000
OH	29.783784
OK	35.717949
OR	23.340659

Bldg State	Total Parking Spaces
PA	27.440367
RI	25.750000
SC	24.625000
SD	14.868852
TN	34.785185
TX	73.457086
UT	62.505882
VA	72.476316
VT	56.128205
WA	38.453039
WI	22.982906
WV	29.466667
WY	20.102564

In [83]:

```
state_parking.sort_values('Total Parking Spaces', ascending = False)
```

Out[83]:

Bldg State	Total Parking Spaces
MO	107.762821
TX	73.457086
VA	72.476316
AL	64.055556
UT	62.505882
GA	62.425414
CO	58.647727
VT	56.128205
NM	51.926316
MD	51.461224
FL	49.102828
KS	48.242857
NE	45.239130
CA	44.639810
LA	42.666667
DC	42.562914
IL	41.822967
NV	40.086957
NH	39.029412
MA	38.774775
WA	38.453039
ID	38.092593
AZ	38.025806
MS	37.168831
KY	35.764228
OK	35.717949
TN	34.785185
MI	33.827225
IN	33.365385
NC	32.611111
NJ	30.475806
NY	29.940000
OH	29.783784
WV	29.466667
AR	28.098592
PA	27.440367

Bldg State	Total Parking Spaces
CT	26.134615
MN	25.833333
RI	25.750000
SC	24.625000
MT	24.064935
OR	23.340659
WI	22.982906
WY	20.102564
IA	19.941176
ME	17.448276
DE	15.592593
SD	14.868852
ND	10.477273

In [ ]: