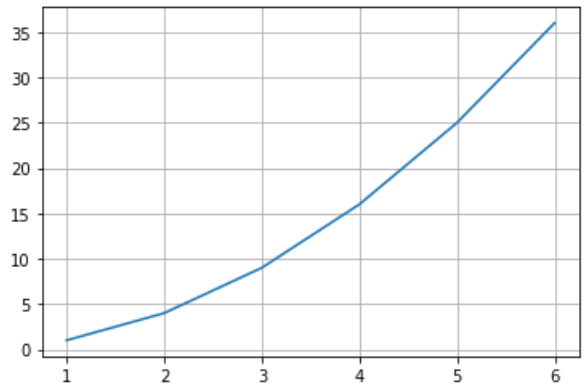
In [1]:

```
import matplotlib.pyplot as plt
```

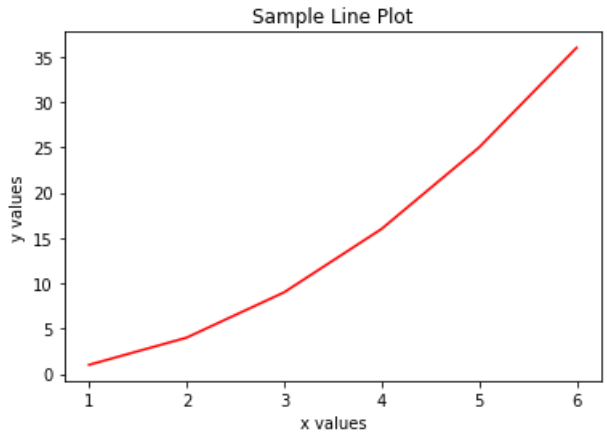
In [5]:

```
#line plot
x = [1,2,3,4,5,6]
y = [1,4,9,16,25,36]
plt.plot(x,y)
plt.grid()
```



In [4]:

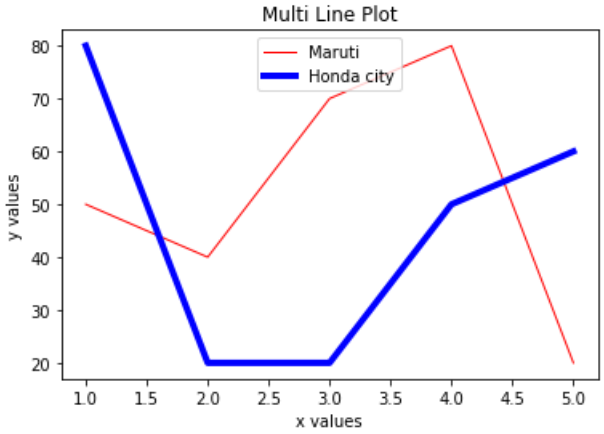
```
#complete line plot
x = [1,2,3,4,5,6]
y = [1,4,9,16,25,36]
plt.xlabel('x values')  # assigning name to x label
plt.ylabel('y values')  # assigning name to y label
plt.title('Sample Line Plot') # title of plot
plt.plot(x,y,color = 'red') # colour of lines
plt.savefig('new_ml_graph.png') # saving the plot
```



In [12]:

```
# multi line plot

x = [1,2,3,4,5]
y = [50,40,70,80,20]
y2 = [80,20,20,50,60]

plt.plot(x,y,color = 'red', label = 'Maruti', linewidth = 1)
plt.plot(x,y2,color = 'blue', label = 'Honda city', linewidth = 4)
plt.xlabel('x values')  # assigning name to x label
plt.ylabel('y values')  # assigning name to y label
plt.title('Multi Line Plot')
plt.legend()
```

```
plt.show()
```

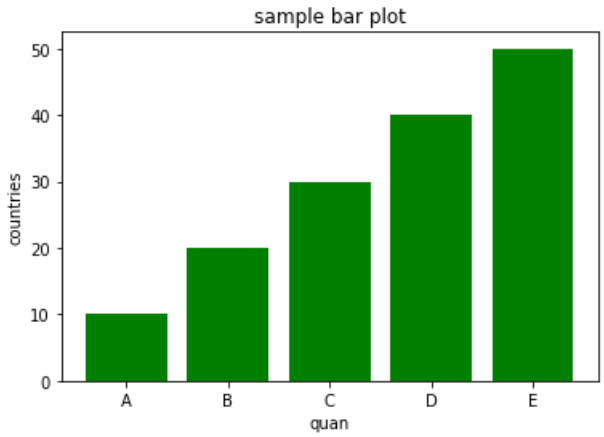


In [13]:

```
#BAR PLOT
import matplotlib.pyplot as plt
x = [10,20,30,40,50]
y = ['A','B','C','D','E']

plt.xlabel('quan')
plt.ylabel('countries')
plt.title('sample bar plot')

plt.bar(y,x, color= 'green')
```

Out[13]:

```
<BarContainer object of 5 artists>
```

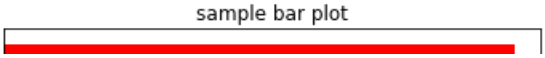


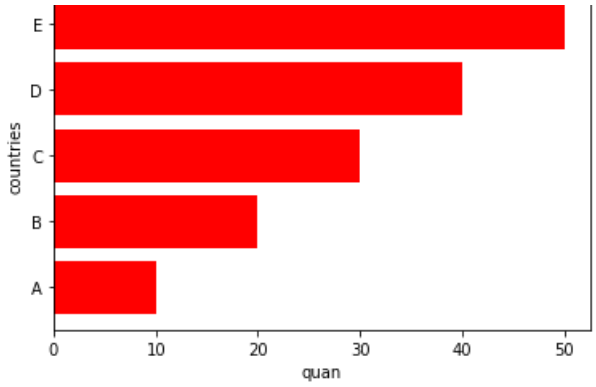
In [3]:

```
#bar plot horizontal
import matplotlib.pyplot as plt
x = [10,20,30,40,50]
y = ['A','B','C','D','E']

plt.xlabel('quan')
plt.ylabel('countries')
plt.title('sample bar plot')

plt.barh(y,x, color= 'red')
```

Out[3]:

```
<BarContainer object of 5 artists>
```



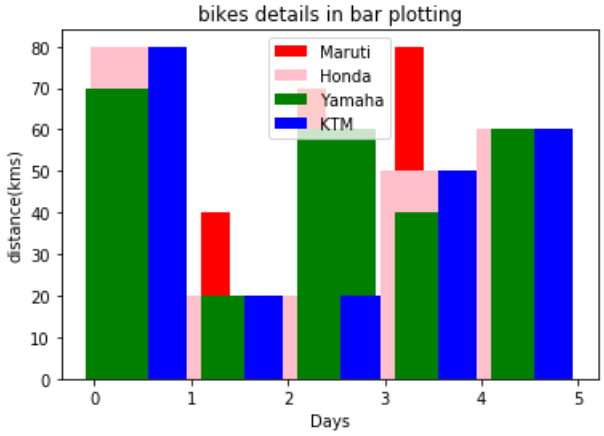


In [ ]:

```
#in horizontal graph we use height and in normal we use width parameter
```

In [12]:

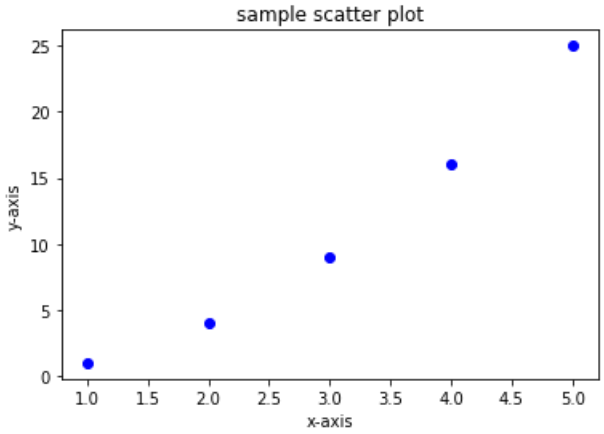
```
#example 1
import matplotlib.pyplot as plt
x1 = [0.25,1.25,2.25,3.25,4.25]
y1 = [50,40,70,80,20]

plt.bar(x1,y1,color = 'red', label = 'Maruti', width = 0.3)

x2 = [0.26,1.25,2.25,3.25,4.25]
y2 = [80,20,20,50,60]

plt.bar(x2,y2,color = 'pink', label = 'Honda', width = 0.6)

x3 = [0.31,1.5,2.5,3.5,4.5]
y3 = [70,20,60,40,60]

plt.bar(x3,y3,color = 'green', label = 'Yamaha', width = 0.8)

x4 = [0.75,1.75,2.75,3.75,4.75]
y4 = [80,20,20,50,60]

plt.bar(x4,y4,color = 'blue', label = 'KTM', width = 0.4)
plt.legend()
plt.xlabel('Days')
plt.ylabel('distance(kms)')
plt.title('bikes details in bar plotting')

plt.show()
```



In [4]:

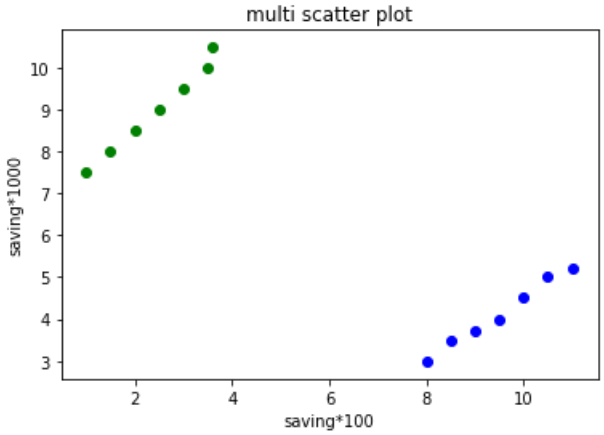
```
# simple scatter plot
import matplotlib.pyplot as plt
x= [1,2,3,4,5]
y = [1,4,9,16,25]
```

```
plt.scatter(x,y, color ='blue')
plt.xlabel('x-axis')
plt.ylabel('y-axis')
plt.title('sample scatter plot')
plt.show()
```



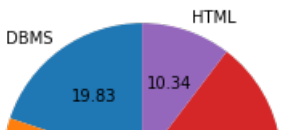
In [11]:

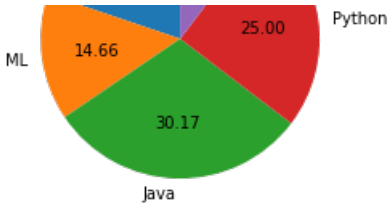
```
# multi scatter plot
import matplotlib.pyplot as plt
x=[1,1.5,2,2.5,3,3.5,3.6]
y = [7.5,8,8.5,9,9.5,10,10.5]
x1 = [8,8.5,9,9.5,10,10.5,11]
y1 =[3,3.5,3.7,4,4.5,5,5.2]

plt.scatter(x,y, label='high income low saving',color='green')
plt.scatter(x1,y1, label='low income high saving',color='blue')


plt.xlabel('saving*100')
plt.ylabel('saving*1000')
plt.title('multi scatter plot')
plt.show()
```



In [6]:

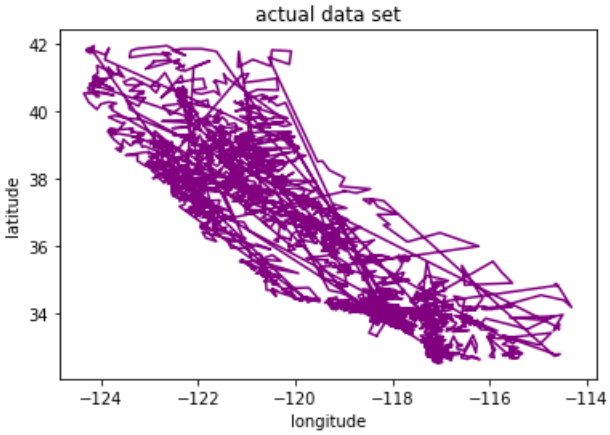
```
#pie plot
import matplotlib.pyplot as plt
sub=['DBMS','ML','Java','Python','HTML']
students =[23,17,35,29,12]
plt.pie(students,labels=sub,startangle=90,autopct='%1.2f')
plt.show()
```





In [17]:

```
import pandas as pd
import matplotlib.pyplot as plt

df = pd.read_csv('housing.csv')
df

y = df['latitude']
x = df['longitude']


plt.xlabel('longitude')
plt.ylabel('latitude')
plt.title('actual data set')


plt.plot(x,y,color='purple')
plt.show()
```



SEABORN LIBRARY

In [24]:

```
import seaborn as sns
import pandas as pd
df = pd.read_csv('housing.csv')
df
```

Out[24]:

	longitude	latitude	housing_median_age	total_rooms	total_bedrooms	population	households	median_income	median_house_
0	-122.23	37.88	41.0	880.0	129.0	322.0	126.0	8.3252	452
1	-122.22	37.86	21.0	7099.0	1106.0	2401.0	1138.0	8.3014	358
2	-122.24	37.85	52.0	1467.0	190.0	496.0	177.0	7.2574	352
3	-122.25	37.85	52.0	1274.0	235.0	558.0	219.0	5.6431	341
4	-122.25	37.85	52.0	1627.0	280.0	565.0	259.0	3.8462	342
...	...	...	...	...	...	...	...	...	
20635	-121.09	39.48	25.0	1665.0	374.0	845.0	330.0	1.5603	78
20636	-121.21	39.49	18.0	697.0	150.0	356.0	114.0	2.5568	77
20637	-121.22	39.43	17.0	2254.0	485.0	1007.0	433.0	1.7000	92

	longitude	latitude	housing_median_age	total_rooms	total_bedrooms	population	households	median_income	median_house
20638	-121.32	39.43	18.0	1860.0	409.0	741.0	349.0	1.8672	82
20639	-121.24	39.37	16.0	2785.0	616.0	1387.0	530.0	2.3886	89

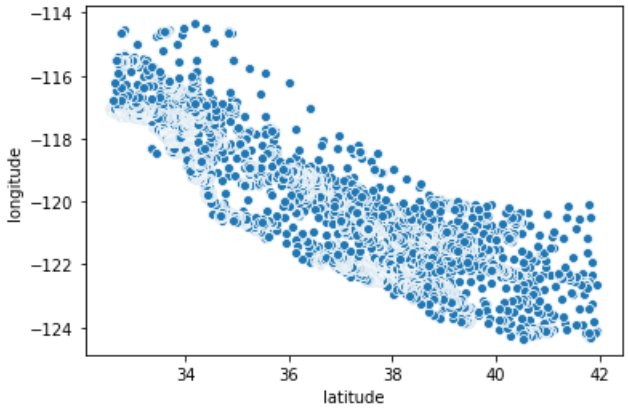
20640 rows × 10 columns

In [25]:

```
sns.scatterplot(x='latitude',y='longitude',data =df)
```

Out[25]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x273ab788>
```

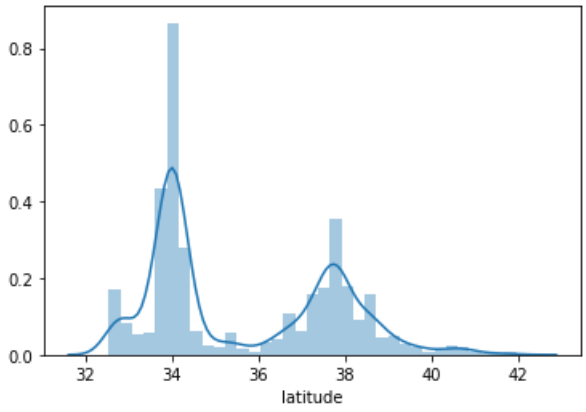


In [27]:

```
sns.distplot(df['latitude']) #distribution plot
```

Out[27]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x272fa608>
```

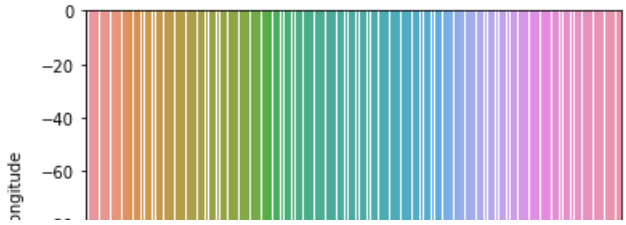


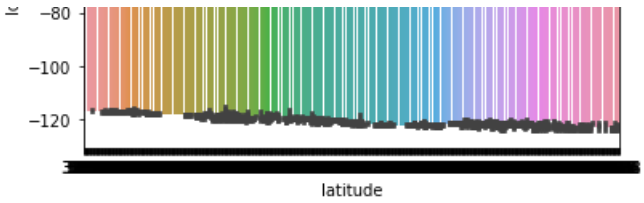
In [28]:

```
sns.barplot(x='latitude',y='longitude',data=df)  #bar plot
```

Out[28]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x275f7c48>
```



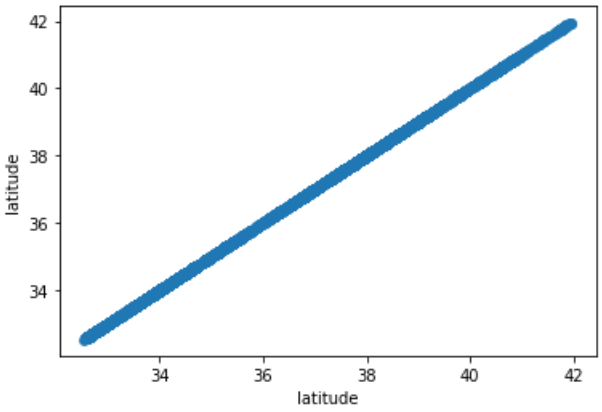


In [29]:

```
sns.regplot(x='latitude', y='latitude', data = df)  #regression plot
```

Out[29]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x2ac12108>
```

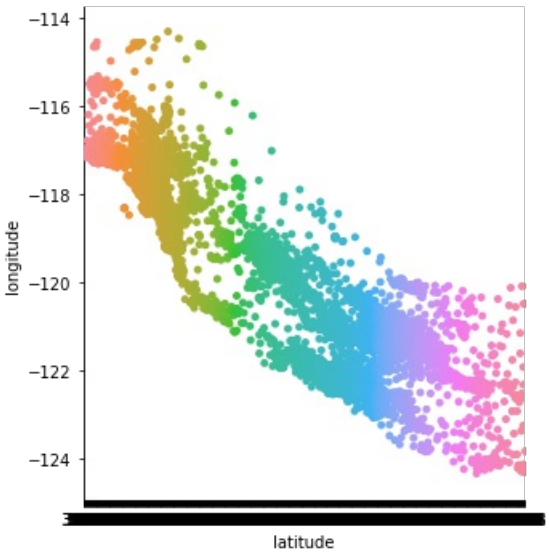


In [31]:

```
sns.catplot(x='latitude',y='longitude',data=df)
```

Out[31]:

```
<seaborn.axisgrid.FacetGrid at 0x277d0388>
```

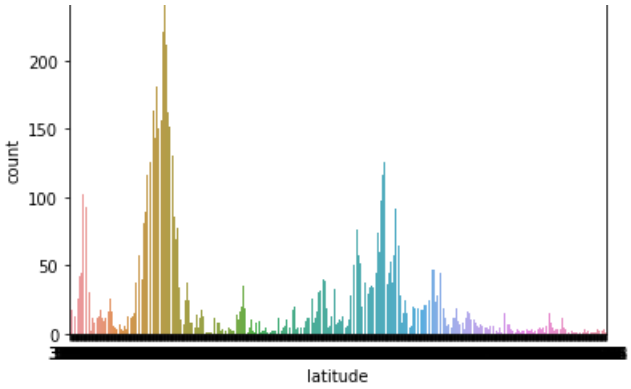


In [32]:

```
sns.countplot(x='latitude',data=df)
```

Out[32]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1e678dc8>
```

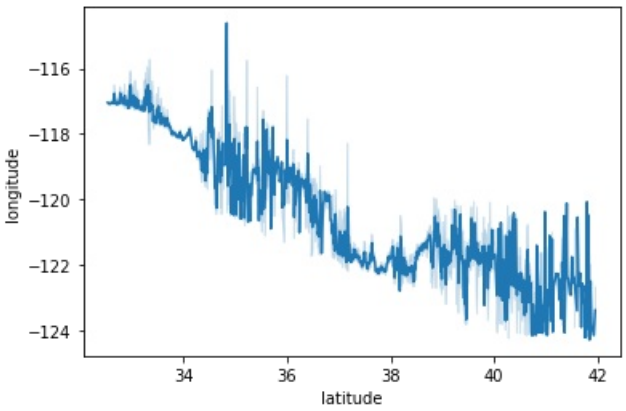


In [34]:

```
sns.lineplot(x='latitude',y='longitude',data = df) #line plot
```

Out[34]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x21ba5188>
```

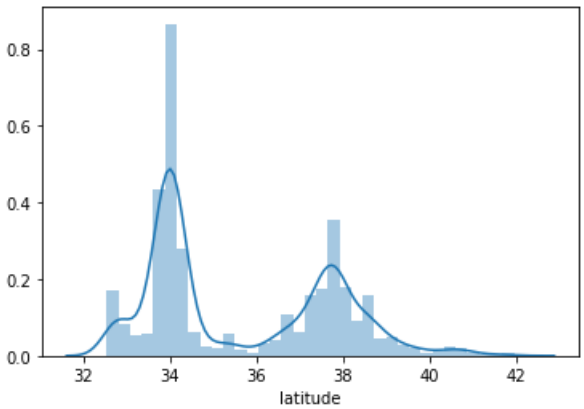


In [35]:

```
sns.distplot(df['latitude'])  #distribution plot
```

Out[35]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x21be1908>
```

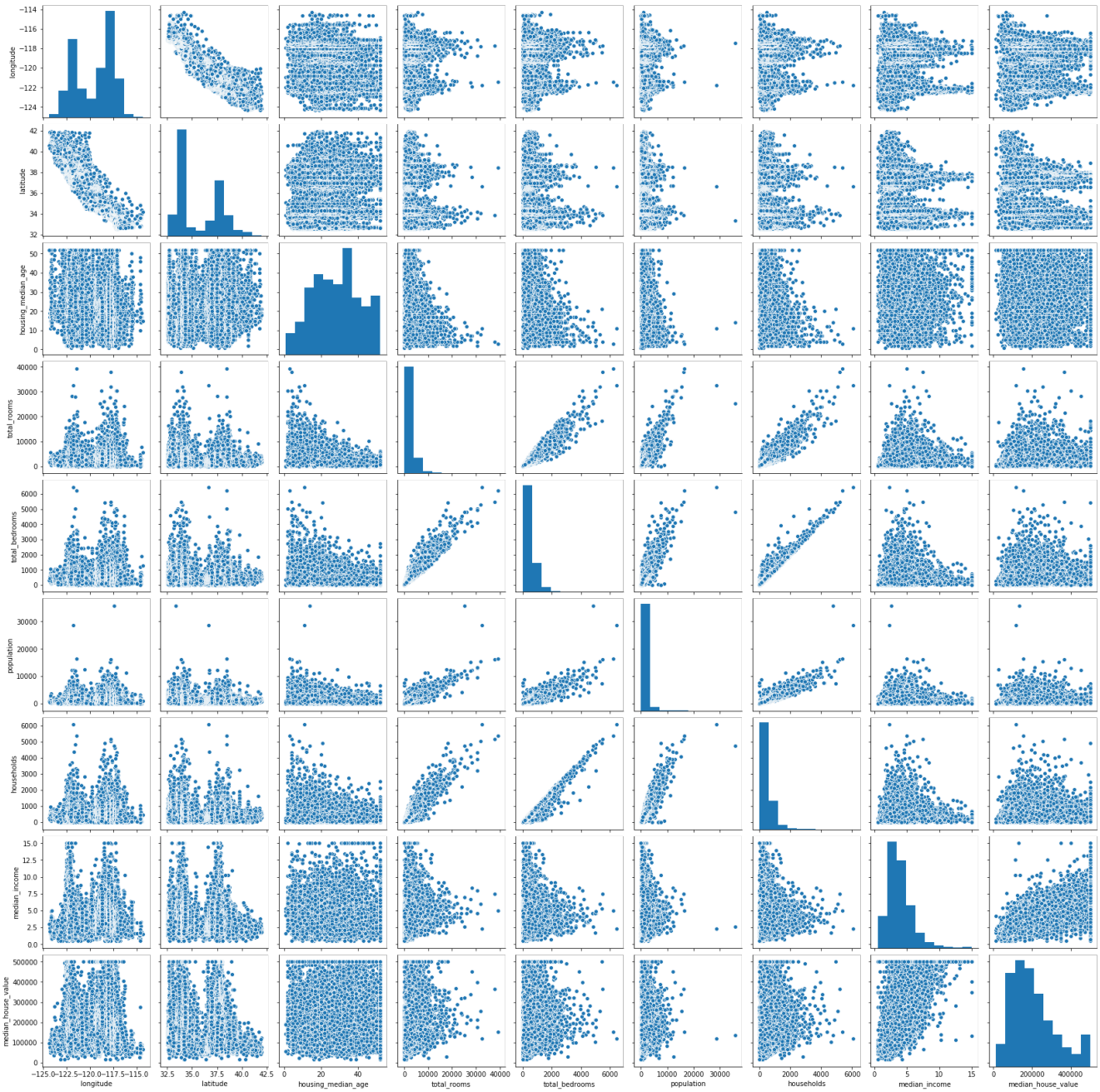


In [37]:

```
sns.pairplot(df)  #pair plot
```

Out[37]:

```
<seaborn.axisgrid.PairGrid at 0x26691088>
```

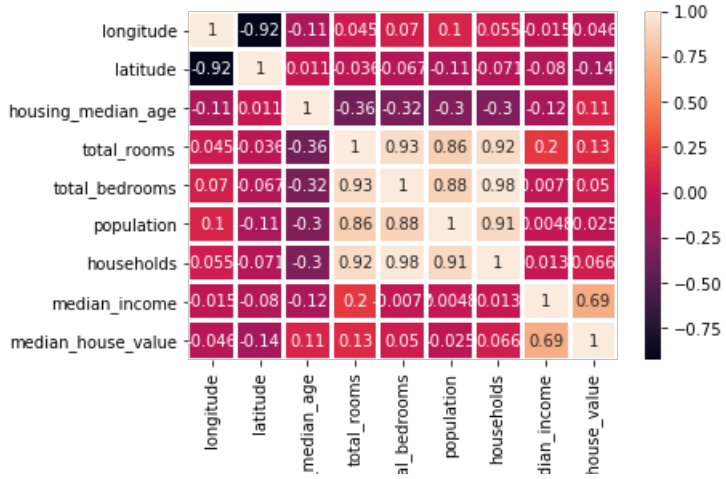


In [44]:

```
sns.heatmap(df.corr(),linewidth=2,annot=True)   #heatmap
```

Out[44]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x33ef2d88>
```



In [45]:

```
cm = df.corr()
cm
```

Out[45]:

	longitude	latitude	housing_median_age	total_rooms	total_bedrooms	population	households	median_income
longitude	1.000000	-0.924664	-0.108197	0.044568	0.069608	0.099773	0.055310	-0.015176
latitude	-0.924664	1.000000	0.011173	-0.036100	-0.066983	-0.108785	-0.071035	-0.079809
housing_median_age	-0.108197	0.011173	1.000000	-0.361262	-0.320451	-0.296244	-0.302916	-0.119034
total_rooms	0.044568	-0.036100	-0.361262	1.000000	0.930380	0.857126	0.918484	0.198050
total_bedrooms	0.069608	-0.066983	-0.320451	0.930380	1.000000	0.877747	0.979728	-0.007723
population	0.099773	-0.108785	-0.296244	0.857126	0.877747	1.000000	0.907222	0.004834
households	0.055310	-0.071035	-0.302916	0.918484	0.979728	0.907222	1.000000	0.013033
median_income	-0.015176	-0.079809	-0.119034	0.198050	-0.007723	0.004834	0.013033	1.000000
median_house_value	-0.045967	-0.144160	0.105623	0.134153	0.049686	-0.024650	0.065843	0.688075

In [47]:

```
sns.heatmap(cm,linewidth =2,annot=True)
```

Out[47]:

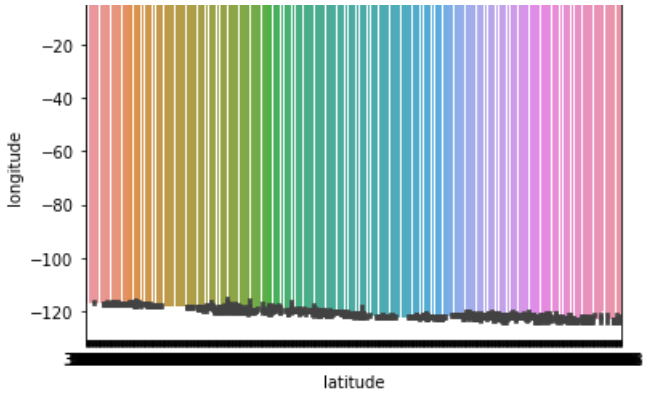
```
<matplotlib.axes._subplots.AxesSubplot at 0x35017d88>
```

In [48]:

```
sns.barplot(x='latitude',y='longitude',data=df) #bar plot
```

Out[48]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x3531dc08>
```

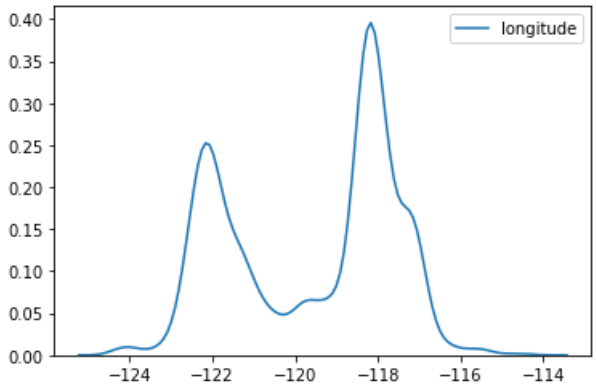


In [49]:

```
sns.kdeplot(df['longitude']) #kdeplot
```

Out[49]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x35c4ae88>
```



In [ ]:

```

```