```
In [1]:  import numpy as np # linear algebra
         import pandas as pd # data processing, CSV file I/O (e.g. pd.read_csv)
         import matplotlib.pyplot as plt
         import seaborn as sns
```

```
In [2]:  cars_df=pd.read_excel(r"C:\Users\User\Downloads\CAR DETAILS FROM CAR DEKHO.xlsx")
         cars_df
```

Out[2]:

	name	year	selling_price	km_driven	fuel	seller_type	transmission	owner
0	Maruti 800 AC	2007	60000	70000	Petrol	Individual	Manual	First Owner
1	Maruti Wagon R LXI Minor	2007	135000	50000	Petrol	Individual	Manual	First Owner
2	Hyundai Verna 1.6 SX	2012	600000	100000	Diesel	Individual	Manual	First Owner
3	Datsun RediGO T Option	2017	250000	46000	Petrol	Individual	Manual	First Owner
4	Honda Amaze VX i-DTEC	2014	450000	141000	Diesel	Individual	Manual	Second Owner
...	...	...	...	...	...	...	...	...
4335	Hyundai i20 Magna 1.4 CRDi (Diesel)	2014	409999	80000	Diesel	Individual	Manual	Second Owner
4336	Hyundai i20 Magna 1.4 CRDi	2014	409999	80000	Diesel	Individual	Manual	Second Owner
4337	Maruti 800 AC BSIII	2009	110000	83000	Petrol	Individual	Manual	Second Owner
4338	Hyundai Creta 1.6 CRDi SX Option	2016	865000	90000	Diesel	Individual	Manual	First Owner
4339	Renault KWID RXT	2016	225000	40000	Petrol	Individual	Manual	First Owner

4340 rows × 8 columns

```
In [3]:  cars_df.head()
```

Out[3]:

	name	year	selling_price	km_driven	fuel	seller_type	transmission	owner
0	Maruti 800 AC	2007	60000	70000	Petrol	Individual	Manual	First Owner
1	Maruti Wagon R LXI Minor	2007	135000	50000	Petrol	Individual	Manual	First Owner
2	Hyundai Verna 1.6 SX	2012	600000	100000	Diesel	Individual	Manual	First Owner
3	Datsun RediGO T Option	2017	250000	46000	Petrol	Individual	Manual	First Owner
4	Honda Amaze VX i-DTEC	2014	450000	141000	Diesel	Individual	Manual	Second Owner

```
In [4]:  cars_df.info()

         <class 'pandas.core.frame.DataFrame'>
         RangeIndex: 4340 entries, 0 to 4339
         Data columns (total 8 columns):
          #   Column          Non-Null Count  Dtype
         ---  ------          --------------  -----
```

```
 0   name           4340 non-null   object
 1   year           4340 non-null   int64
 2   selling_price  4340 non-null   int64
 3   km_driven      4340 non-null   int64
 4   fuel           4340 non-null   object
 5   seller_type    4340 non-null   object
 6   transmission   4340 non-null   object
 7   owner          4340 non-null   object
dtypes: int64(3), object(5)
memory usage: 271.4+ KB
```

In [5]: `cars_df.describe()`

Out[5]:

	year	selling_price	km_driven
count	4340.000000	4.340000e+03	4340.000000
mean	2013.090783	5.041273e+05	66215.777419
std	4.215344	5.785487e+05	46644.102194
min	1992.000000	2.000000e+04	1.000000
25%	2011.000000	2.087498e+05	35000.000000
50%	2014.000000	3.500000e+05	60000.000000
75%	2016.000000	6.000000e+05	90000.000000
max	2020.000000	8.900000e+06	806599.000000

In [6]: `cars_df.corr()`

Out[6]:

	year	selling_price	km_driven
year	1.000000	0.413922	-0.419688
selling_price	0.413922	1.000000	-0.192289
km_driven	-0.419688	-0.192289	1.000000

In [7]: `cars_df.isnull().sum()`

Out[7]:
```
name             0
year             0
selling_price    0
km_driven        0
fuel             0
seller_type      0
transmission     0
owner            0
dtype: int64
```

In [8]: `cars_df["name"].unique(),cars_df["name"].nunique()`

Out[8]:
```
(array(['Maruti 800 AC', 'Maruti Wagon R LXI Minor',
        'Hyundai Verna 1.6 SX', ..., 'Mahindra Verito 1.5 D6 BSIII',
        'Toyota Innova 2.5 VX (Diesel) 8 Seater BS IV',
        'Hyundai i20 Magna 1.4 CRDi'], dtype=object),
 1491)
```

In [9]: `cars_df["year"].value_counts()`

Out[9]:
```
2017    466
2015    421
2012    415
```

```
2013    386
2014    367
2018    366
2016    357
2011    271
2010    234
2019    195
2009    193
2008    145
2007    134
2006    110
2005     85
2020     48
2004     42
2003     23
2002     21
2001     20
1998     12
2000     12
1999     10
1997      3
1996      2
1995      1
1992      1
Name: year, dtype: int64
```

In [10]:
```python
cars_df["name_2"] = cars_df.name.apply(lambda x : ' '.join(x.split(' ')[:1]))
cars_df['name_2'].head()
```

Out[10]:
```
0      Maruti
1      Maruti
2     Hyundai
3      Datsun
4       Honda
Name: name_2, dtype: object
```

In [11]:
```python
cars_df.name_2.value_counts()
```

Out[11]:
```
Maruti           1280
Hyundai           821
Mahindra          365
Tata              361
Honda             252
Ford              238
Toyota            206
Chevrolet         188
Renault           146
Volkswagen        107
Skoda              68
Nissan             64
Audi               60
BMW                39
Fiat               37
Datsun             37
Mercedes-Benz      35
Jaguar              6
Mitsubishi          6
Land                5
Volvo               4
Ambassador          4
Jeep                3
MG                  2
OpelCorsa           2
Daewoo              1
Force               1
Isuzu               1
```

```
            Kia                     1
            Name: name_2, dtype: int64
```

In [12]:
```python
plt.figure(figsize=(10,10))
sns.countplot(data=cars_df,x="name_2",palette="CMRmap")
plt.xticks(rotation=90)
plt.xlabel("Car name",fontsize=15,color="black")
plt.ylabel("Car count",fontsize=15,color="black")
plt.title("Cars count",fontsize=25)
plt.show()#Countplot of all cars
```
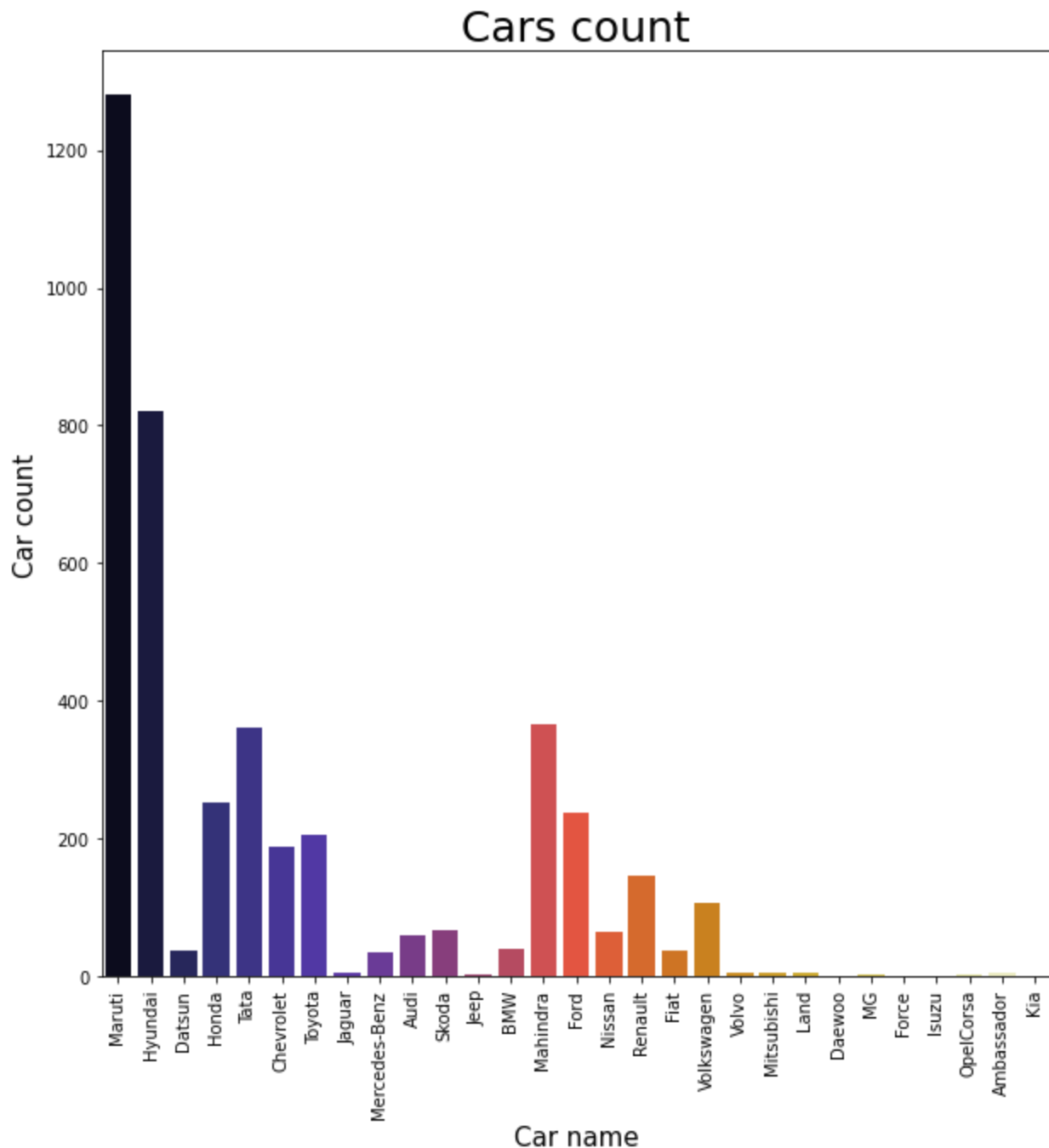

In [13]:
```python
plt.figure(figsize=(10,10))
sns.countplot(data=cars_df,x="year",palette="icefire")
plt.xticks(rotation=90)
plt.xlabel("YEAR",fontsize=15,color="RED")
plt.ylabel("COUNT",fontsize=15,color="RED")
plt.title("YEAR COUNT",fontsize=25,color="RED")
plt.show()#Countplot of all years
```

YEAR COUNT
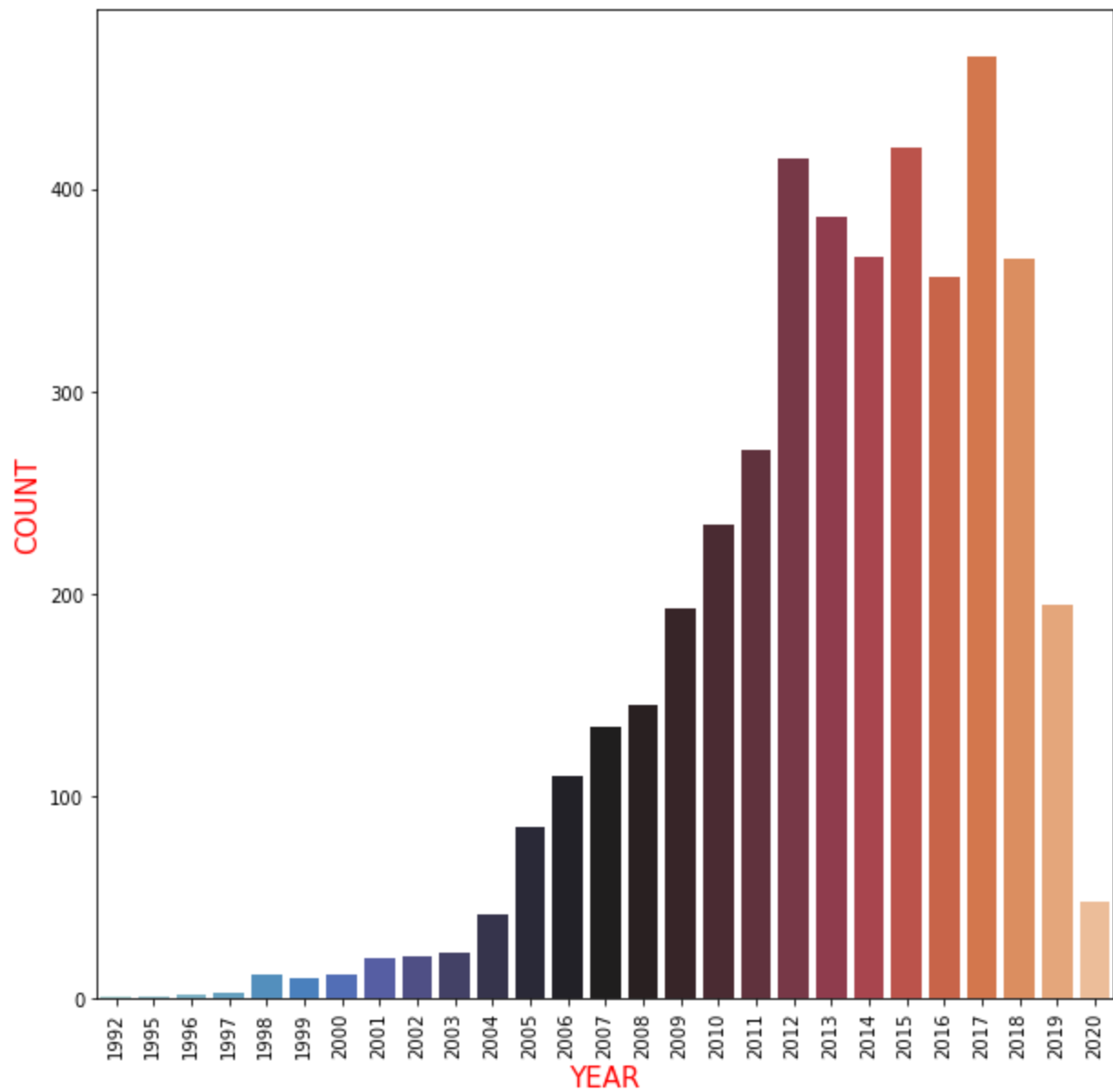
In [14]:
```python
labels = cars_df["name_2"][:10].value_counts().index
sizes = cars_df["name_2"][:10].value_counts()
plt.figure(figsize = (10,10))
plt.pie(sizes, labels=labels, rotatelabels=False, autopct='%1.1f%%',shadow=True, startan
plt.title('Car name',color = 'red',fontsize = 30)
plt.show() #Pie chart of top 5 cars
```

Car name
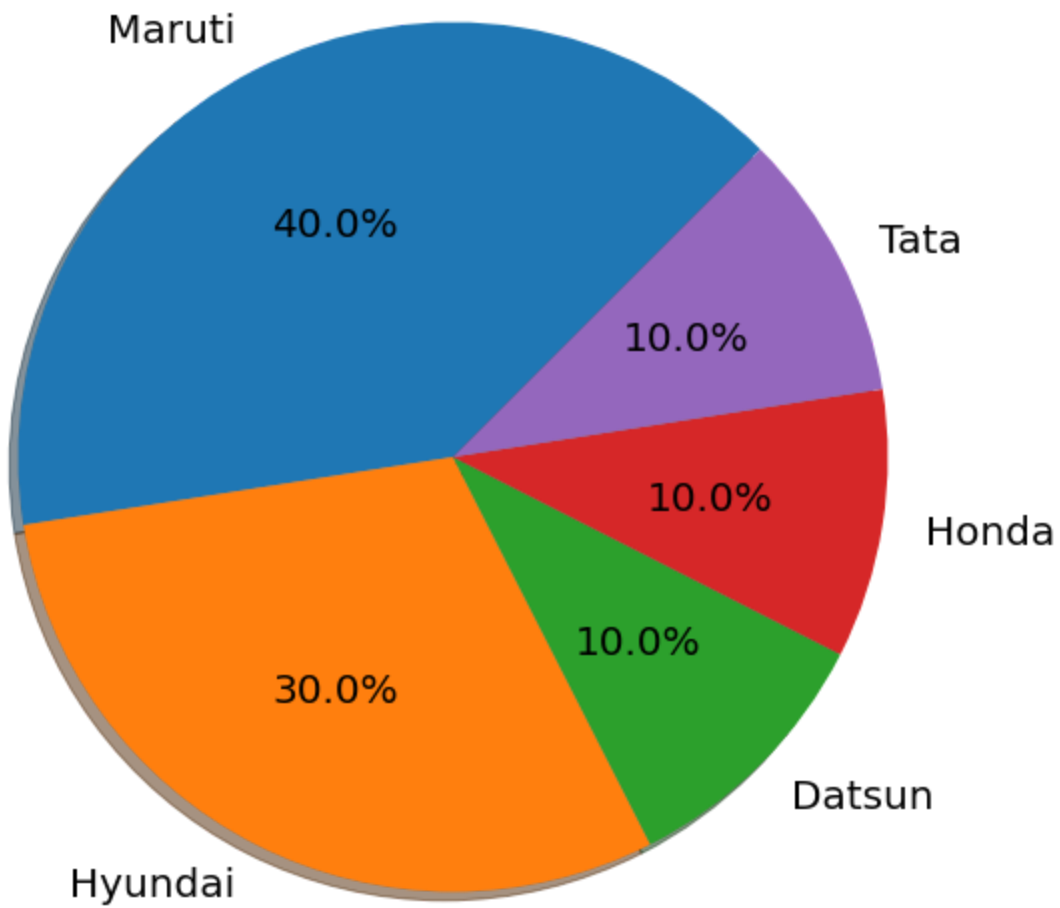
```
labels = cars_df["year"][:25].value_counts().index
sizes = cars_df["year"][:25].value_counts()
plt.figure(figsize = (10,10))
plt.pie(sizes, labels=labels, rotatelabels=False, autopct='%1.1f%%',shadow=True, startan
plt.title('Year',color = 'red',fontsize = 30)
plt.show()# Piechart of car sell of particular year
```

Year

2007 24.0%

2018 4.0%

2016 8.0%

2012 8.0%

2015 16.0%

2017 16.0%

2014 24.0%
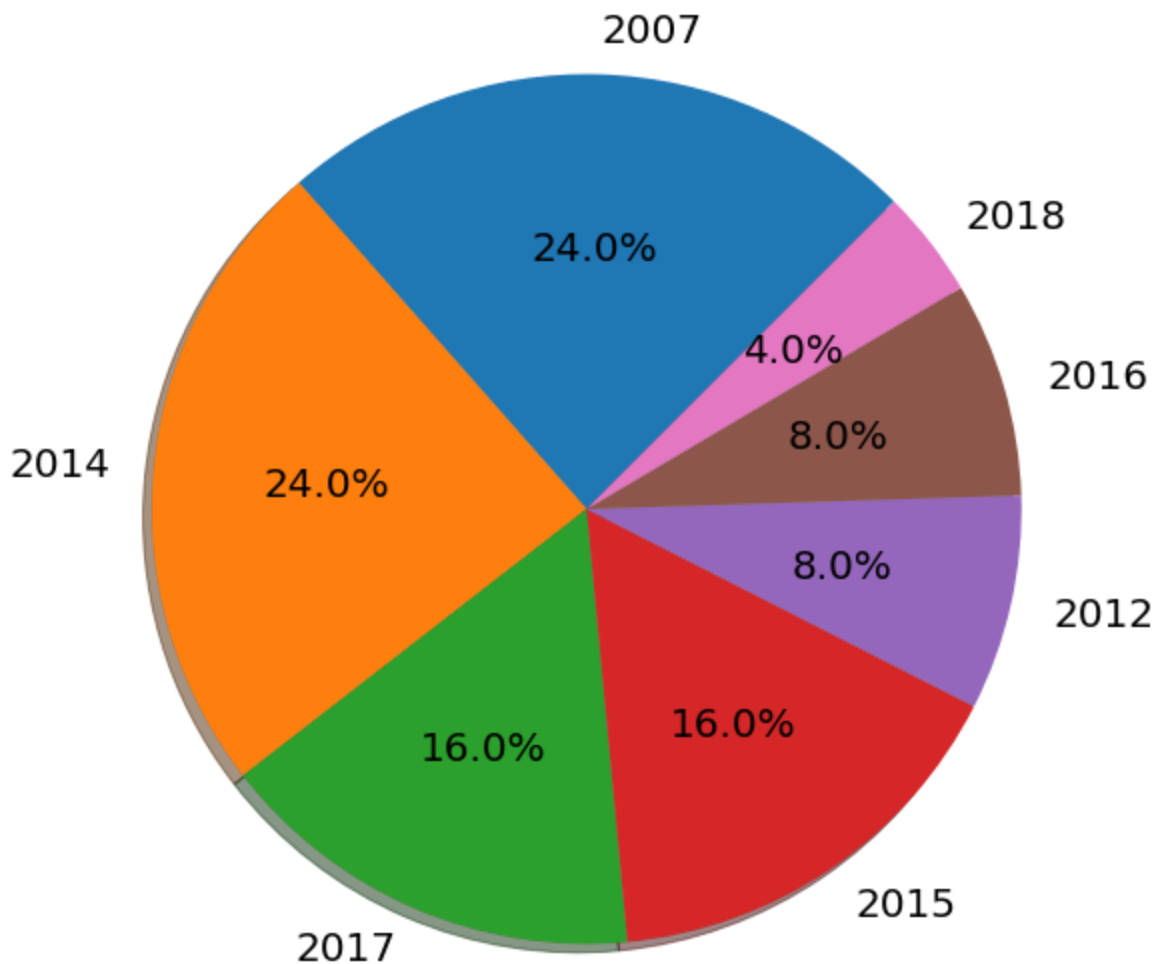
In [16]:
```
pip install nbconvert
```

```
Requirement already satisfied: nbconvert in c:\users\user\anaconda3\lib\site-packages
(6.4.4)
Requirement already satisfied: jinja2>=2.4 in c:\users\user\anaconda3\lib\site-packages
(from nbconvert) (2.11.3)
Requirement already satisfied: traitlets>=5.0 in c:\users\user\anaconda3\lib\site-packag
es (from nbconvert) (5.1.1)
Requirement already satisfied: nbclient<0.6.0,>=0.5.0 in c:\users\user\anaconda3\lib\sit
e-packages (from nbconvert) (0.5.13)
Requirement already satisfied: defusedxml in c:\users\user\anaconda3\lib\site-packages
(from nbconvert) (0.7.1)
Requirement already satisfied: jupyterlab-pygments in c:\users\user\anaconda3\lib\site-p
ackages (from nbconvert) (0.1.2)
Requirement already satisfied: entrypoints>=0.2.2 in c:\users\user\anaconda3\lib\site-pa
ckages (from nbconvert) (0.4)
Requirement already satisfied: mistune<2,>=0.8.1 in c:\users\user\anaconda3\lib\site-pac
kages (from nbconvert) (0.8.4)
Requirement already satisfied: bleach in c:\users\user\anaconda3\lib\site-packages (from
nbconvert) (4.1.0)
Requirement already satisfied: beautifulsoup4 in c:\users\user\anaconda3\lib\site-packag
es (from nbconvert) (4.11.1)
Requirement already satisfied: testpath in c:\users\user\anaconda3\lib\site-packages (fr
om nbconvert) (0.5.0)
Requirement already satisfied: nbformat>=4.4 in c:\users\user\anaconda3\lib\site-package
s (from nbconvert) (5.3.0)
Requirement already satisfied: jupyter-core in c:\users\user\anaconda3\lib\site-packages
(from nbconvert) (4.9.2)
```

```
Requirement already satisfied: pygments>=2.4.1 in c:\users\user\anaconda3\lib\site-packa
ges (from nbconvert) (2.11.2)
Requirement already satisfied: pandocfilters>=1.4.1 in c:\users\user\anaconda3\lib\site-
packages (from nbconvert) (1.5.0)
Requirement already satisfied: MarkupSafe>=0.23 in c:\users\user\anaconda3\lib\site-pack
ages (from jinja2>=2.4->nbconvert) (2.0.1)
Requirement already satisfied: jupyter-client>=6.1.5 in c:\users\user\anaconda3\lib\site
-packages (from nbclient<0.6.0,>=0.5.0->nbconvert) (6.1.12)
Requirement already satisfied: nest-asyncio in c:\users\user\anaconda3\lib\site-packages
(from nbclient<0.6.0,>=0.5.0->nbconvert) (1.5.5)
Requirement already satisfied: python-dateutil>=2.1 in c:\users\user\anaconda3\lib\site-
packages (from jupyter-client>=6.1.5->nbclient<0.6.0,>=0.5.0->nbconvert) (2.8.2)
Requirement already satisfied: tornado>=4.1 in c:\users\user\anaconda3\lib\site-packages
(from jupyter-client>=6.1.5->nbclient<0.6.0,>=0.5.0->nbconvert) (6.1)
Requirement already satisfied: pyzmq>=13 in c:\users\user\anaconda3\lib\site-packages (f
rom jupyter-client>=6.1.5->nbclient<0.6.0,>=0.5.0->nbconvert) (22.3.0)
Requirement already satisfied: pywin32>=1.0 in c:\users\user\anaconda3\lib\site-packages
(from jupyter-core->nbconvert) (302)
Requirement already satisfied: jsonschema>=2.6 in c:\users\user\anaconda3\lib\site-packa
ges (from nbformat>=4.4->nbconvert) (4.4.0)
Requirement already satisfied: fastjsonschema in c:\users\user\anaconda3\lib\site-packag
es (from nbformat>=4.4->nbconvert) (2.15.1)
Requirement already satisfied: pyrsistent!=0.17.0,!=0.17.1,!=0.17.2,>=0.14.0 in c:\users
\user\anaconda3\lib\site-packages (from jsonschema>=2.6->nbformat>=4.4->nbconvert) (0.1
8.0)
Requirement already satisfied: attrs>=17.4.0 in c:\users\user\anaconda3\lib\site-package
s (from jsonschema>=2.6->nbformat>=4.4->nbconvert) (21.4.0)
Requirement already satisfied: six>=1.5 in c:\users\user\anaconda3\lib\site-packages (fr
om python-dateutil>=2.1->jupyter-client>=6.1.5->nbclient<0.6.0,>=0.5.0->nbconvert) (1.1
6.0)
Requirement already satisfied: soupsieve>1.2 in c:\users\user\anaconda3\lib\site-package
s (from beautifulsoup4->nbconvert) (2.3.1)
Requirement already satisfied: packaging in c:\users\user\anaconda3\lib\site-packages (f
rom bleach->nbconvert) (21.3)
Requirement already satisfied: webencodings in c:\users\user\anaconda3\lib\site-packages
(from bleach->nbconvert) (0.5.1)
Requirement already satisfied: pyparsing!=3.0.5,>=2.0.2 in c:\users\user\anaconda3\lib\s
ite-packages (from packaging->bleach->nbconvert) (3.0.4)
Note: you may need to restart the kernel to use updated packages.
```

In [ ]: