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Uber Data Analysis With Python

Uber Technologies, Inc., commonly known as Uber, is an American technology company. Its services include ride-hailing, food delivery, package delivery, couriers, freight transportation, and, through a partnership with Lime, electric bicycle and motorized scooter rental.

We will mainly use data regarding Uber ride

In this tutorial, we will use Python to analyze data from Uber.

By the end of this lesson, you will gain a hands-on experience with Python in analyzing data.

We will use Python to:

Check how long do people travel with Uber? What Hour Do Most People Take Uber To Their Destination? Check The Purpose Of Trips Which Day Has The Highest Number Of Trips What Are The Number Of Trips Per Each Day? What Are The Trips In The Month The starting points of trips. Where Do People Start Boarding Their Trip From Most?

Import The Necessary Libraries

In [1]:

```
import pandas as pd
import numpy as np
import datetime
import matplotlib
import matplotlib.pyplot as plt
import seaborn as sns
import calendar
```

In [2]:

```
data = pd.read_csv('/content/Uber Drives.csv')
data.head()
```

Out[2]:

	START_DATE*	END_DATE*	CATEGORY*	START*	STOP*	MILES*	PURPOSE*
0	1/1/2016 21:11	1/1/2016 21:17	Business	Fort Pierce	Fort Pierce	5.1	Meal/Entertain
1	1/2/2016 1:25	1/2/2016 1:37	Business	Fort Pierce	Fort Pierce	5.0	NaN
2	1/2/2016 20:25	1/2/2016 20:38	Business	Fort Pierce	Fort Pierce	4.8	Errand/Supplies

3	1/5/2016 17:31	1/5/2016 17:45	Business	Fort Pierce	Fort Pierce	4.7	Meeting
4	1/6/2016 14:42	1/6/2016 15:49	Business	Fort Pierce	West Palm Beach	63.7	Customer Visit

Check for Mising Values

If a data is not available, Python uses NaN to represnet it.

Let's check below if there data points missing in our dataset.

In [3]:
```
data.isnull().any()
```

Out[3]:
```
START_DATE*     False
END_DATE*        True
CATEGORY*        True
START*           True
STOP*            True
MILES*          False
PURPOSE*         True
dtype: bool
```

In [4]:
```
data.isnull().sum()
```

Out[4]:
```
START_DATE*       0
END_DATE*         1
CATEGORY*         1
START*            1
STOP*             1
MILES*            0
PURPOSE*        503
dtype: int64
```

we will drop all the NaN values in our dataset.

NOTE: Dropping a value in your dataset should be the last option to consider. There are better ways to deal with missing values in your dataset.

In [5]:
```
data = data.dropna()
```

Now we can see that there are not missing values in the dataset.

In [6]:
```
data.isnull().sum()
```

Out[6]:
```
START_DATE*     0
END_DATE*       0
CATEGORY*       0
START*          0
STOP*           0
MILES*          0
PURPOSE*        0
dtype: int64
```

In [9]:
```
data['START_DATE*'] = pd.to_datetime(data['START_DATE*'], format="%m/%d/%Y %H:%M")
data['END_DATE*'] = pd.to_datetime(data['END_DATE*'], format="%m/%d/%Y %H:%M")
```

In [10]:
```
hour=[]
day=[]
dayofweek=[]
month=[]
```

```
weekday=[]
for x in data['START_DATE*']:
    hour.append(x.hour)
    day.append(x.day)
    dayofweek.append(x.dayofweek)
    month.append(x.month)
    weekday.append(calendar.day_name[dayofweek[-1]])
data['HOUR']=hour
data['DAY']=day
data['DAY_OF_WEEK']=dayofweek
data['MONTH']=month
data['WEEKDAY']=weekday
```

In [11]:

```
data.head()
```

Out[11]:

	START_DATE*	END_DATE*	CATEGORY*	START*	STOP*	MILES*	PURPOSE*	HOUR	DAY	DAY_OF_WEEK
0	2016-01-01 21:11:00	2016-01-01 21:17:00	Business	Fort Pierce	Fort Pierce	5.1	Meal/Entertain	21	1	4
2	2016-01-02 20:25:00	2016-01-02 20:38:00	Business	Fort Pierce	Fort Pierce	4.8	Errand/Supplies	20	2	5
3	2016-01-05 17:31:00	2016-01-05 17:45:00	Business	Fort Pierce	Fort Pierce	4.7	Meeting	17	5	1
4	2016-01-06 14:42:00	2016-01-06 15:49:00	Business	Fort Pierce	West Palm Beach	63.7	Customer Visit	14	6	2
5	2016-01-06 17:15:00	2016-01-06 17:19:00	Business	West Palm Beach	West Palm Beach	4.3	Meal/Entertain	17	6	2

Categories We Have

In [ ]:

In [12]:

```
data['CATEGORY*'].value_counts()
```

Out[12]:

```
Business    647
Personal      6
Name: CATEGORY*, dtype: int64
```

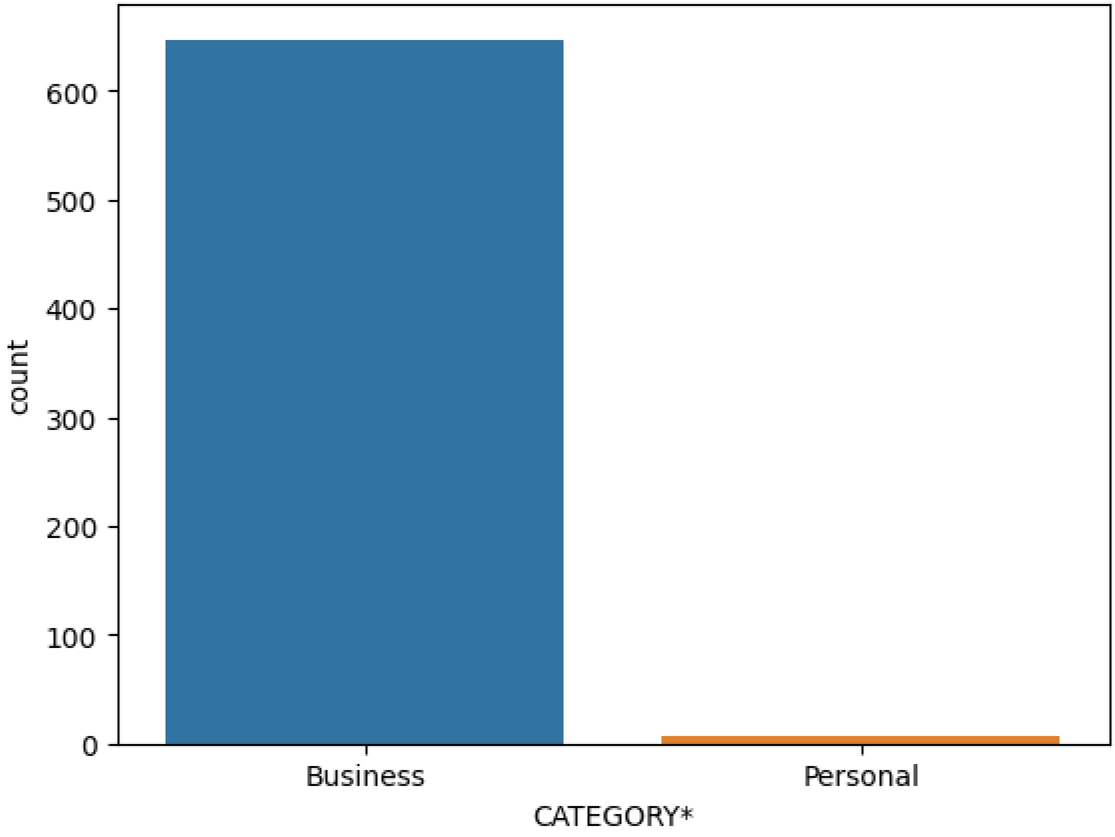
In [ ]:

In [13]:

```
sns.countplot(x='CATEGORY*',data=data)
```

Out[13]:

```
<Axes: xlabel='CATEGORY*', ylabel='count'>
```



We have large number of business rides caegory as against very few personal rides.

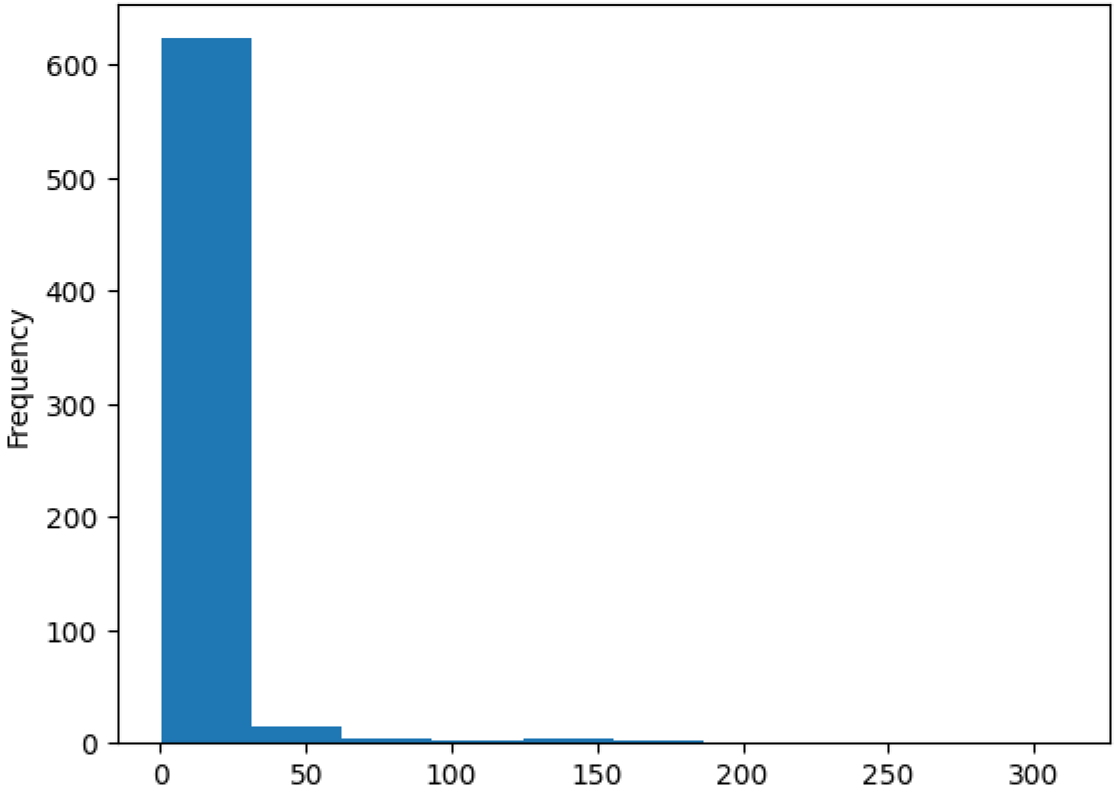
How long do people travel with Uber?

In [14]:

```
data['MILES*'].plot.hist()
```

Out[14]:

```
<Axes: ylabel='Frequency'>
```

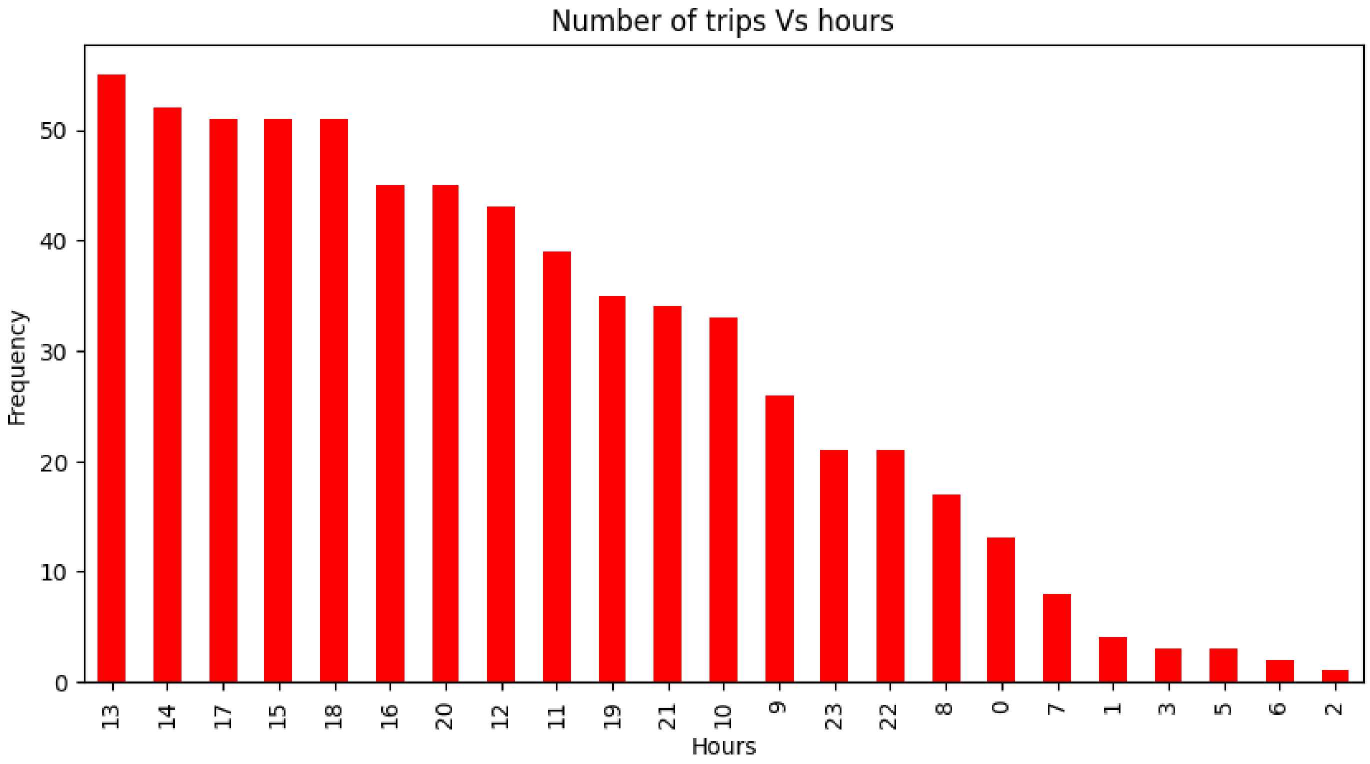


mostly people travel in a short mile with Uber.

What Hour Do Most People Take Uber To Their Destination?

```
In [16]: hours = data['START_DATE*'].dt.hour.value_counts()
         hours.plot(kind='bar',color='red',figsize=(10,5))
         plt.xlabel('Hours')
         plt.ylabel('Frequency')
         plt.title('Number of trips Vs hours')
```

```
Out[16]: Text(0.5, 1.0, 'Number of trips Vs hours')
```

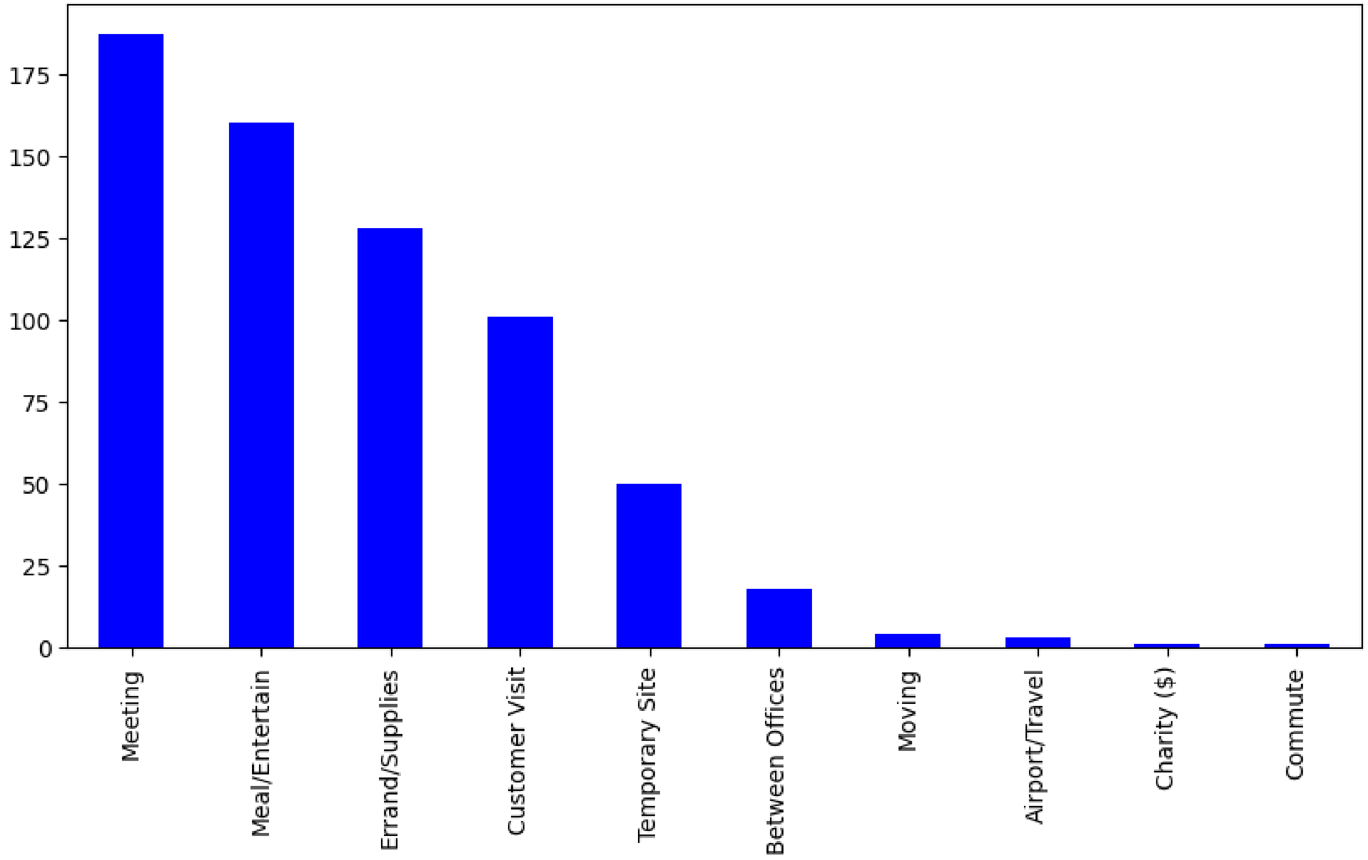


As we can see most people take Uber to their destination around the 13th hour(1pm) and the least hour is 2 am.

Check The Purpose Of Trips

```
In [21]: data['PURPOSE*'].value_counts().plot(kind='bar', figsize=(10,5),color='blue')
```

```
Out[21]: <Axes: >
```



We can notice that mostly the purpose of the trip is meeting and meal/entertain.

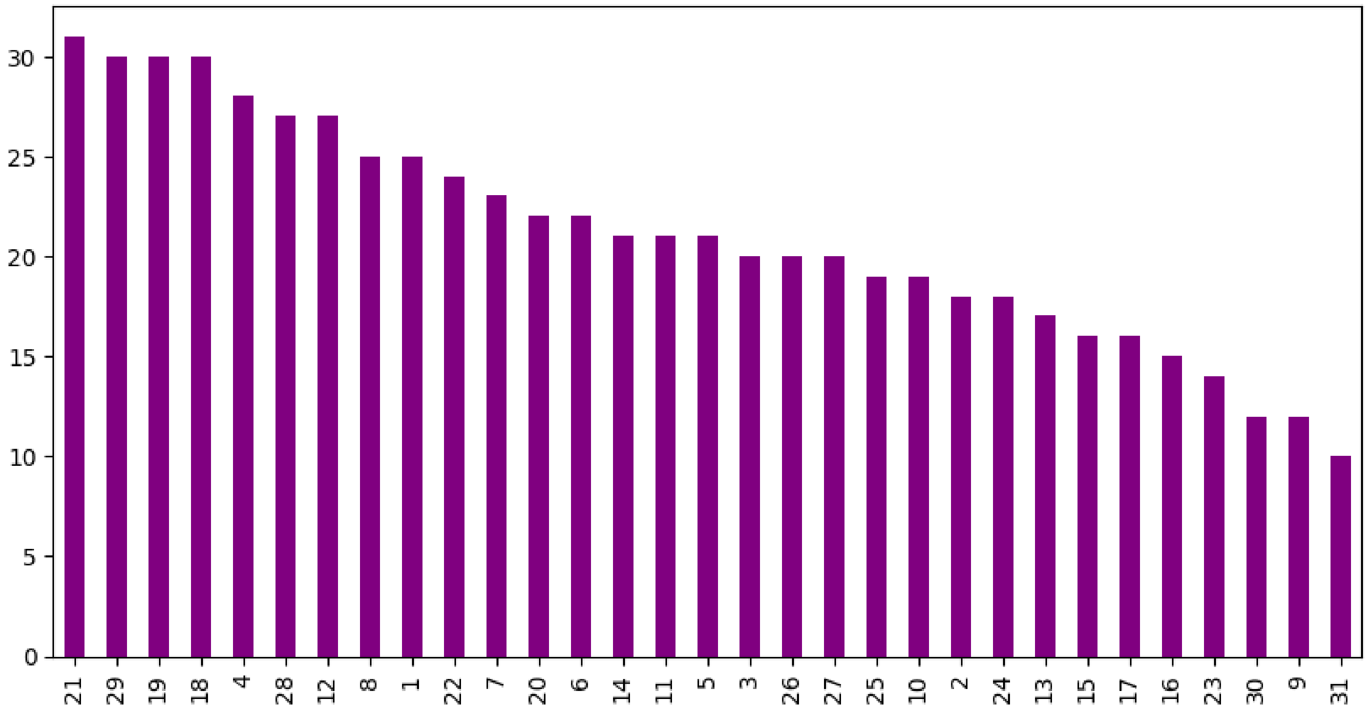
Which Day Has The Highest Number Of Trips

In [24]:

```
data['DAY'].value_counts().plot(kind='bar',figsize=(10,5),color='purple')
```

Out[24]:

```
<Axes: >
```

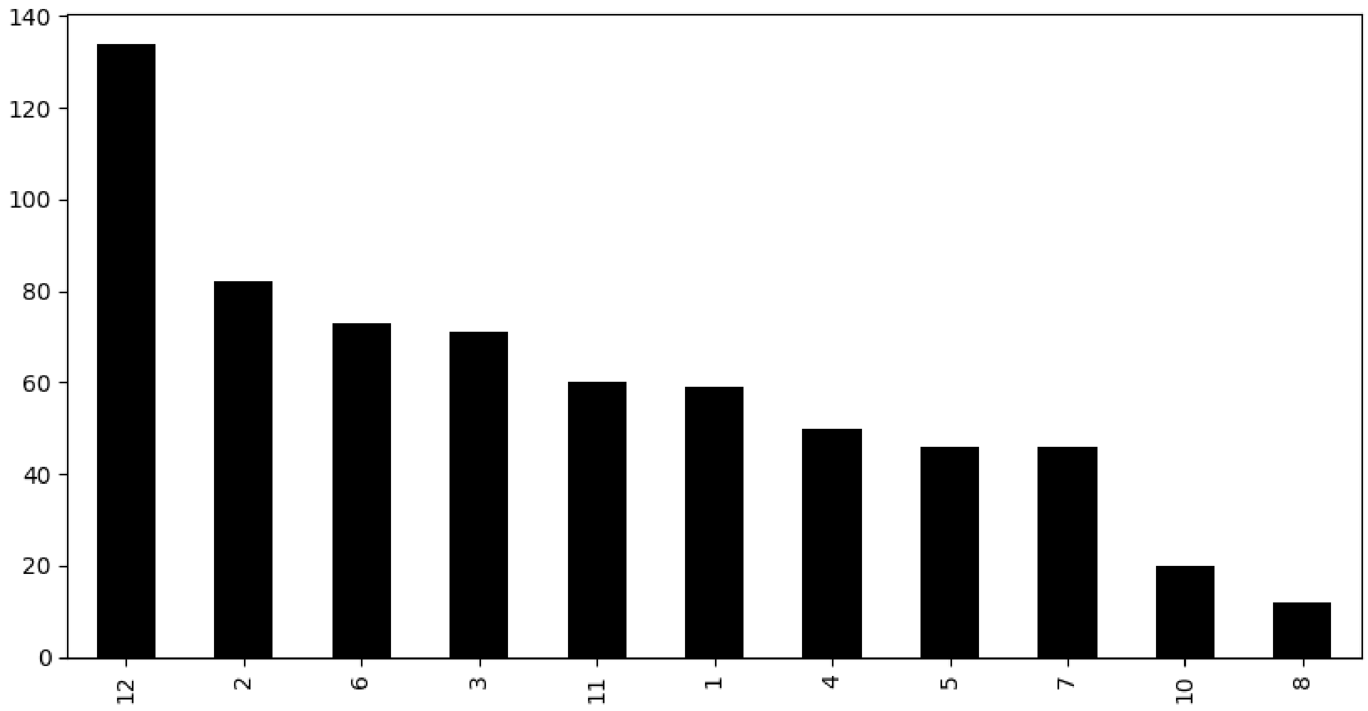


So Friday has the highest number of Trips.

What Are The Number Of Trips Per Each Day?

In [25]:
```
data['MONTH'].value_counts().plot(kind='bar',figsize=(10,5),color='black')
```

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

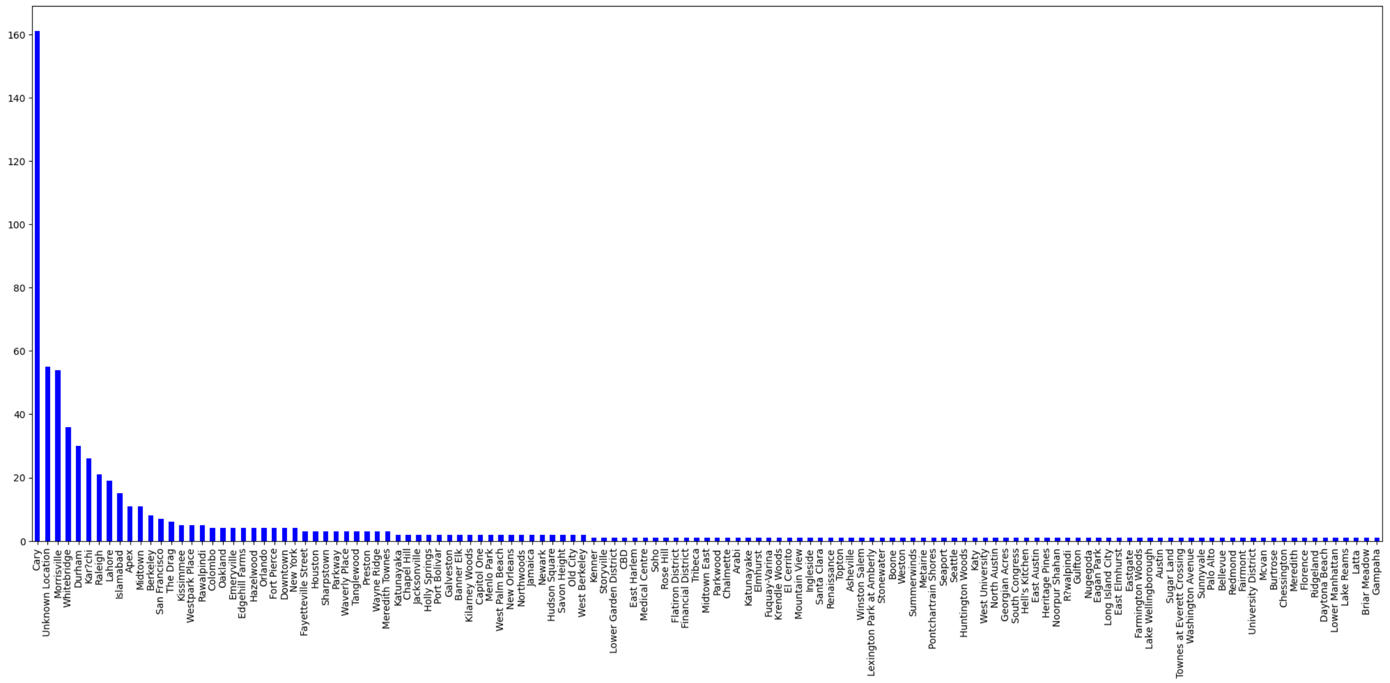


We can see that December(12) has the most trips.

The starting points of trips. Where Do People Start Boarding Their Trip From Most?bold text

In [26]:
```
data['START*'].value_counts().plot(kind='bar',figsize=(25,10),color='blue')
```

Out[26]:
```
<Axes: >
```



Most people in this dataset starts their journey from Cary followed by some unknown location and then Morrisville.

```
In [ ]:
```