In [2]:
```
import pandas as pd
df = pd.read_csv("C:/Users/manju/Documents/data3.csv")
df
```

Out[2]:

	Airline	Date_of_Journey	Source	Destination	Route	Dep_Time	Arrival_Time	Duration
0	Jet Airways	6/06/2019	Delhi	Cochin	DEL ? BOM ? COK	17:30	04:25 07 Jun	10h 55m
1	IndiGo	12/05/2019	Kolkata	Banglore	CCU ? MAA ? BLR	06:20	10:20	4h
2	Jet Airways	21/05/2019	Delhi	Cochin	DEL ? BOM ? COK	19:15	19:00 22 May	23h 45m
3	Multiple carriers	21/05/2019	Delhi	Cochin	DEL ? BOM ? COK	08:00	21:00	13h
4	Air Asia	24/06/2019	Banglore	Delhi	BLR ? DEL	23:55	02:45 25 Jun	2h 50m
...	...	...	...	...	...	...	...	...
2666	Air India	6/06/2019	Kolkata	Banglore	CCU ? DEL ? BLR	20:30	20:25 07 Jun	23h 55m
2667	IndiGo	27/03/2019	Kolkata	Banglore	CCU ? BLR	14:20	16:55	2h 35m
2668	Jet Airways	6/03/2019	Delhi	Cochin	DEL ? BOM ? COK	21:50	04:25 07 Mar	6h 35m
2669	Air India	6/03/2019	Delhi	Cochin	DEL ? BOM ? COK	04:00	19:15	15h 15m
2670	Multiple carriers	15/06/2019	Delhi	Cochin	DEL ? BOM ? COK	04:55	19:15	14h 20m

2671 rows × 10 columns

In [17]:
```
new=df.filter(items=['Airline','Destination'])
new
```

Out[17]:

	Airline	Destination
0	Jet Airways	Cochin
1	IndiGo	Banglore
2	Jet Airways	Cochin
3	Multiple carriers	Cochin
4	Air Asia	Delhi
...	...	...
2666	Air India	Banglore
2667	IndiGo	Banglore
2668	Jet Airways	Cochin
2669	Air India	Cochin
2670	Multiple carriers	Cochin

2671 rows × 2 columns

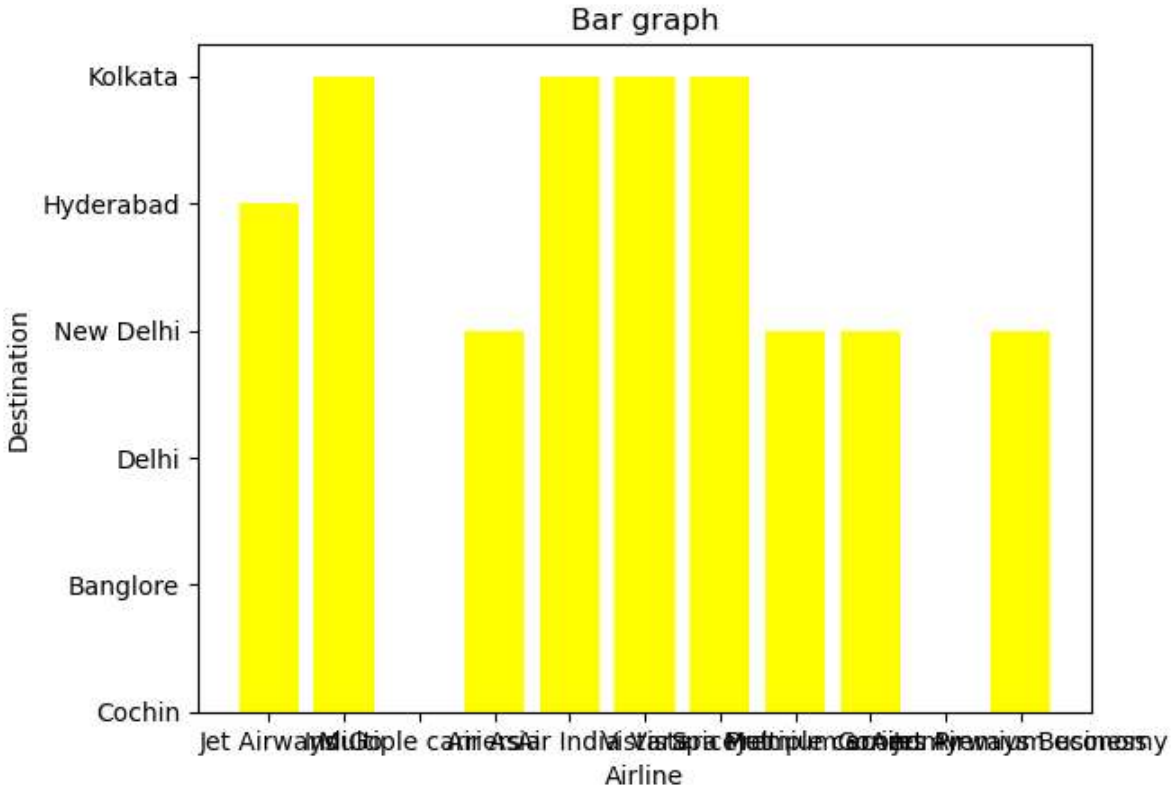
In [6]:
```
new=df.melt(['Airline'])
new
```

Out[6]:

	Airline	variable	value
0	Jet Airways	Date_of_Journey	6/06/2019
1	IndiGo	Date_of_Journey	12/05/2019
2	Jet Airways	Date_of_Journey	21/05/2019
3	Multiple carriers	Date_of_Journey	21/05/2019
4	Air Asia	Date_of_Journey	24/06/2019
...	...	...	...
24034	Air India	Additional_Info	No info
24035	IndiGo	Additional_Info	No info
24036	Jet Airways	Additional_Info	No info
24037	Air India	Additional_Info	No info
24038	Multiple carriers	Additional_Info	No info

24039 rows × 3 columns

In [18]:
```
import matplotlib.pyplot as plt
plt.bar(df['Airline'],df['Destination'],color='yellow')
plt.title("Bar graph")
plt.xlabel("Airline")
plt.ylabel("Destination")
plt.show()
```



In [ ]:

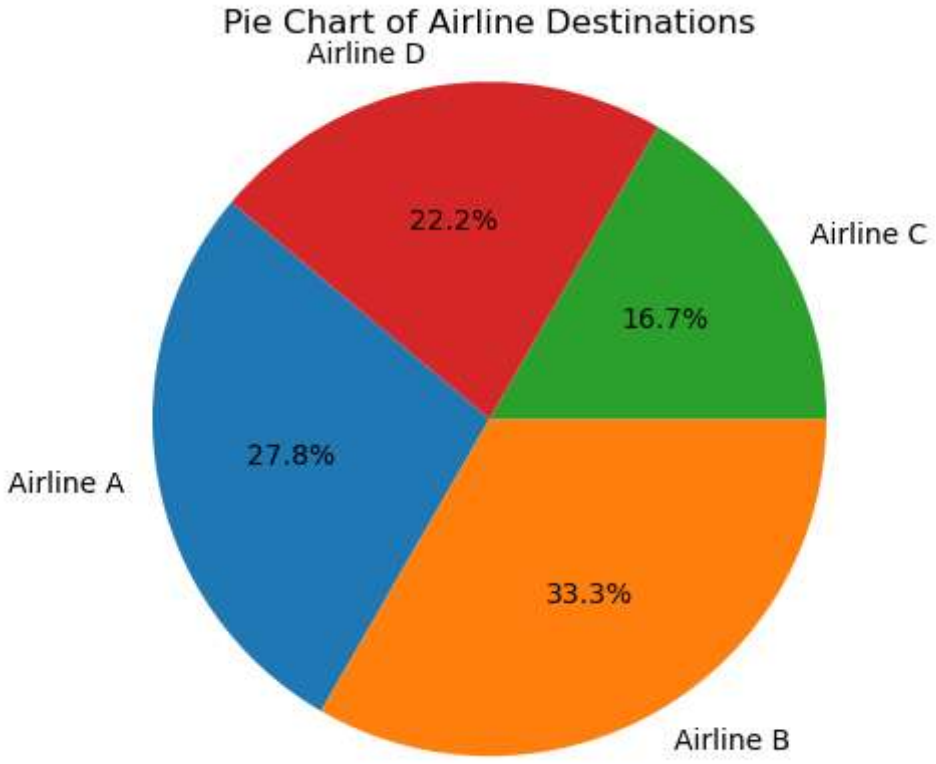
In [3]:
```
import pandas as pd
df = pd.read_csv("C:/Users/manju/Documents/data3.csv")
pivot_table=df.pivot_table(index="Airline",aggfunc="sum")
pivot_table
```

Out[3]:

Airline	Additional_Info	Arrival_Time	Date_of_.
Air Asia	No infoNo infoNo infoNo infoNo infoNo i...	02:45 25 Jun01:20 04 Mar22:2515:4522:2515:4507...	24/06/20193/03/201927/06/201915/05/20192
Air India	No infoNo infoNo infoNo infoNo infoNo i...	22:3523:5507:40 16 Jun15:2513:45 13 May09:25 1...	12/03/20196/04/201915/06/20193/05/201912
GoAir	No infoNo infoNo infoNo infoNo infoNo i...	12:5517:5510:4010:4019:3507:45 22 May19:3510:4...	18/05/201918/06/201903/03/201921/06/2019
IndiGo	No infoNo infoNo infoNo infoNo infoNo i...	10:2020:3012:5516:1001:35 07 Mar17:4502:15 02 ...	12/05/20191/05/201915/03/201915/06/20196
Jet Airways	No infoIn-flight meal not includedIn-flight me...	04:25 07 Jun19:00 22 May12:35 13 Jun22:3518:50...	6/06/201921/05/201912/06/201918/05/20192
Jet Airways Business	Business classNo info	13:1522:35	01/03/201903/
Multiple carriers	No infoNo infoNo infoNo infoNo infoNo i...	21:0019:1522:3021:0001:35 28 Mar21:0001:30 16 ...	21/05/201915/05/20196/06/20191/06/201927
Multiple carriers Premium economy	No infoNo infoNo info	01:35 22 Mar19:1518:50	21/03/201921/03/201921/

Airline	Additional_Info	Arrival_Time	Date_of_.
SpiceJet	No check-in baggage includedNo infoNo infoNo c...	08:3519:4000:15 10 Jun20:0512:0012:2010:3519:4...	15/06/201912/05/20199/06/201924/03/20191
Vistara	No infoNo infoNo infoNo infoNo infoNo i...	22:1018:50 07 May17:5009:05 10 Jun19:3522:1521...	24/03/20196/05/20193/03/20199/06/20191/0
Vistara Premium economy	No infoNo info	22:2012:35	24/03/201903/

In [19]:
```
import matplotlib.pyplot as plt
airlines = ['Airline A', 'Airline B', 'Airline C', 'Airline D']
destinations = [25, 30, 15, 20]
plt.pie(destinations, labels=airlines,  autopct='%1.1f%%', startangle=140)
plt.title("Pie Chart of Airline Destinations")
plt.axis('equal')

plt.show()
```



In [20]:
```
import pandas as pd
df = pd.read_csv("C:/Users/manju/Documents/data3.csv")
```

```
data=df.head(4)
data
```

Out[20]:

	Airline	Date_of_Journey	Source	Destination	Route	Dep_Time	Arrival_Time	Duration	Tota
0	Jet Airways	6/06/2019	Delhi	Cochin	DEL ? BOM ? COK	17:30	04:25 07 Jun	10h 55m	
1	IndiGo	12/05/2019	Kolkata	Banglore	CCU ? MAA ? BLR	06:20	10:20	4h	
2	Jet Airways	21/05/2019	Delhi	Cochin	DEL ? BOM ? COK	19:15	19:00 22 May	23h 45m	
3	Multiple carriers	21/05/2019	Delhi	Cochin	DEL ? BOM ? COK	08:00	21:00	13h	

In [ ]:
```
import pandas as pd
df = pd.read_csv("C:/Users/manju/Documents/data3.csv")
data=df.tail(10)
data
```

In [ ]:
```
import pandas as pd
df = pd.read_csv("C:/Users/manju/Documents/data3.csv")
data=df.describe()
data
```

In [21]:
```
df.shape
```

Out[21]:
```
(2671, 10)
```

In [6]:
```
import pandas as pd
df = pd.read_csv("C:/Users/manju/Documents/data3.csv")
aggregation = df.groupby('Airline').agg('count')
aggregation
```

Out[6]:

Airline	Date_of_Journey	Source	Destination	Route	Dep_Time	Arrival_Time	Duration	Total_S
Air Asia	86	86	86	86	86	86	86	
Air India	440	440	440	440	440	440	440	
GoAir	46	46	46	46	46	46	46	
IndiGo	511	511	511	511	511	511	511	
Jet Airways	897	897	897	897	897	897	897	
Jet Airways Business	2	2	2	2	2	2	2	
Multiple carriers	347	347	347	347	347	347	347	
Multiple carriers Premium economy	3	3	3	3	3	3	3	
SpiceJet	208	208	208	208	208	208	208	
Vistara	129	129	129	129	129	129	129	
Vistara Premium economy	2	2	2	2	2	2	2	

In [ ]:

In [16]:
```
df.isnull().sum()
```

Out[16]:
```
Airline            0
Date_of_Journey    0
Source             0
Destination        0
Route              0
Dep_Time           0
Arrival_Time       0
Duration           0
Total_Stops        0
Additional_Info    0
dtype: int64
```

In [ ]:

In [27]:
```
df.fillna(value=10)
```

Out[27]:

	Airline	Date_of_Journey	Source	Destination	Route	Dep_Time	Arrival_Time	Duration
0	Jet Airways	6/06/2019	Delhi	Cochin	DEL ? BOM ? COK	17:30	04:25 07 Jun	10h 55m
1	IndiGo	12/05/2019	Kolkata	Banglore	CCU ? MAA ? BLR	06:20	10:20	4h
2	Jet Airways	21/05/2019	Delhi	Cochin	DEL ? BOM ? COK	19:15	19:00 22 May	23h 45m
3	Multiple carriers	21/05/2019	Delhi	Cochin	DEL ? BOM ? COK	08:00	21:00	13h
4	Air Asia	24/06/2019	Banglore	Delhi	BLR ? DEL	23:55	02:45 25 Jun	2h 50m
...	...	...	...	...	...	...	...	...
2666	Air India	6/06/2019	Kolkata	Banglore	CCU ? DEL ? BLR	20:30	20:25 07 Jun	23h 55m
2667	IndiGo	27/03/2019	Kolkata	Banglore	CCU ? BLR	14:20	16:55	2h 35m
2668	Jet Airways	6/03/2019	Delhi	Cochin	DEL ? BOM ? COK	21:50	04:25 07 Mar	6h 35m
2669	Air India	6/03/2019	Delhi	Cochin	DEL ? BOM ? COK	04:00	19:15	15h 15m
2670	Multiple carriers	15/06/2019	Delhi	Cochin	DEL ? BOM ? COK	04:55	19:15	14h 20m

2671 rows × 10 columns

In [31]:
```
d1=df.dropna()
d1
```

Out[31]:

	Airline	Date_of_Journey	Source	Destination	Route	Dep_Time	Arrival_Time	Duration
0	Jet Airways	6/06/2019	Delhi	Cochin	DEL ? BOM ? COK	17:30	04:25 07 Jun	10h 55m
1	IndiGo	12/05/2019	Kolkata	Banglore	CCU ? MAA ? BLR	06:20	10:20	4h
2	Jet Airways	21/05/2019	Delhi	Cochin	DEL ? BOM ? COK	19:15	19:00 22 May	23h 45m
3	Multiple carriers	21/05/2019	Delhi	Cochin	DEL ? BOM ? COK	08:00	21:00	13h
4	Air Asia	24/06/2019	Banglore	Delhi	BLR ? DEL	23:55	02:45 25 Jun	2h 50m
...	...	...	...	...	...	...	...	...
2666	Air India	6/06/2019	Kolkata	Banglore	CCU ? DEL ? BLR	20:30	20:25 07 Jun	23h 55m
2667	IndiGo	27/03/2019	Kolkata	Banglore	CCU ? BLR	14:20	16:55	2h 35m
2668	Jet Airways	6/03/2019	Delhi	Cochin	DEL ? BOM ? COK	21:50	04:25 07 Mar	6h 35m
2669	Air India	6/03/2019	Delhi	Cochin	DEL ? BOM ? COK	04:00	19:15	15h 15m
2670	Multiple carriers	15/06/2019	Delhi	Cochin	DEL ? BOM ? COK	04:55	19:15	14h 20m

2671 rows × 10 columns

In [ ]:

In [34]:
```
df.shape
```

Out[34]:
```
(2671, 10)
```

In [35]:
```
df.head(8)
```

Out[35]:

	Airline	Date_of_Journey	Source	Destination	Route	Dep_Time	Arrival_Time	Duration	Tot
0	Jet Airways	6/06/2019	Delhi	Cochin	DEL ? BOM ? COK	17:30	04:25 07 Jun	10h 55m	
1	IndiGo	12/05/2019	Kolkata	Banglore	CCU ? MAA ? BLR	06:20	10:20	4h	
2	Jet Airways	21/05/2019	Delhi	Cochin	DEL ? BOM ? COK	19:15	19:00 22 May	23h 45m	
3	Multiple carriers	21/05/2019	Delhi	Cochin	DEL ? BOM ? COK	08:00	21:00	13h	
4	Air Asia	24/06/2019	Banglore	Delhi	BLR ? DEL	23:55	02:45 25 Jun	2h 50m	
5	Jet Airways	12/06/2019	Delhi	Cochin	DEL ? BOM ? COK	18:15	12:35 13 Jun	18h 20m	
6	Air India	12/03/2019	Banglore	New Delhi	BLR ? TRV ? DEL	07:30	22:35	15h 5m	
7	IndiGo	1/05/2019	Kolkata	Banglore	CCU ? HYD ? BLR	15:15	20:30	5h 15m	

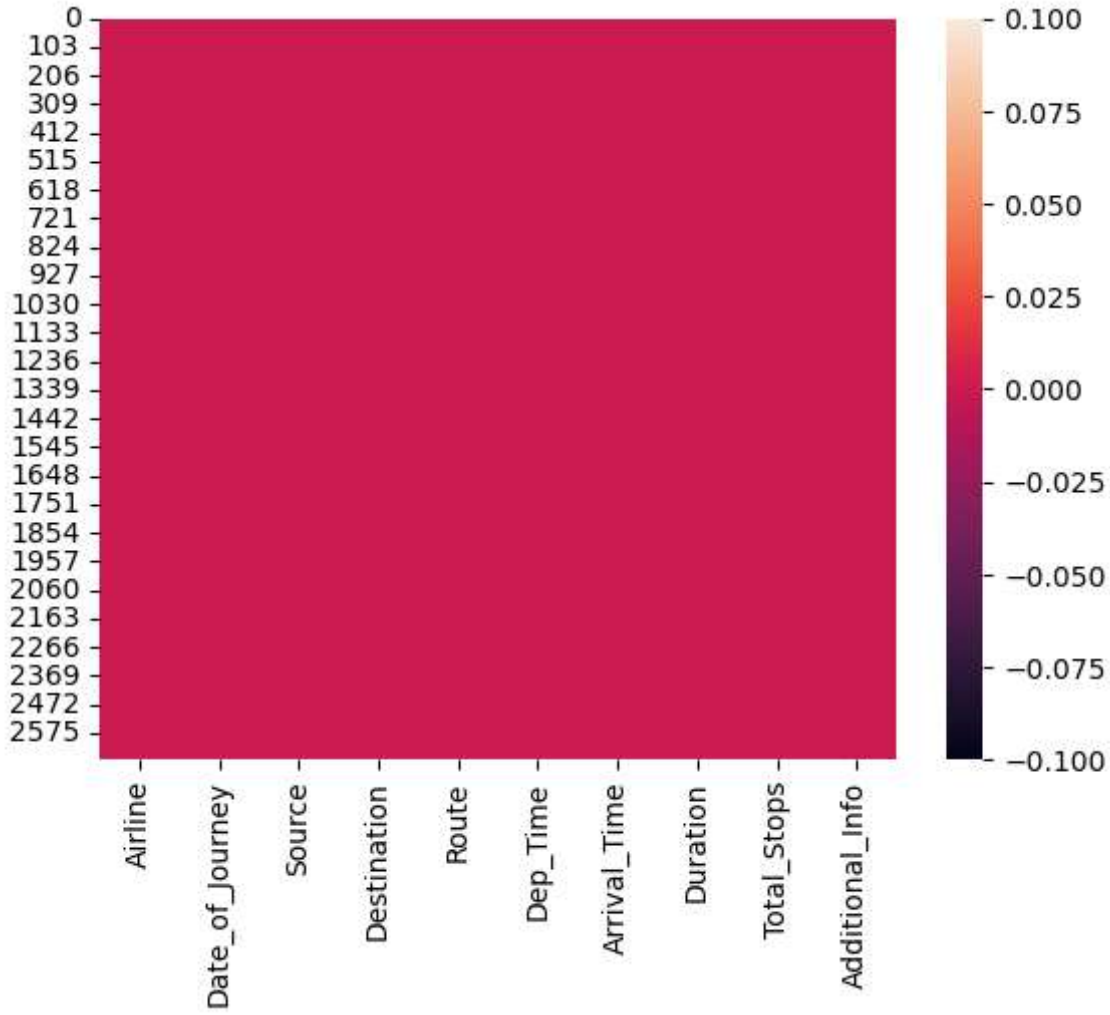
In [36]:
```
df.tail(4)
```

Out[36]:

	Airline	Date_of_Journey	Source	Destination	Route	Dep_Time	Arrival_Time	Duration	T
2667	IndiGo	27/03/2019	Kolkata	Banglore	CCU ? BLR	14:20	16:55	2h 35m	
2668	Jet Airways	6/03/2019	Delhi	Cochin	DEL ? BOM ? COK	21:50	04:25 07 Mar	6h 35m	
2669	Air India	6/03/2019	Delhi	Cochin	DEL ? BOM ? COK	04:00	19:15	15h 15m	
2670	Multiple carriers	15/06/2019	Delhi	Cochin	DEL ? BOM ? COK	04:55	19:15	14h 20m	

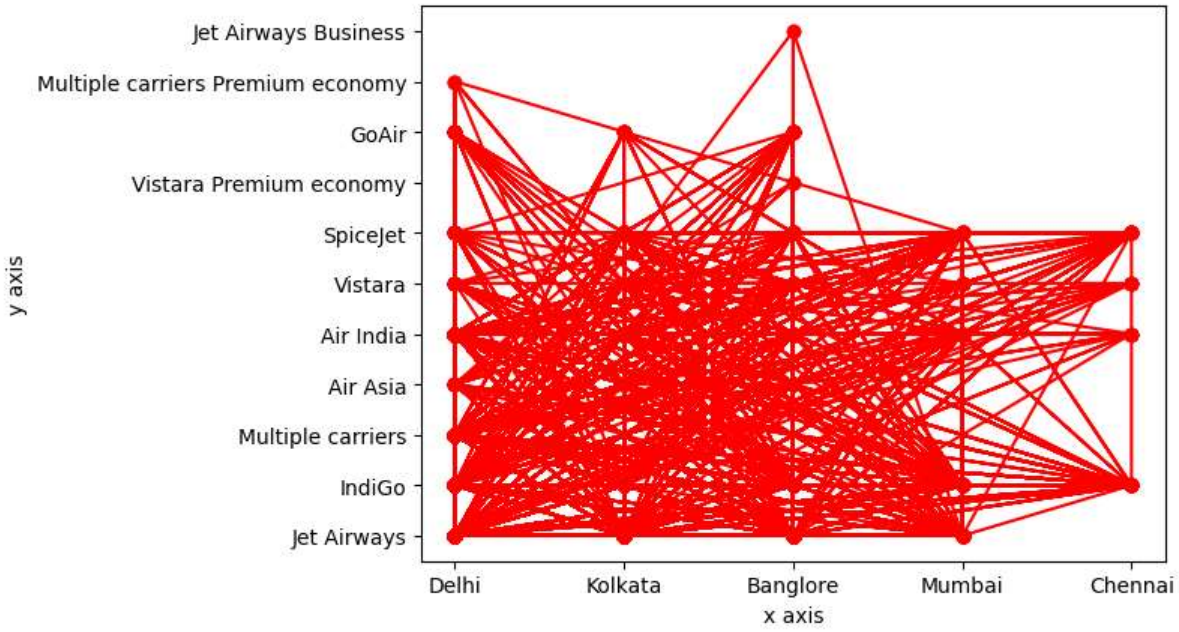
In [44]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
df = pd.read_csv("C:/Users/manju/Documents/data3.csv")
sns.heatmap(df.isnull())
```

Out[44]:
```
<Axes: >
```

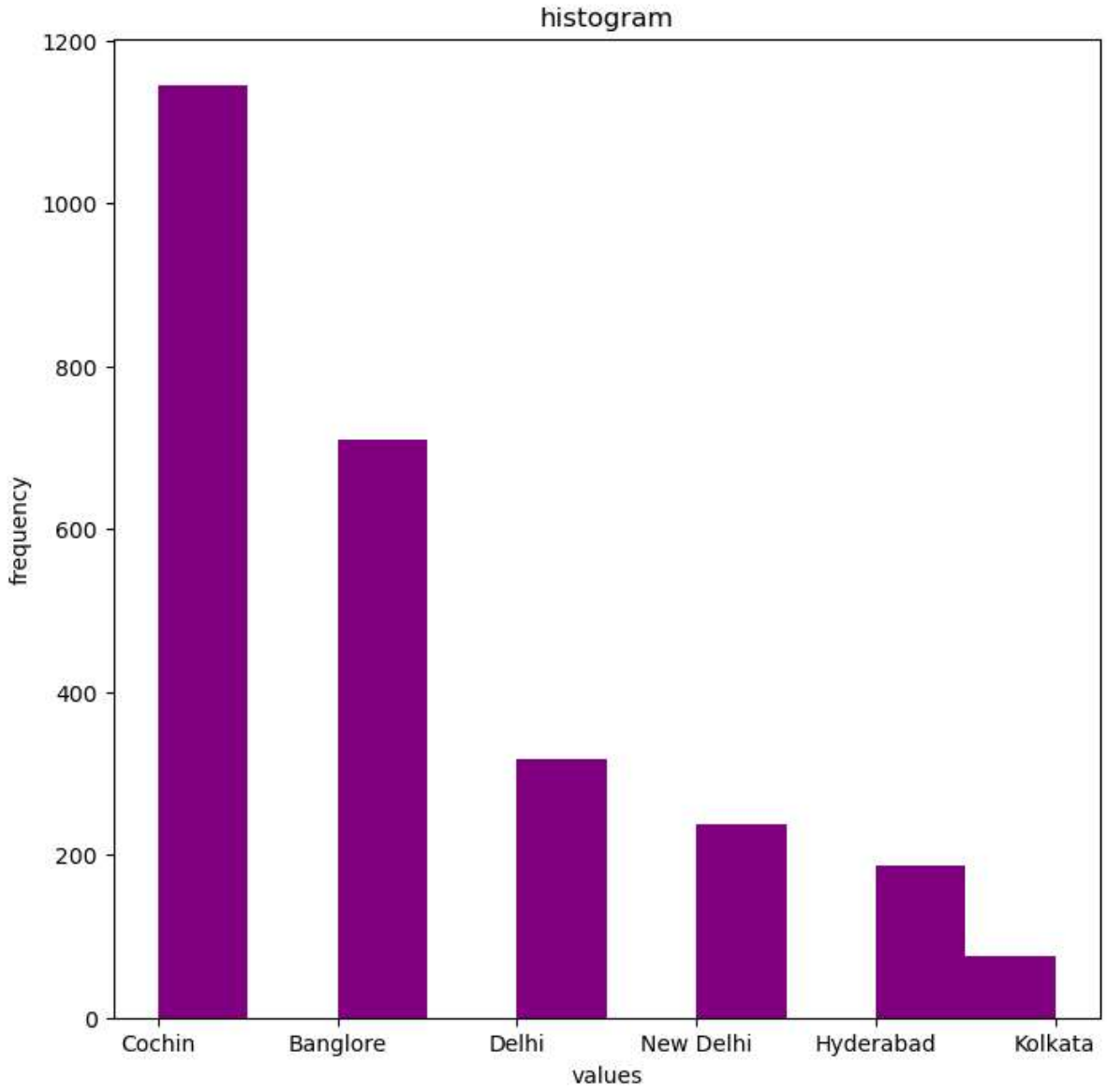


In [ ]:

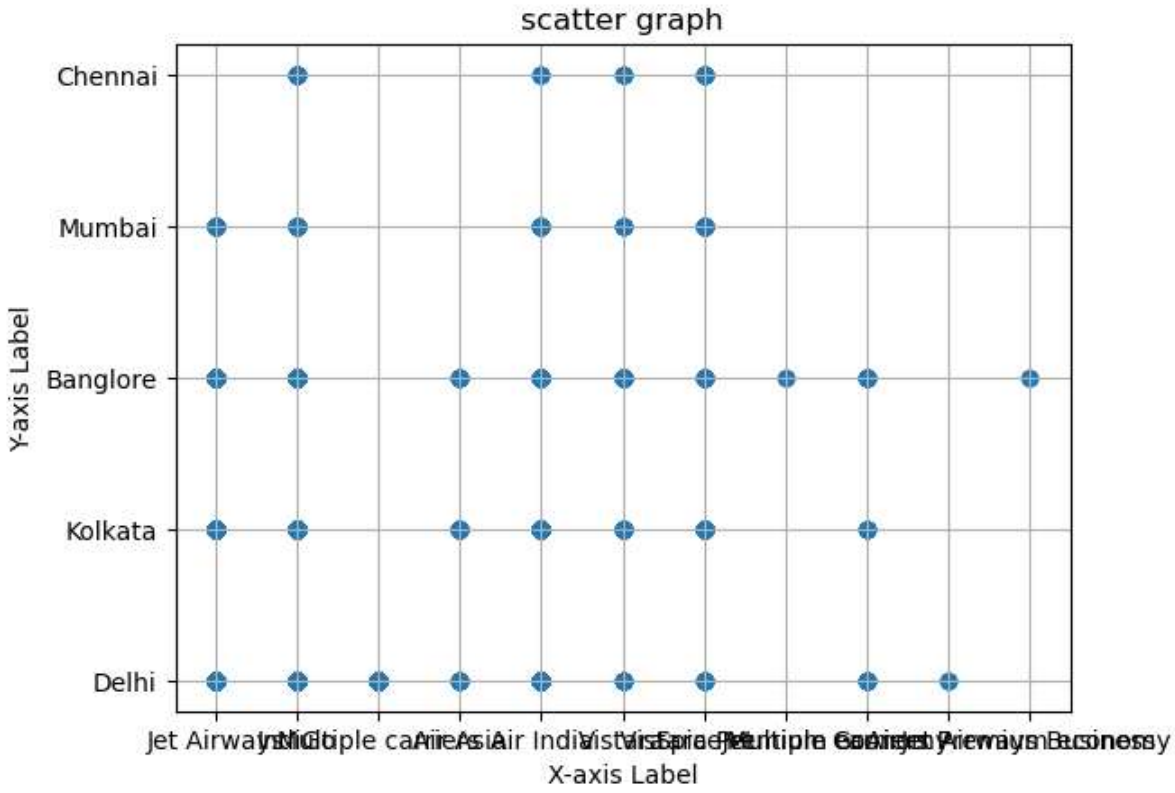
In [3]:
```
import pandas as pd
import matplotlib.pyplot as plt
df=pd.read_csv("C:/Users/manju/Documents/data3.csv")
plt.plot(df['Source'],df['Airline'], marker='o', linestyle='-',color='red')
plt.xlabel('x axis')
plt.ylabel('y axis')
plt.show()
```



In [6]:
```
import pandas as pd
df = pd.read_csv("C:/Users/manju/Documents/data3.csv")
import matplotlib.pyplot as plt
plt.figure(figsize=(8,8,))
plt.hist(df['Destination'],color='purple')
plt.title("histogram")
plt.xlabel("values")
plt.ylabel("frequency")
plt.show()
```

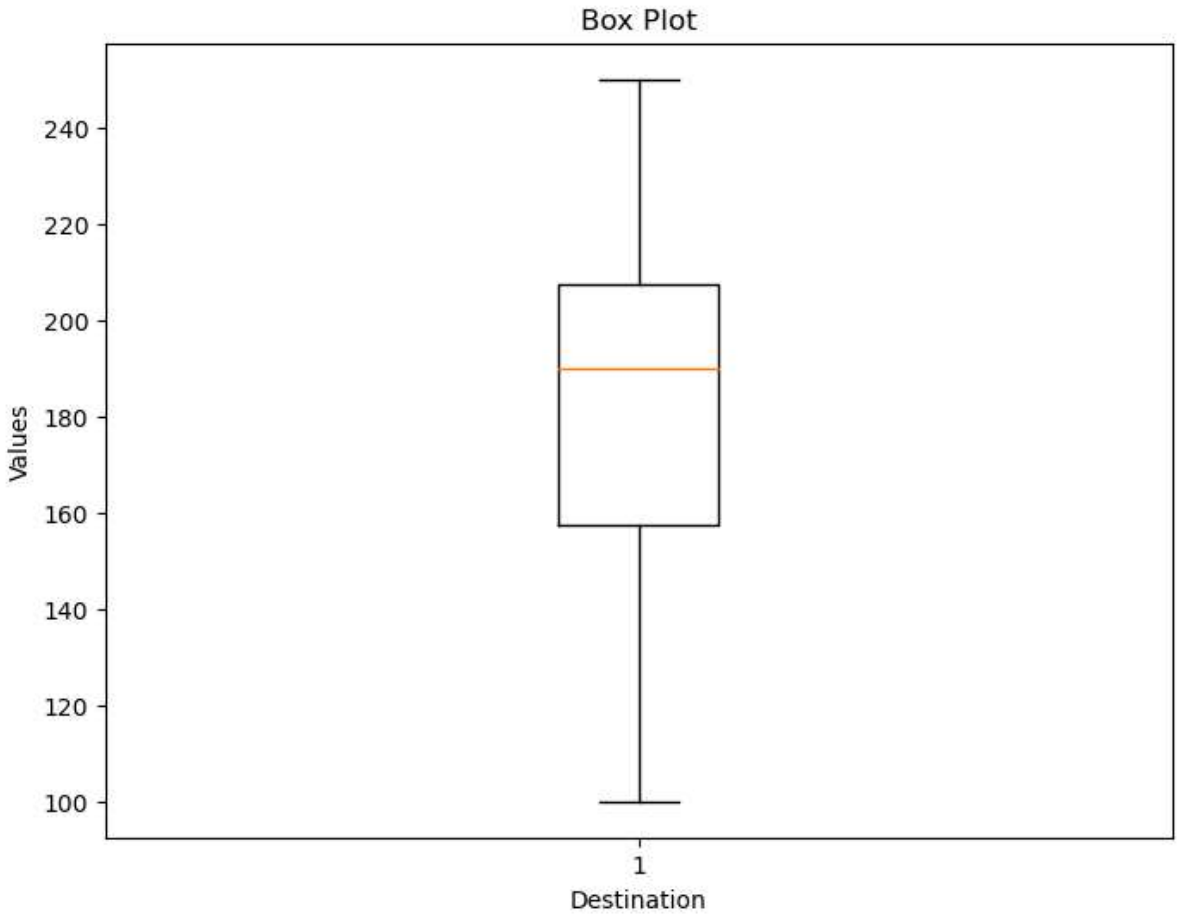


In [3]:
```
import pandas as pd
import matplotlib.pyplot as plt
import pandas as pd
df = pd.read_csv("C:/Users/manju/Documents/data3.csv")
plt.scatter(df['Airline'],df['Source'])
plt.xlabel('X-axis Label')
plt.ylabel('Y-axis Label')
plt.title('scatter graph')
plt.grid(True)

plt.show()
```



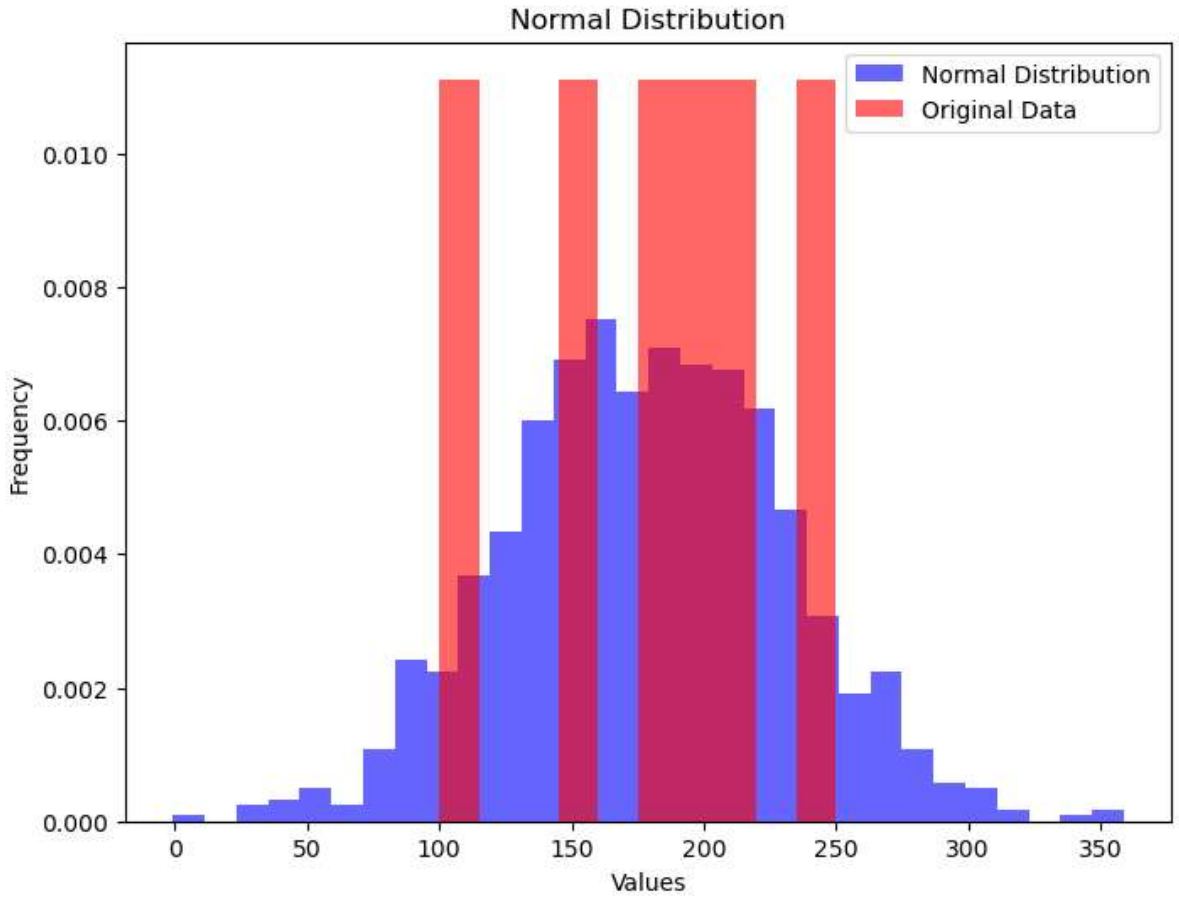
In [1]:

```
import matplotlib.pyplot as plt
import pandas as pd
data = {'Airline': ['A', 'B', 'C', 'A', 'B', 'C'],
        'Destination': [100, 200, 150, 250, 180, 210]}
df = pd.DataFrame(data)

plt.figure(figsize=(8, 6))
plt.boxplot(df['Destination'])
plt.title("Box Plot")
plt.xlabel("Destination")
plt.ylabel("Values")
plt.show()
```

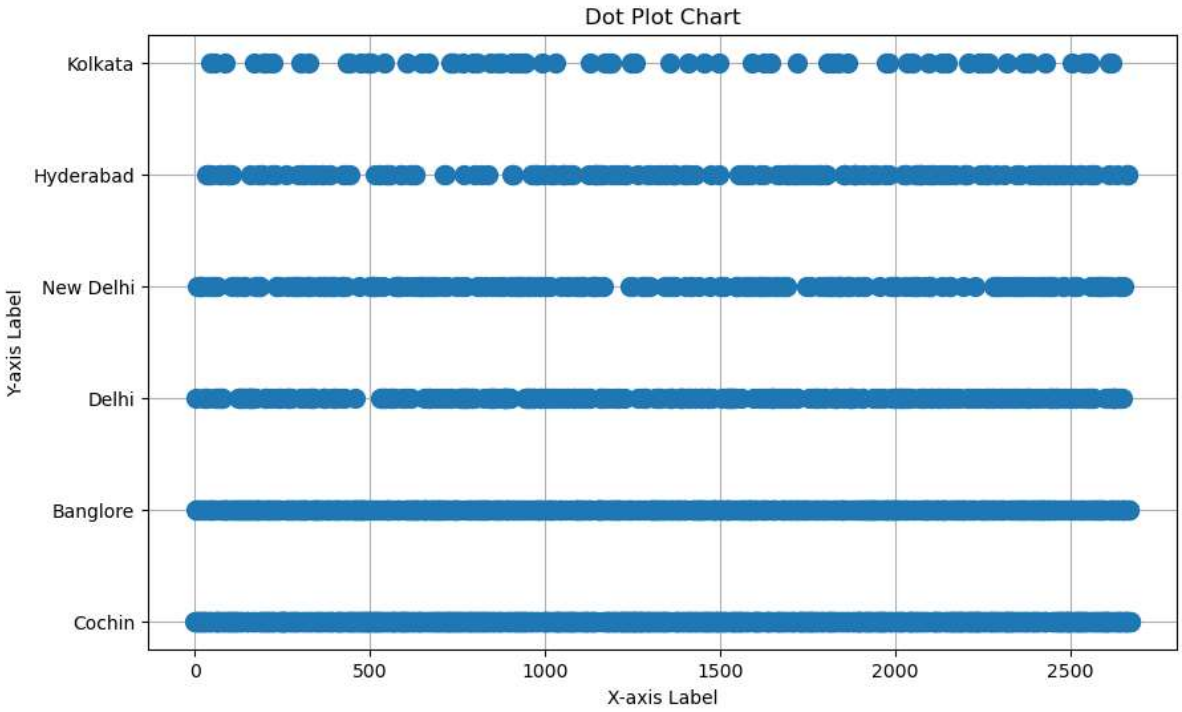


In [4]:

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

data = {'Airline': ['A', 'B', 'C', 'A', 'B', 'C'],
        'Destination': [100, 200, 150, 250, 180, 210]}
df = pd.DataFrame(data)
mean = df['Destination'].mean()
std_dev = df['Destination'].std()


num_samples = 1000
normal_data = np.random.normal(mean, std_dev, num_samples)

plt.figure(figsize=(8, 6))
plt.hist(normal_data, bins=30, density=True, alpha=0.6, color='b', label='Normal Di
plt.title("Normal Distribution")
plt.xlabel("Values")
plt.ylabel("Frequency")

plt.hist(df['Destination'], bins=10, density=True, alpha=0.6, color='r', label='Ori
plt.legend()
plt.show()
```



In [10]:
```
import pandas as pd
import matplotlib.pyplot as plt
df= pd.read_csv("C:/Users/manju/Documents/data3.csv")
plt.figure(figsize=(10, 6))
plt.plot(df['Destination'], 'o', markersize=10)
plt.xlabel('X-axis Label')
plt.ylabel('Y-axis Label')
plt.title('Dot Plot Chart')
plt.grid(True)
plt.show()
```



In [9]:

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

df = pd.read_csv("C:/Users/manju/Documents/data3.csv")

plt.figure(figsize=(10, 6))
plt.fill_between(range(len(df['Destination'])), df['Destination'], color='skyblue',
plt.xlabel('X-axis Label')
plt.ylabel('Y-axis Label')
plt.title('Area Chart')
plt.grid(True)
plt.show()
```