In [1]:
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
```

Datasets

We have 5 csv files

.fact_bookings.csv
.fact_aggregated_booking.csv
.dim_date
.dim_hotels
.dim_rooms.csv\

In [3]:
```
df_bookings= pd.read_csv(r"D:\New folder (3)\fact_bookings.csv")
df_date = pd.read_csv(r"D:\New folder (3)\dim_date.csv")
df_hotels = pd.read_csv(r"D:\New folder (3)\dim_hotels.csv")
df_rooms = pd.read_csv(r"D:\New folder (3)\dim_rooms.csv")
df_agg_bookings = pd.read_csv(r"D:\New folder (3)\fact_aggregated_bookings.csv")
```

In [5]:
```
import warnings

# Ignore all warnings within this block
with warnings.catch_warnings():
    warnings.simplefilter("ignore")
```

Basic Data Exploration

In [6]:
```
df_bookings.head(6)
```

Out[6]:

	booking_id	property_id	booking_date	check_in_date	checkout_date	no_guests	room_category	booking_platform	ratings_given	booking_stat
0	May012216558RT11	16558	27-04-22	1/5/2022	2/5/2022	-3.0	RT1	direct online	1.0	Checked
1	May012216558RT12	16558	30-04-22	1/5/2022	2/5/2022	2.0	RT1	others	NaN	Cancell
2	May012216558RT13	16558	28-04-22	1/5/2022	4/5/2022	2.0	RT1	logtrip	5.0	Checked
3	May012216558RT14	16558	28-04-22	1/5/2022	2/5/2022	-2.0	RT1	others	NaN	Cancell
4	May012216558RT15	16558	27-04-22	1/5/2022	2/5/2022	4.0	RT1	direct online	5.0	Checked
5	May012216558RT16	16558	1/5/2022	1/5/2022	3/5/2022	2.0	RT1	others	4.0	Checked

In [7]:
```
df_bookings.shape
```

Out[7]:
```
(134590, 12)
```

In [8]:
```
df_bookings.room_category.unique()
```

Out[8]:
```
array(['RT1', 'RT2', 'RT3', 'RT4'], dtype=object)
```

In [9]:
```
df_bookings.booking_platform.unique()
```

Out[9]:
```
array(['direct online', 'others', 'logtrip', 'tripster', 'makeyourtrip',
       'journey', 'direct offline'], dtype=object)
```

In [10]:
```
df_bookings.booking_platform.unique()
```

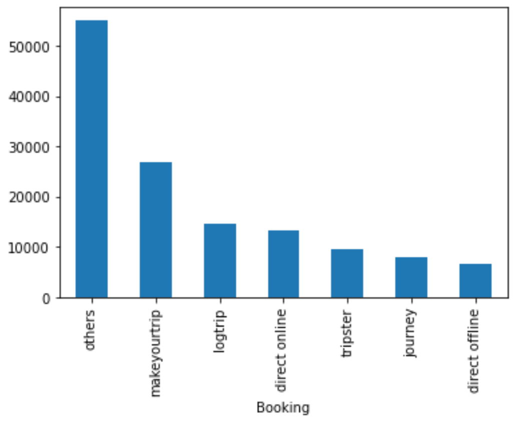
Out[10]:
```
array(['direct online', 'others', 'logtrip', 'tripster', 'makeyourtrip',
       'journey', 'direct offline'], dtype=object)
```

In [11]:
```
df_bookings.booking_platform.value_counts()
```

Out[11]:
```
others            55066
makeyourtrip      26898
logtrip           14756
direct online     13379
tripster           9630
journey            8106
direct offline     6755
Name: booking_platform, dtype: int64
```

In [22]:
```
df_bookings.booking_platform.value_counts().plot(kind='bar')
plt.xlabel("Booking")
```

Out[22]:
```
Text(0.5, 0, 'Booking')
```



In [13]:
```
df_bookings.describe(include= 'all')
```

Out[13]:

	booking_id	property_id	booking_date	check_in_date	checkout_date	no_guests	room_category	booking_platform	ratings_given
count	134590	134590.000000	134590	134590	134590	134587.000000	134590	134590	56683.000000
unique	134590	NaN	116	92	97	NaN	4	7	NaN
top	May242218558RT311	NaN	8/6/2022	16-07-22	9/5/2022	NaN	RT2	others	NaN
freq	1	NaN	1670	2017	1840	NaN	49505	55066	NaN
mean	NaN	18061.113493	NaN	NaN	NaN	2.036170	NaN	NaN	3.619004
std	NaN	1093.055847	NaN	NaN	NaN	1.034885	NaN	NaN	1.235009
min	NaN	16558.000000	NaN	NaN	NaN	-17.000000	NaN	NaN	1.000000
25%	NaN	17558.000000	NaN	NaN	NaN	1.000000	NaN	NaN	3.000000
50%	NaN	17564.000000	NaN	NaN	NaN	2.000000	NaN	NaN	4.000000
75%	NaN	18563.000000	NaN	NaN	NaN	2.000000	NaN	NaN	5.000000
max	NaN	19563.000000	NaN	NaN	NaN	6.000000	NaN	NaN	5.000000

In [14]:
```
df_bookings.revenue_generated.min(),df_bookings.revenue_generated.max()
```

Out[14]:
```
(6500, 28560000)
```

In [15]:
```
df_date.head()
```

Out[15]:

	date	mmm yy	week no	day_type
0	01-May-22	May 22	W 19	weekend
1	02-May-22	May 22	W 19	weekeday
2	03-May-22	May 22	W 19	weekeday
3	04-May-22	May 22	W 19	weekeday
4	05-May-22	May 22	W 19	weekeday

In [16]:
```
df_hotels.head()
```

Out[16]:

	property_id	property_name	category	city
0	16558	Atliq Grands	Luxury	Delhi
1	16559	Atliq Exotica	Luxury	Mumbai
2	16560	Atliq City	Business	Delhi
3	16561	Atliq Blu	Luxury	Delhi
4	16562	Atliq Bay	Luxury	Delhi

In [17]:
```
df_hotels.category.value_counts()
```

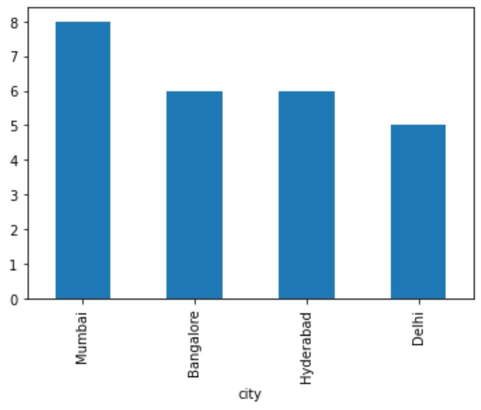
Out[17]:
```
Luxury      16
Business     9
Name: category, dtype: int64
```

In [18]:
```
df_hotels.city.value_counts().sort_values(ascending=False) ## Default ASC
```

Out[18]:
```
Mumbai       8
Bangalore    6
Hyderabad    6
Delhi        5
Name: city, dtype: int64
```

In [21]:
```
df_hotels.city.value_counts().sort_values(ascending=False).plot(kind = 'bar')
plt.xlabel("city")
```

Out[21]:
```
Text(0.5, 0, 'city')
```



In [23]:
```
df_rooms.head()
```

Out[23]:

	room_id	room_class
0	RT1	Standard
1	RT2	Elite
2	RT3	Premium
3	RT4	Presidential

In [24]:
```
df_agg_bookings.head()
```

Out[24]:

	property_id	check_in_date	room_category	successful_bookings	capacity
0	16559	1-May-22	RT1	25	30.0
1	19562	1-May-22	RT1	28	30.0
2	19563	1-May-22	RT1	23	30.0
3	17558	1-May-22	RT1	30	19.0
4	16558	1-May-22	RT1	18	19.0

1. Find out unique property ids in aggregate bookings dataset

In [25]:
```
df_agg_bookings.property_id.unique()
```

Out[25]:
```
array([16559, 19562, 19563, 17558, 16558, 17560, 19558, 19560, 17561,
       16560, 16561, 16562, 16563, 17559, 17562, 17563, 18558, 18559,
       18561, 18562, 18563, 19559, 19561, 17564, 18560], dtype=int64)
```

2. Find out total bookings per property_id

In [26]:
```
df_agg_bookings.property_id.value_counts()
```

Out[26]:
```
18561    368
16563    368
19558    368
16559    368
18558    368
17558    368
19559    368
16558    368
18559    368
17564    368
17563    368
19562    368
18562    368
16560    368
17562    368
19563    368
16562    368
18563    368
17561    368
19560    368
16561    368
18560    368
17560    368
19561    368
17559    368
Name: property_id, dtype: int64
```

3. Find out days on which bookings are greater than capacity

In [27]:
```
## Accessing columns

df_agg_bookings.loc[:,'capacity']
df_agg_bookings.capacity
df_agg_bookings['capacity']
```

Out[27]:
```
0       30.0
1       30.0
2       30.0
3       19.0
4       19.0
        ...
9195    18.0
9196    18.0
9197     6.0
9198     6.0
9199     4.0
Name: capacity, Length: 9200, dtype: float64
```

In [28]:
```
## Accessing 2 columns

df_agg_bookings[['successful_bookings','capacity']]

df_agg_bookings.loc[:,['successful_bookings','capacity']]
```

Out[28]:

	successful_bookings	capacity
0	25	30.0
1	28	30.0
2	23	30.0
3	30	19.0
4	18	19.0
...	...	...
9195	13	18.0
9196	13	18.0
9197	3	6.0
9198	3	6.0
9199	3	4.0

9200 rows × 2 columns

In [29]:
```
#Accessing all the columns in dataframe using specific condition

df_agg_bookings[df_agg_bookings.successful_bookings>df_agg_bookings.capacity]

#Accessing only 2 specific columns in dataframe using specific condition

df_agg_bookings[df_agg_bookings.successful_bookings>df_agg_bookings.capacity] [['successful_bookings','capacity']]
```

Out[29]:

	successful_bookings	capacity
3	30	19.0
12	100	41.0
4136	50	39.0
6209	123	26.0
8522	35	24.0
9194	20	18.0

In [30]:
```
df_agg_bookings.query('successful_bookings > capacity') [['successful_bookings','capacity']]
```

Out[30]:

	successful_bookings	capacity
3	30	19.0
12	100	41.0
4136	50	39.0
6209	123	26.0
8522	35	24.0
9194	20	18.0

4. Find out properties that have highest capacity

In [31]:
```
df_agg_bookings.loc[:,'capacity'].max()
```

Out[31]:
```
50.0
```

In [32]:
```
df_agg_bookings.capacity.max()
```

Out[32]:
```
50.0
```

In [33]:
```
df_agg_bookings
```

Out[33]:

	property_id	check_in_date	room_category	successful_bookings	capacity
0	16559	1-May-22	RT1	25	30.0
1	19562	1-May-22	RT1	28	30.0
2	19563	1-May-22	RT1	23	30.0
3	17558	1-May-22	RT1	30	19.0
4	16558	1-May-22	RT1	18	19.0
...	...	...	...	...	...
9195	16563	31-Jul-22	RT4	13	18.0
9196	16559	31-Jul-22	RT4	13	18.0
9197	17558	31-Jul-22	RT4	3	6.0
9198	19563	31-Jul-22	RT4	3	6.0
9199	17561	31-Jul-22	RT4	3	4.0

9200 rows × 5 columns

In [34]:
```
p = df_agg_bookings[df_agg_bookings.capacity == df_agg_bookings.capacity.max()] [['property_id','capacity','room_category']]
p
```

Out[34]:

	property_id	capacity	room_category
27	17558	50.0	RT2
128	17558	50.0	RT2
229	17558	50.0	RT2
328	17558	50.0	RT2
428	17558	50.0	RT2
...	...	...	...
8728	17558	50.0	RT2
8828	17558	50.0	RT2
8928	17558	50.0	RT2
9028	17558	50.0	RT2
9128	17558	50.0	RT2

92 rows × 3 columns

In [35]:
```
p.room_category.unique()
```

Out[35]:
```
array(['RT2'], dtype=object)
```

2. Data Cleaning

In [36]:
```
df_bookings
```

Out[36]:

	booking_id	property_id	booking_date	check_in_date	checkout_date	no_guests	room_category	booking_platform	ratings_given	bookin
0	May012216558RT11	16558	27-04-22	1/5/2022	2/5/2022	-3.0	RT1	direct online	1.0	Che
1	May012216558RT12	16558	30-04-22	1/5/2022	2/5/2022	2.0	RT1	others	NaN	C
2	May012216558RT13	16558	28-04-22	1/5/2022	4/5/2022	2.0	RT1	logtrip	5.0	Che
3	May012216558RT14	16558	28-04-22	1/5/2022	2/5/2022	-2.0	RT1	others	NaN	C
4	May012216558RT15	16558	27-04-22	1/5/2022	2/5/2022	4.0	RT1	direct online	5.0	Che
...	...	...	...	...	...	...	...	...	...	
134585	Jul312217564RT46	17564	29-07-22	31-07-22	3/8/2022	1.0	RT4	makeyourtrip	2.0	Che
134586	Jul312217564RT47	17564	30-07-22	31-07-22	1/8/2022	-4.0	RT4	logtrip	2.0	Che
134587	Jul312217564RT48	17564	30-07-22	31-07-22	2/8/2022	1.0	RT4	tripster	NaN	C
134588	Jul312217564RT49	17564	29-07-22	31-07-22	1/8/2022	2.0	RT4	logtrip	2.0	Che
134589	Jul312217564RT410	17564	31-07-22	31-07-22	1/8/2022	2.0	RT4	makeyourtrip	NaN	C

134590 rows × 12 columns

Removing the data from data frame with negative guests

In [37]:
```
df_bookings[df_bookings.no_guests<0]
```

Out[37]:

	booking_id	property_id	booking_date	check_in_date	checkout_date	no_guests	room_category	booking_platform	ratings_given	bookii
0	May012216558RT11	16558	27-04-22	1/5/2022	2/5/2022	-3.0	RT1	direct online	1.0	Ch
3	May012216558RT14	16558	28-04-22	1/5/2022	2/5/2022	-2.0	RT1	others	NaN	
17924	May122218559RT44	18559	12/5/2022	12/5/2022	14-05-22	-10.0	RT4	direct online	NaN	
18020	May122218561RT22	18561	8/5/2022	12/5/2022	14-05-22	-12.0	RT2	makeyourtrip	NaN	
18119	May122218562RT311	18562	5/5/2022	12/5/2022	17-05-22	-6.0	RT3	direct offline	5.0	Ch
18121	May122218562RT313	18562	10/5/2022	12/5/2022	17-05-22	-4.0	RT3	direct online	NaN	
56715	Jun082218562RT12	18562	5/6/2022	8/6/2022	13-06-22	-17.0	RT1	others	NaN	Ch
119765	Jul202219560RT220	19560	19-07-22	20-07-22	22-07-22	-1.0	RT2	others	NaN	Ch
134586	Jul312217564RT47	17564	30-07-22	31-07-22	1/8/2022	-4.0	RT4	logtrip	2.0	Ch

In [38]:
```
### Removing the data from data frame with negative guests

df_bookings = df_bookings[df_bookings.no_guests>0]

df_bookings
```

Out[38]:

	booking_id	property_id	booking_date	check_in_date	checkout_date	no_guests	room_category	booking_platform	ratings_given	bookin
1	May012216558RT12	16558	30-04-22	1/5/2022	2/5/2022	2.0	RT1	others	NaN	C
2	May012216558RT13	16558	28-04-22	1/5/2022	4/5/2022	2.0	RT1	logtrip	5.0	Che
4	May012216558RT15	16558	27-04-22	1/5/2022	2/5/2022	4.0	RT1	direct online	5.0	Che
5	May012216558RT16	16558	1/5/2022	1/5/2022	3/5/2022	2.0	RT1	others	4.0	Che
6	May012216558RT17	16558	28-04-22	1/5/2022	6/5/2022	2.0	RT1	others	NaN	C
...	...	...	...	...	...	...	...	...	...	
134584	Jul312217564RT45	17564	30-07-22	31-07-22	1/8/2022	2.0	RT4	others	2.0	Che
134585	Jul312217564RT46	17564	29-07-22	31-07-22	3/8/2022	1.0	RT4	makeyourtrip	2.0	Che
134587	Jul312217564RT48	17564	30-07-22	31-07-22	2/8/2022	1.0	RT4	tripster	NaN	C
134588	Jul312217564RT49	17564	29-07-22	31-07-22	1/8/2022	2.0	RT4	logtrip	2.0	Che
134589	Jul312217564RT410	17564	31-07-22	31-07-22	1/8/2022	2.0	RT4	makeyourtrip	NaN	C

134578 rows × 12 columns

2 Outlier removal in revenue generated

In [40]:
```
df_bookings.revenue_generated.describe()
```

Out[40]:
```
count    1.345780e+05
mean     1.537804e+04
std      9.304015e+04
min      6.500000e+03
25%      9.900000e+03
50%      1.350000e+04
75%      1.800000e+04
max      2.856000e+07
Name: revenue_generated, dtype: float64
```

In [41]:
```
df_bookings.revenue_generated.min(),df_bookings.revenue_generated.max(),df_bookings.revenue_generated.mean()
```

Out[41]:
```
(6500, 28560000, 15378.036937686695)
```

In [42]:
```
lower_limit = df_bookings.revenue_generated.mean() - 3*df_bookings.revenue_generated.std()
lower_limit
```

Out[42]:
```
-263742.4278566132
```

In [43]:
```
higher_limit = df_bookings.revenue_generated.mean() + 3*df_bookings.revenue_generated.std()
higher_limit
```

Out[43]:
```
294498.50173198653
```

In [44]:
```
df_bookings[df_bookings.revenue_generated > higher_limit]
```

Out[44]:

	booking_id	property_id	booking_date	check_in_date	checkout_date	no_guests	room_category	booking_platform	ratings_given	bookir
2	May012216558RT13	16558	28-04-22	1/5/2022	4/5/2022	2.0	RT1	logtrip	5.0	Ch
111	May012216559RT32	16559	29-04-22	1/5/2022	2/5/2022	6.0	RT3	direct online	NaN	Ch
315	May012216562RT22	16562	28-04-22	1/5/2022	4/5/2022	2.0	RT2	direct offline	3.0	Ch
562	May012217559RT118	17559	26-04-22	1/5/2022	2/5/2022	2.0	RT1	others	NaN	
129176	Jul282216562RT26	16562	21-07-22	28-07-22	29-07-22	2.0	RT2	direct online	3.0	Ch

In [45]:
```
df_bookings = df_bookings[df_bookings.revenue_generated < higher_limit]

df_bookings
```

Out[45]:

	booking_id	property_id	booking_date	check_in_date	checkout_date	no_guests	room_category	booking_platform	ratings_given	bookin
1	May012216558RT12	16558	30-04-22	1/5/2022	2/5/2022	2.0	RT1	others	NaN	C
4	May012216558RT15	16558	27-04-22	1/5/2022	2/5/2022	4.0	RT1	direct online	5.0	Che
5	May012216558RT16	16558	1/5/2022	1/5/2022	3/5/2022	2.0	RT1	others	4.0	Che
6	May012216558RT17	16558	28-04-22	1/5/2022	6/5/2022	2.0	RT1	others	NaN	C
7	May012216558RT18	16558	26-04-22	1/5/2022	3/5/2022	2.0	RT1	logtrip	NaN	
...	...	...	...	...	...	...	...	...	...	
134584	Jul312217564RT45	17564	30-07-22	31-07-22	1/8/2022	2.0	RT4	others	2.0	Che
134585	Jul312217564RT46	17564	29-07-22	31-07-22	3/8/2022	1.0	RT4	makeyourtrip	2.0	Che
134587	Jul312217564RT48	17564	30-07-22	31-07-22	2/8/2022	1.0	RT4	tripster	NaN	C
134588	Jul312217564RT49	17564	29-07-22	31-07-22	1/8/2022	2.0	RT4	logtrip	2.0	Che
134589	Jul312217564RT410	17564	31-07-22	31-07-22	1/8/2022	2.0	RT4	makeyourtrip	NaN	C

134573 rows × 12 columns

2 Outlier removal in revenue generated

In [46]:
```
df_bookings.revenue_realized.describe()
```

Out[46]:
```
count    134573.000000
mean      12695.983585
std        6927.791692
min        2600.000000
25%        7600.000000
50%       11700.000000
75%       15300.000000
max       45220.000000
Name: revenue_realized, dtype: float64
```

In [47]:
```
lower_limit = df_bookings.revenue_realized.mean() - 3*df_bookings.revenue_realized.std()
lower_limit
```

Out[47]:
```
-8087.391491610155
```

In [48]:
```
higher_limit = df_bookings.revenue_realized.mean() + 3*df_bookings.revenue_realized.std()
higher_limit
```

Out[48]:
```
33479.3586618449
```

In [49]:
```
df_bookings[df_bookings.revenue_realized>higher_limit].shape
```

Out[49]:
```
(1299, 12)
```

In [50]:
```
df_bookings[df_bookings.revenue_realized>higher_limit]
```

Out[50]:

	booking_id	property_id	booking_date	check_in_date	checkout_date	no_guests	room_category	booking_platform	ratings_given	bookii
137	May012216559RT41	16559	27-04-22	1/5/2022	7/5/2022	4.0	RT4	others	NaN	Ch
139	May012216559RT43	16559	1/5/2022	1/5/2022	2/5/2022	6.0	RT4	tripster	3.0	Ch
143	May012216559RT47	16559	28-04-22	1/5/2022	3/5/2022	3.0	RT4	others	5.0	Ch
149	May012216559RT413	16559	24-04-22	1/5/2022	7/5/2022	5.0	RT4	logtrip	NaN	Ch
222	May012216560RT45	16560	30-04-22	1/5/2022	3/5/2022	5.0	RT4	others	3.0	Ch
...	...	...	...	...	...	...	...	...	...	
134328	Jul312219560RT49	19560	31-07-22	31-07-22	2/8/2022	6.0	RT4	direct online	5.0	Ch
134331	Jul312219560RT412	19560	31-07-22	31-07-22	1/8/2022	6.0	RT4	others	2.0	Ch
134467	Jul312219562RT45	19562	28-07-22	31-07-22	1/8/2022	6.0	RT4	makeyourtrip	4.0	Ch
134474	Jul312219562RT412	19562	25-07-22	31-07-22	6/8/2022	5.0	RT4	direct offline	5.0	Ch
134581	Jul312217564RT42	17564	31-07-22	31-07-22	1/8/2022	4.0	RT4	makeyourtrip	4.0	Ch

1299 rows × 12 columns

In [51]:
```
df_bookings[df_bookings.revenue_realized>higher_limit].room_category.value_counts()
```

Out[51]:
```
RT4    1299
Name: room_category, dtype: int64
```

In [52]:
```
df_bookings[df_bookings.room_category == 'RT4'].revenue_realized.describe()
```

Out[52]:
```
count    16071.000000
mean     23439.308444
std       9048.599076
min       7600.000000
25%      19000.000000
50%      26600.000000
75%      32300.000000
max      45220.000000
Name: revenue_realized, dtype: float64
```

In [53]:
```
lower_limit = 23439.308444 - 3*9048.599076
lower_limit
```

Out[53]:
```
-3706.4887840000047
```

In [54]:
```
Higher_limit = 23439.308444 + 3*9048.599076
Higher_limit
```

Out[54]:
```
50585.105672000005
```

In [55]:
```
df_bookings.isnull().sum()
```

Out[55]:
```
booking_id               0
property_id              0
booking_date             0
check_in_date            0
checkout_date            0
no_guests                0
room_category            0
booking_platform         0
ratings_given        77897
booking_status           0
revenue_generated        0
revenue_realized         0
dtype: int64
```

In aggregate bookings find columns that have null values. Fill these null values with whatever you think is the appropriate subtitute (possible ways is to use mean or median)

In [56]:
```
df_agg_bookings.isnull().sum()
```

Out[56]:
```
property_id           0
check_in_date         0
room_category         0
successful_bookings   0
capacity              2
dtype: int64
```

In [57]:
```
M = df_agg_bookings.capacity.mean()
M
```

Out[57]:
```
25.280495759947815
```

In [58]:
```
df_agg_bookings['capacity'].fillna(25.280495759947815,inplace = True)
```

In [59]:
```
df_agg_bookings['capacity'].isnull().sum()
```

Out[59]:
```
0
```

In aggregate bookings find out records that have successful_bookings value greater than capacity. Filter those records.

In [60]:
```
df_agg_bookings.head()
```

Out[60]:

	property_id	check_in_date	room_category	successful_bookings	capacity
0	16559	1-May-22	RT1	25	30.0
1	19562	1-May-22	RT1	28	30.0
2	19563	1-May-22	RT1	23	30.0
3	17558	1-May-22	RT1	30	19.0
4	16558	1-May-22	RT1	18	19.0

In [61]:
```
df_agg_bookings[df_agg_bookings.successful_bookings > df_agg_bookings.capacity]
```

Out[61]:

	property_id	check_in_date	room_category	successful_bookings	capacity
3	17558	1-May-22	RT1	30	19.0
12	16563	1-May-22	RT1	100	41.0
4136	19558	11-Jun-22	RT2	50	39.0
6209	19560	2-Jul-22	RT1	123	26.0
8522	19559	25-Jul-22	RT1	35	24.0
9194	18563	31-Jul-22	RT4	20	18.0

In [62]:
```
df_agg_bookings = df_agg_bookings[df_agg_bookings.successful_bookings <=df_agg_bookings.capacity]
df_agg_bookings.shape
```

Out[62]:
```
(9194, 5)
```

3. Data Transformation

Create occupancy percentage column

In [63]:
```
df_agg_bookings.head()
```

Out[63]:

	property_id	check_in_date	room_category	successful_bookings	capacity
0	16559	1-May-22	RT1	25	30.0
1	19562	1-May-22	RT1	28	30.0
2	19563	1-May-22	RT1	23	30.0
4	16558	1-May-22	RT1	18	19.0
5	17560	1-May-22	RT1	28	40.0

In [64]:
```
df_agg_bookings['occu_per']= round((df_agg_bookings['successful_bookings'] / df_agg_bookings['capacity'])*100,2)

## df_agg_bookings['occu_per'] = df_agg_bookings['occu_per'].apply(lambda x: round(x*100,2))
```

```
<ipython-input-64-0f98bb4fef4f>:1: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-vie
w-versus-a-copy (https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)
  df_agg_bookings['occu_per']= round((df_agg_bookings['successful_bookings'] / df_agg_bookings['capacity'])*100,2)
```

In [65]:
```
df_agg_bookings
```

Out[65]:

	property_id	check_in_date	room_category	successful_bookings	capacity	occu_per
0	16559	1-May-22	RT1	25	30.0	83.33
1	19562	1-May-22	RT1	28	30.0	93.33
2	19563	1-May-22	RT1	23	30.0	76.67
4	16558	1-May-22	RT1	18	19.0	94.74
5	17560	1-May-22	RT1	28	40.0	70.00
...	...	...	...	...	...	...
9195	16563	31-Jul-22	RT4	13	18.0	72.22
9196	16559	31-Jul-22	RT4	13	18.0	72.22
9197	17558	31-Jul-22	RT4	3	6.0	50.00
9198	19563	31-Jul-22	RT4	3	6.0	50.00
9199	17561	31-Jul-22	RT4	3	4.0	75.00

9194 rows × 6 columns

In [66]:
```
df_agg_bookings.head()
```

Out[66]:

	property_id	check_in_date	room_category	successful_bookings	capacity	occu_per
0	16559	1-May-22	RT1	25	30.0	83.33
1	19562	1-May-22	RT1	28	30.0	93.33
2	19563	1-May-22	RT1	23	30.0	76.67
4	16558	1-May-22	RT1	18	19.0	94.74
5	17560	1-May-22	RT1	28	40.0	70.00

4. Insights Generation

1. What is an average occupancy rate in each of the room categories?

In [68]:
```
G = df_agg_bookings.groupby('room_category')
G.occu_per.mean()
```

Out[68]:
```
room_category
RT1    57.888985
RT2    58.009756
RT3    58.028213
RT4    59.277925
Name: occu_per, dtype: float64
```

In [69]:
```
df_agg_bookings.groupby('room_category').occu_per.mean()
```

Out[69]:
```
room_category
RT1    57.888985
RT2    58.009756
RT3    58.028213
RT4    59.277925
Name: occu_per, dtype: float64
```

In [70]:
```
df_agg_bookings.groupby('room_category') ['occu_per'].mean()
```

Out[70]:
```
room_category
RT1    57.888985
RT2    58.009756
RT3    58.028213
RT4    59.277925
Name: occu_per, dtype: float64
```

In [71]:
```
df_rooms
```

Out[71]:

	room_id	room_class
0	RT1	Standard
1	RT2	Elite
2	RT3	Premium
3	RT4	Presidential

In [72]:
```
 mer = pd.merge(df_agg_bookings,df_rooms,left_on='room_category', right_on='room_id')
```

In [84]:
```
mer
```

Out[84]:

	property_id	check_in_date	room_category	successful_bookings	capacity	occu_per	room_class
0	16559	1-May-22	RT1	25	30.0	83.33	Standard
1	19562	1-May-22	RT1	28	30.0	93.33	Standard
2	19563	1-May-22	RT1	23	30.0	76.67	Standard
3	16558	1-May-22	RT1	18	19.0	94.74	Standard
4	17560	1-May-22	RT1	28	40.0	70.00	Standard
...	...	...	...	...	...	...	...
9189	16563	31-Jul-22	RT4	13	18.0	72.22	Presidential
9190	16559	31-Jul-22	RT4	13	18.0	72.22	Presidential
9191	17558	31-Jul-22	RT4	3	6.0	50.00	Presidential
9192	19563	31-Jul-22	RT4	3	6.0	50.00	Presidential
9193	17561	31-Jul-22	RT4	3	4.0	75.00	Presidential

9194 rows × 7 columns

In [74]:
```
mer.groupby('room_class')['occu_per'].mean().round(2)
```

Out[74]:
```
room_class
Elite           58.01
Premium         58.03
Presidential    59.28
Standard        57.89
Name: occu_per, dtype: float64
```

In [75]:
```
mer.drop('room_id',axis = 1,inplace= True) ## Dropped room_id as we have 2 columns with same data
mer
```

Out[75]:

	property_id	check_in_date	room_category	successful_bookings	capacity	occu_per	room_class
0	16559	1-May-22	RT1	25	30.0	83.33	Standard
1	19562	1-May-22	RT1	28	30.0	93.33	Standard
2	19563	1-May-22	RT1	23	30.0	76.67	Standard
3	16558	1-May-22	RT1	18	19.0	94.74	Standard
4	17560	1-May-22	RT1	28	40.0	70.00	Standard
...	...	...	...	...	...	...	...
9189	16563	31-Jul-22	RT4	13	18.0	72.22	Presidential
9190	16559	31-Jul-22	RT4	13	18.0	72.22	Presidential
9191	17558	31-Jul-22	RT4	3	6.0	50.00	Presidential
9192	19563	31-Jul-22	RT4	3	6.0	50.00	Presidential
9193	17561	31-Jul-22	RT4	3	4.0	75.00	Presidential

9194 rows × 7 columns

2. Print average occupancy rate per city

In [76]:
```
df_hotels.head()
```

Out[76]:

	property_id	property_name	category	city
0	16558	Atliq Grands	Luxury	Delhi
1	16559	Atliq Exotica	Luxury	Mumbai
2	16560	Atliq City	Business	Delhi
3	16561	Atliq Blu	Luxury	Delhi
4	16562	Atliq Bay	Luxury	Delhi

In [77]:
```
merg = pd.merge(mer,df_hotels,on='property_id',how = 'outer')
merg
```

Out[77]:

	property_id	check_in_date	room_category	successful_bookings	capacity	occu_per	room_class	property_name	category	city
0	16559	1-May-22	RT1	25	30.0	83.33	Standard	Atliq Exotica	Luxury	Mumbai
1	16559	2-May-22	RT1	20	30.0	66.67	Standard	Atliq Exotica	Luxury	Mumbai
2	16559	3-May-22	RT1	17	30.0	56.67	Standard	Atliq Exotica	Luxury	Mumbai
3	16559	4-May-22	RT1	21	30.0	70.00	Standard	Atliq Exotica	Luxury	Mumbai
4	16559	5-May-22	RT1	16	30.0	53.33	Standard	Atliq Exotica	Luxury	Mumbai
...	...	...	...	...	...	...	...	...	...	...
9189	16563	27-Jul-22	RT4	10	18.0	55.56	Presidential	Atliq Palace	Business	Delhi
9190	16563	28-Jul-22	RT4	9	18.0	50.00	Presidential	Atliq Palace	Business	Delhi
9191	16563	29-Jul-22	RT4	9	18.0	50.00	Presidential	Atliq Palace	Business	Delhi
9192	16563	30-Jul-22	RT4	11	18.0	61.11	Presidential	Atliq Palace	Business	Delhi
9193	16563	31-Jul-22	RT4	13	18.0	72.22	Presidential	Atliq Palace	Business	Delhi

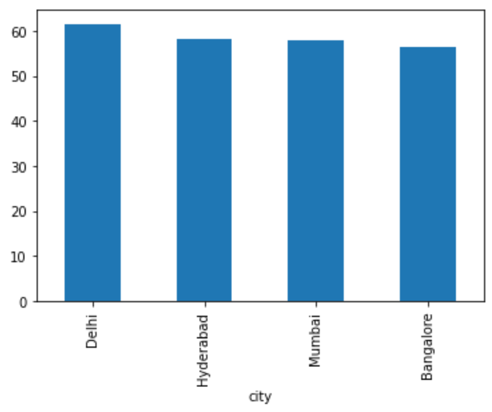
9194 rows × 10 columns

In [78]:
```
merg.groupby('city') ['occu_per'].mean().round(2)
```

Out[78]:
```
city
Bangalore    56.33
Delhi        61.51
Hyderabad    58.12
Mumbai       57.91
Name: occu_per, dtype: float64
```

In [79]:
```
merg.groupby('city') ['occu_per'].mean().round(2).sort_values(ascending= False).plot(kind = 'bar')
```

Out[79]:
```
<AxesSubplot:xlabel='city'>
```



3. When was the occupancy better? Weekday or Weekend?

In [118]:
```
merg.head()
```

Out[118]:

	property_id	check_in_date	room_category	successful_bookings	capacity	occu_per	room_class	property_name	category	city
0	16559	1-May-22	RT1	25	30.0	83.33	Standard	Atliq Exotica	Luxury	Mumbai
1	16559	2-May-22	RT1	20	30.0	66.67	Standard	Atliq Exotica	Luxury	Mumbai
2	16559	3-May-22	RT1	17	30.0	56.67	Standard	Atliq Exotica	Luxury	Mumbai
3	16559	4-May-22	RT1	21	30.0	70.00	Standard	Atliq Exotica	Luxury	Mumbai
4	16559	5-May-22	RT1	16	30.0	53.33	Standard	Atliq Exotica	Luxury	Mumbai

In [81]:
```
df_date.head()
```

Out[81]:

	date	mmm yy	week no	day_type
0	01-May-22	May 22	W 19	weekend
1	02-May-22	May 22	W 19	weekeday
2	03-May-22	May 22	W 19	weekeday
3	04-May-22	May 22	W 19	weekeday
4	05-May-22	May 22	W 19	weekeday

In [86]:
```
merge_df = pd.merge(merg, df_date,left_on = 'check_in_date',right_on = 'date')
merge_df.head()
```

Out[86]:

	property_id	check_in_date	room_category	successful_bookings	capacity	occu_per	room_class	property_name	category	city	date	mmm yy	w
0	16559	10-May-22	RT1	18	30.0	60.00	Standard	Atliq Exotica	Luxury	Mumbai	10-May-22	May 22	W
1	16559	10-May-22	RT2	25	41.0	60.98	Elite	Atliq Exotica	Luxury	Mumbai	10-May-22	May 22	W
2	16559	10-May-22	RT3	20	32.0	62.50	Premium	Atliq Exotica	Luxury	Mumbai	10-May-22	May 22	W
3	16559	10-May-22	RT4	13	18.0	72.22	Presidential	Atliq Exotica	Luxury	Mumbai	10-May-22	May 22	W
4	19562	10-May-22	RT1	18	30.0	60.00	Standard	Atliq Bay	Luxury	Bangalore	10-May-22	May 22	W

In [87]:
```
merge_df.groupby('day_type') ['occu_per'].mean().round(2)
```

Out[87]:
```
day_type
weekeday    50.88
weekend     72.34
Name: occu_per, dtype: float64
```

4: In the month of June, what is the occupancy for different cities

In [88]:
```
merge_df.head()
```

Out[88]:

	property_id	check_in_date	room_category	successful_bookings	capacity	occu_per	room_class	property_name	category	city	date	mmm yy	w
0	16559	10-May-22	RT1	18	30.0	60.00	Standard	Atliq Exotica	Luxury	Mumbai	10-May-22	May 22	W
1	16559	10-May-22	RT2	25	41.0	60.98	Elite	Atliq Exotica	Luxury	Mumbai	10-May-22	May 22	W
2	16559	10-May-22	RT3	20	32.0	62.50	Premium	Atliq Exotica	Luxury	Mumbai	10-May-22	May 22	W
3	16559	10-May-22	RT4	13	18.0	72.22	Presidential	Atliq Exotica	Luxury	Mumbai	10-May-22	May 22	W
4	19562	10-May-22	RT1	18	30.0	60.00	Standard	Atliq Bay	Luxury	Bangalore	10-May-22	May 22	W

In [89]:
```
Jun = merge_df.groupby(['city','mmm yy']) ['occu_per'].mean()
Jun
```

Out[89]:
```
city       mmm yy
Bangalore  Jul 22    53.899829
           Jun 22    56.436143
           May 22    55.275492
Delhi      Jul 22    59.177886
           Jun 22    62.474286
           May 22    59.650614
Hyderabad  Jul 22    55.252163
           Jun 22    58.458075
           May 22    57.062405
Mumbai     Jul 22    55.235469
           Jun 22    58.382560
           May 22    56.803139
Name: occu_per, dtype: float64
```

In [91]:
```
Jun.loc[Jun.index.get_level_values('mmm yy') =='Jun 22',:]
```

Out[91]:
```
city       mmm yy
Bangalore  Jun 22    56.436143
Delhi      Jun 22    62.474286
Hyderabad  Jun 22    58.458075
Mumbai     Jun 22    58.382560
Name: occu_per, dtype: float64
```

6. Print revenue realized per city

In [92]:
```
df_bookings.head()
```

Out[92]:

	booking_id	property_id	booking_date	check_in_date	checkout_date	no_guests	room_category	booking_platform	ratings_given	booking_stat
1	May012216558RT12	16558	30-04-22	1/5/2022	2/5/2022	2.0	RT1	others	NaN	Cancell
4	May012216558RT15	16558	27-04-22	1/5/2022	2/5/2022	4.0	RT1	direct online	5.0	Checked C
5	May012216558RT16	16558	1/5/2022	1/5/2022	3/5/2022	2.0	RT1	others	4.0	Checked C
6	May012216558RT17	16558	28-04-22	1/5/2022	6/5/2022	2.0	RT1	others	NaN	Cancell
7	May012216558RT18	16558	26-04-22	1/5/2022	3/5/2022	2.0	RT1	logtrip	NaN	No Sh

In [93]:
```
df_hotels.head()
```

Out[93]:

	property_id	property_name	category	city
0	16558	Atliq Grands	Luxury	Delhi
1	16559	Atliq Exotica	Luxury	Mumbai
2	16560	Atliq City	Business	Delhi
3	16561	Atliq Blu	Luxury	Delhi
4	16562	Atliq Bay	Luxury	Delhi

In [94]:
```
rev_realized = pd.merge(df_bookings,df_hotels,on = 'property_id')
rev_realized.head()
```

Out[94]:

	booking_id	property_id	booking_date	check_in_date	checkout_date	no_guests	room_category	booking_platform	ratings_given	booking_stat
0	May012216558RT12	16558	30-04-22	1/5/2022	2/5/2022	2.0	RT1	others	NaN	Cancell
1	May012216558RT15	16558	27-04-22	1/5/2022	2/5/2022	4.0	RT1	direct online	5.0	Checked C
2	May012216558RT16	16558	1/5/2022	1/5/2022	3/5/2022	2.0	RT1	others	4.0	Checked C
3	May012216558RT17	16558	28-04-22	1/5/2022	6/5/2022	2.0	RT1	others	NaN	Cancell
4	May012216558RT18	16558	26-04-22	1/5/2022	3/5/2022	2.0	RT1	logtrip	NaN	No Sh

In [95]:
```
rev_realized.groupby('city')['revenue_realized'].sum()
```

Out[95]:
```
city
Bangalore    420383550
Delhi        294404488
Hyderabad    325179310
Mumbai       668569251
Name: revenue_realized, dtype: int64
```

7. Print month by month revenue

In [96]:
```
df_date.head(3)
```

Out[96]:

	date	mmm yy	week no	day_type
0	01-May-22	May 22	W 19	weekend
1	02-May-22	May 22	W 19	weekeday
2	03-May-22	May 22	W 19	weekeday

In [97]:
```
df_date.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 92 entries, 0 to 91
Data columns (total 4 columns):
 #   Column    Non-Null Count  Dtype 
---  ------    --------------  ----- 
 0   date      92 non-null     object
 1   mmm yy    92 non-null     object
 2   week no   92 non-null     object
 3   day_type  92 non-null     object
dtypes: object(4)
memory usage: 3.0+ KB
```

In [98]:
```
df_bookings.head(3)
```

Out[98]:

	booking_id	property_id	booking_date	check_in_date	checkout_date	no_guests	room_category	booking_platform	ratings_given	booking_stat
1	May012216558RT12	16558	30-04-22	1/5/2022	2/5/2022	2.0	RT1	others	NaN	Cancell
4	May012216558RT15	16558	27-04-22	1/5/2022	2/5/2022	4.0	RT1	direct online	5.0	Checked C
5	May012216558RT16	16558	1/5/2022	1/5/2022	3/5/2022	2.0	RT1	others	4.0	Checked C

In [99]:
```
df_bookings.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 134573 entries, 1 to 134589
Data columns (total 12 columns):
 #   Column             Non-Null Count   Dtype  
---  ------             --------------   -----  
 0   booking_id         134573 non-null  object 
 1   property_id        134573 non-null  int64  
 2   booking_date       134573 non-null  object 
 3   check_in_date      134573 non-null  object 
 4   checkout_date      134573 non-null  object 
 5   no_guests          134573 non-null  float64
 6   room_category      134573 non-null  object 
 7   booking_platform   134573 non-null  object 
 8   ratings_given      56676 non-null   float64
 9   booking_status     134573 non-null  object 
 10  revenue_generated  134573 non-null  int64  
 11  revenue_realized   134573 non-null  int64  
dtypes: float64(2), int64(3), object(7)
memory usage: 13.3+ MB
```

In [100]:
```
df_date['date']= pd.to_datetime(df_date['date'])

df_date.head(3)
```

Out[100]:

	date	mmm yy	week no	day_type
0	2022-05-01	May 22	W 19	weekend
1	2022-05-02	May 22	W 19	weekeday
2	2022-05-03	May 22	W 19	weekeday

In [101]:
```
import pandas as pd
df_bookings.head(3)
```

```
<ipython-input-101-f220ab7ade1c>:2: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-vie
w-versus-a-copy (https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)
  df_bookings['check_in_date'] = pd.to_datetime(df_bookings['check_in_date'], errors='coerce', infer_datetime_format=True)
```

In [103]:
```
df_bookings['check_in_date'] = pd.to_datetime(df_bookings['check_in_date'], errors='coerce', infer_datetime_format=True)
df_bookings.head(3)
```

```
<ipython-input-103-a3502451ade6>:1: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-vie
w-versus-a-copy (https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)
  df_bookings['check_in_date'] = pd.to_datetime(df_bookings['check_in_date'], errors='coerce', infer_datetime_format=True)
```

Out[103]:

	booking_id	property_id	booking_date	check_in_date	checkout_date	no_guests	room_category	booking_platform	ratings_given	booking_stat
1	May012216558RT12	16558	30-04-22	2022-01-05	2/5/2022	2.0	RT1	others	NaN	Cancell
4	May012216558RT15	16558	27-04-22	2022-01-05	2/5/2022	4.0	RT1	direct online	5.0	Checked C
5	May012216558RT16	16558	1/5/2022	2022-01-05	3/5/2022	2.0	RT1	others	4.0	Checked C

In [104]:
```
df_bookings.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 134573 entries, 1 to 134589
Data columns (total 12 columns):
 #   Column             Non-Null Count   Dtype
---  ------             --------------   -----
 0   booking_id         134573 non-null  object
 1   property_id        134573 non-null  int64
 2   booking_date       134573 non-null  object
 3   check_in_date      55790 non-null   datetime64[ns]
 4   checkout_date      134573 non-null  object
 5   no_guests          134573 non-null  float64
 6   room_category      134573 non-null  object
 7   booking_platform   134573 non-null  object
 8   ratings_given      56676 non-null   float64
 9   booking_status     134573 non-null  object
 10  revenue_generated  134573 non-null  int64
 11  revenue_realized   134573 non-null  int64
dtypes: datetime64[ns](1), float64(2), int64(3), object(6)
memory usage: 13.3+ MB
```

In [105]:
```
df_bookings_all = pd.merge(df_bookings, df_date, left_on="check_in_date", right_on="date")
df_bookings_all.head(3)
```

Out[105]:

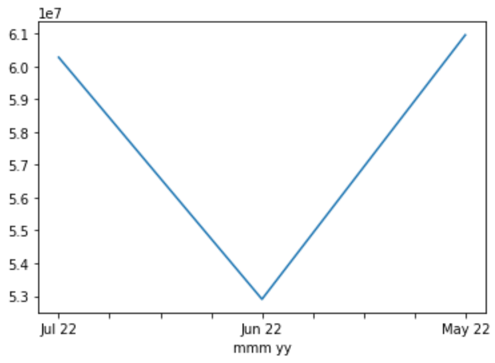
	booking_id	property_id	booking_date	check_in_date	checkout_date	no_guests	room_category	booking_platform	ratings_given	booking_stat
0	May052216558RT11	16558	15-04-22	2022-05-05	7/5/2022	3.0	RT1	tripster	5.0	Checked C
1	May052216558RT12	16558	30-04-22	2022-05-05	7/5/2022	2.0	RT1	others	NaN	Cancell
2	May052216558RT13	16558	1/5/2022	2022-05-05	6/5/2022	3.0	RT1	direct offline	5.0	Checked C

In [106]:
```
df_bookings_all.groupby('mmm yy')['revenue_realized'].sum()
```

Out[106]:
```
mmm yy
Jul 22    60278496
Jun 22    52903014
May 22    60961428
Name: revenue_realized, dtype: int64
```

In [107]:
```
df_bookings_all.groupby('mmm yy')['revenue_realized'].sum().plot()
```

Out[107]:
```
<AxesSubplot:xlabel='mmm yy'>
```



Exercise-1. Print revenue realized per hotel type

In [108]:
```
df_hotels.head(3)
```

Out[108]:

	property_id	property_name	category	city
0	16558	Atliq Grands	Luxury	Delhi
1	16559	Atliq Exotica	Luxury	Mumbai
2	16560	Atliq City	Business	Delhi

In [109]:
```
df_bookings.head(3)
```

Out[109]:

	booking_id	property_id	booking_date	check_in_date	checkout_date	no_guests	room_category	booking_platform	ratings_given	booking_stat
1	May012216558RT12	16558	30-04-22	2022-01-05	2/5/2022	2.0	RT1	others	NaN	Cancell
4	May012216558RT15	16558	27-04-22	2022-01-05	2/5/2022	4.0	RT1	direct online	5.0	Checked C
5	May012216558RT16	16558	1/5/2022	2022-01-05	3/5/2022	2.0	RT1	others	4.0	Checked C

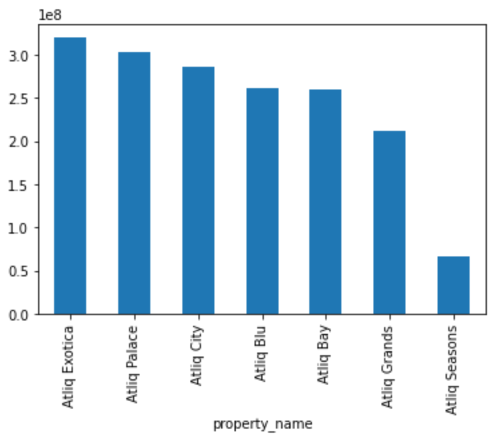
In [110]:
```
hotels_data = pd.merge(df_hotels,df_bookings,on= 'property_id')
hotels_data.head(3)
```

Out[110]:

	property_id	property_name	category	city	booking_id	booking_date	check_in_date	checkout_date	no_guests	room_category	booking_platf
0	16558	Atliq Grands	Luxury	Delhi	May012216558RT12	30-04-22	2022-01-05	2/5/2022	2.0	RT1	ot
1	16558	Atliq Grands	Luxury	Delhi	May012216558RT15	27-04-22	2022-01-05	2/5/2022	4.0	RT1	direct oı
2	16558	Atliq Grands	Luxury	Delhi	May012216558RT16	1/5/2022	2022-01-05	3/5/2022	2.0	RT1	ot

In [111]:
```
hotels_data.groupby('property_name')['revenue_realized'].sum().sort_values(ascending = False).plot(kind='bar')
```

Out[111]:
```
<AxesSubplot:xlabel='property_name'>
```



Exercise-2 Print average rating per city

In [112]:
```
hotels_data.head(3)
```

Out[112]:

	property_id	property_name	category	city	booking_id	booking_date	check_in_date	checkout_date	no_guests	room_category	booking_platf
0	16558	Atliq Grands	Luxury	Delhi	May012216558RT12	30-04-22	2022-01-05	2/5/2022	2.0	RT1	ot
1	16558	Atliq Grands	Luxury	Delhi	May012216558RT15	27-04-22	2022-01-05	2/5/2022	4.0	RT1	direct o
2	16558	Atliq Grands	Luxury	Delhi	May012216558RT16	1/5/2022	2022-01-05	3/5/2022	2.0	RT1	ot

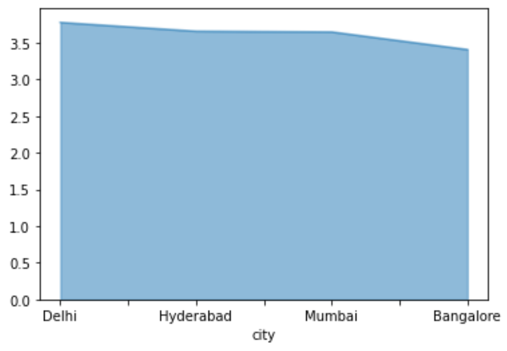
In [113]:
```
hotels_data.groupby('city')['ratings_given'].mean().round(2).sort_values(ascending = False)
```

Out[113]:
```
city
Delhi        3.78
Hyderabad    3.66
Mumbai       3.65
Bangalore    3.41
Name: ratings_given, dtype: float64
```

```
#['ratings_given'].mean().round(2).sort_values(ascending = False).plot(kind='area',stacked = False)
```

In [114]:
```
hotels_data.groupby('city')['ratings_given'].mean().round(2).sort_values(ascending = False).plot(kind='area',stacked = False
```

Out[114]:
```
<AxesSubplot:xlabel='city'>
```



Exercise-3 Print a pie chart of revenue realized per booking platform

In [115]:
```
hotels_data.head(3)
```

Out[115]:

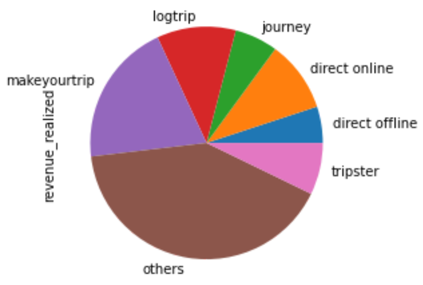
	property_id	property_name	category	city	booking_id	booking_date	check_in_date	checkout_date	no_guests	room_category	booking_platf
0	16558	Atliq Grands	Luxury	Delhi	May012216558RT12	30-04-22	2022-01-05	2/5/2022	2.0	RT1	ot
1	16558	Atliq Grands	Luxury	Delhi	May012216558RT15	27-04-22	2022-01-05	2/5/2022	4.0	RT1	direct o
2	16558	Atliq Grands	Luxury	Delhi	May012216558RT16	1/5/2022	2022-01-05	3/5/2022	2.0	RT1	ot

In [116]:
```
hotels_data.groupby('booking_platform')['revenue_realized'].sum()
```

Out[116]:
```
booking_platform
direct offline     86374933
direct online     168948637
journey           102531334
logtrip           187494028
makeyourtrip      340814104
others            699306762
tripster          123066801
Name: revenue_realized, dtype: int64
```

```
In [117]: hotels_data.groupby('booking_platform')['revenue_realized'].sum().plot(kind = 'pie')
```

```
Out[117]: <AxesSubplot:ylabel='revenue_realized'>
```



```
In [ ]:
```