Sales analysis

December 7, 2023

[1]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import os
```

1 Merging 12 months data into single file

[2]:
```
df=pd.read_csv("./Sales_Data/Sales_April_2019.csv")

files=[file for file in os.listdir('./Sales_Data')]
all_months_data=pd.DataFrame()

for file in files:
    df=pd.read_csv("./Sales_Data/"+file)
    all_months_data=pd.concat([all_months_data,df])

all_months_data.to_csv('all_Data.csv',index=False)
```

1.1 Read in updated dataframe

[3]:
```
all_data=pd.read_csv('all_Data.csv')
```

[4]:
```
all_data
```

[4]:

	Order ID	Product	Quantity Ordered	Price Each	\
0	278797	Wired Headphones	1	11.99	
1	278798	USB-C Charging Cable	2	11.95	
2	278799	Apple Airpods Headphones	1	150.0	
3	278800	27in FHD Monitor	1	149.99	
4	278801	Bose SoundSport Headphones	1	99.99	
…	…	…	…	…	
186845	236665	Wired Headphones	1	11.99	
186846	236666	20in Monitor	1	109.99	
186847	236667	AAA Batteries (4-pack)	1	2.99	
186848	236668	Wired Headphones	1	11.99	
186849	236669	AAA Batteries (4-pack)	1	2.99	

```
            Order Date                      Purchase Address
0       11/21/19 09:54   46 Park St, New York City, NY 10001
1       11/17/19 10:03      962 Hickory St, Austin, TX 73301
2       11/19/19 14:56  464 Cherry St, Los Angeles, CA 90001
3       11/25/19 22:24        649 10th St, Seattle, WA 98101
4       11/09/19 13:56         522 Hill St, Boston, MA 02215
…                 …                                     …
186845  07/20/19 16:16      694 Meadow St, Atlanta, GA 30301
186846  07/31/19 20:11  866 14th St, San Francisco, CA 94016
186847  07/17/19 22:29       249 Cherry St, Dallas, TX 75001
186848  07/30/19 19:28       727 Wilson St, Austin, TX 73301
186849  07/10/19 01:50   743 9th St, New York City, NY 10001

[186850 rows x 6 columns]
```

1.2 Clean up data!!

1.2.1 Drop rows of Nan

[5]:
```
nan_df=all_data[all_data.isna().any(axis=1)]
nan_df.head()

all_data=all_data.dropna(how='all')
```

[6]:
```
all_data.head()
```

[6]:
```
  Order ID                    Product Quantity Ordered Price Each  \
0   278797            Wired Headphones                1      11.99
1   278798        USB-C Charging Cable                2      11.95
2   278799    Apple Airpods Headphones                1      150.0
3   278800            27in FHD Monitor                1     149.99
4   278801  Bose SoundSport Headphones                1      99.99

       Order Date                      Purchase Address
0  11/21/19 09:54   46 Park St, New York City, NY 10001
1  11/17/19 10:03      962 Hickory St, Austin, TX 73301
2  11/19/19 14:56  464 Cherry St, Los Angeles, CA 90001
3  11/25/19 22:24        649 10th St, Seattle, WA 98101
4  11/09/19 13:56         522 Hill St, Boston, MA 02215
```

[7]:
```
all_data=all_data[all_data['Order Date'].str[0:2]!='Or']
```

[ ]:
```

```

Convert columns to corect type

[8]:
```
all_data['Quantity Ordered']=pd.to_numeric(all_data['Quantity Ordered'])  #make int
all_data['Price Each']=pd.to_numeric(all_data['Price Each']) #make float

all_data.head()
```

[8]:

	Order ID	Product	Quantity Ordered	Price Each	Order Date	Purchase Address
0	278797	Wired Headphones	1	11.99	11/21/19 09:54	46 Park St, New York City, NY 10001
1	278798	USB-C Charging Cable	2	11.95	11/17/19 10:03	962 Hickory St, Austin, TX 73301
2	278799	Apple Airpods Headphones	1	150.00	11/19/19 14:56	464 Cherry St, Los Angeles, CA 90001
3	278800	27in FHD Monitor	1	149.99	11/25/19 22:24	649 10th St, Seattle, WA 98101
4	278801	Bose SoundSport Headphones	1	99.99	11/09/19 13:56	522 Hill St, Boston, MA 02215

[ ]:
```

```

[9]:
```
all_data['Order ID']=all_data['Order ID'].astype('str')
```

1.3 Augment Data with additional columns

1.3.1 Add Month Column

[10]:
```
all_data['Month']=all_data['Order Date'].str[0:2]
all_data['Month']=all_data['Month'].astype('int32')
all_data.head()
```

[10]:

	Order ID	Product	Quantity Ordered	Price Each	Order Date	Purchase Address	Month
0	278797	Wired Headphones	1	11.99	11/21/19 09:54	46 Park St, New York City, NY 10001	11
1	278798	USB-C Charging Cable	2	11.95	11/17/19 10:03	962 Hickory St, Austin, TX 73301	11
2	278799	Apple Airpods Headphones	1	150.00	11/19/19 14:56	464 Cherry St, Los Angeles, CA 90001	11
3	278800	27in FHD Monitor	1	149.99	11/25/19 22:24	649 10th St, Seattle, WA 98101	11
4	278801	Bose SoundSport Headphones	1	99.99	11/09/19 13:56	522 Hill St, Boston, MA 02215	11

[ ]:
```

```

1.4 ADD a sales column

[11]:
```
all_data['Sales']=all_data['Quantity Ordered']*all_data['Price Each']
all_data.head()
```

[11]:

	Order ID	Product	Quantity Ordered	Price Each	Order Date	Purchase Address	Month	Sales
0	278797	Wired Headphones	1	11.99	11/21/19 09:54	46 Park St, New York City, NY 10001	11	11.99
1	278798	USB-C Charging Cable	2	11.95	11/17/19 10:03	962 Hickory St, Austin, TX 73301	11	23.90
2	278799	Apple Airpods Headphones	1	150.00	11/19/19 14:56	464 Cherry St, Los Angeles, CA 90001	11	150.00
3	278800	27in FHD Monitor	1	149.99	11/25/19 22:24	649 10th St, Seattle, WA 98101	11	149.99
4	278801	Bose SoundSport Headphones	1	99.99	11/09/19 13:56	522 Hill St, Boston, MA 02215	11	99.99

[ ]:
```

```

1.4.1 ADD A city column

[12]:
```
# lets use .apply()

def get_city(address):
    return address.split(',')[1]

def get_state(address):
    return address.split(',')[2].split(' ')[1]

all_data['City']=all_data['Purchase Address'].apply(lambda x:f"{get_city(x)}␣
↪({get_state(x)})")
```

[13]:
```
all_data.head()
```

[13]:

	Order ID	Product	Quantity Ordered	Price Each	Order Date	Purchase Address	Month	Sales	City
0	278797	Wired Headphones	1	11.99	11/21/19 09:54	46 Park St, New York City, NY 10001	11	11.99	New York City (NY)
1	278798	USB-C Charging Cable	2	11.95	11/17/19 10:03	962 Hickory St, Austin, TX 73301	11	23.90	Austin (TX)
2	278799	Apple Airpods Headphones	1	150.00	11/19/19 14:56	464 Cherry St, Los Angeles, CA 90001	11	150.00	Los Angeles (CA)
3	278800	27in FHD Monitor	1	149.99	11/25/19 22:24	649 10th St, Seattle, WA 98101	11	149.99	Seattle (WA)
4	278801	Bose SoundSport Headphones	1	99.99	11/09/19 13:56	522 Hill St, Boston, MA 02215	11	99.99	Boston (MA)

```
3  11/25/19 22:24        649 10th St, Seattle, WA 98101     11  149.99
4  11/09/19 13:56         522 Hill St, Boston, MA 02215     11   99.99

                  City
0   New York City (NY)
1          Austin (TX)
2     Los Angeles (CA)
3         Seattle (WA)
4          Boston (MA)
```

[ ]:

[ ]:

2 ANALYSIS

2.0.1 Question 1: What was the best month for sales? How much was earned that month?

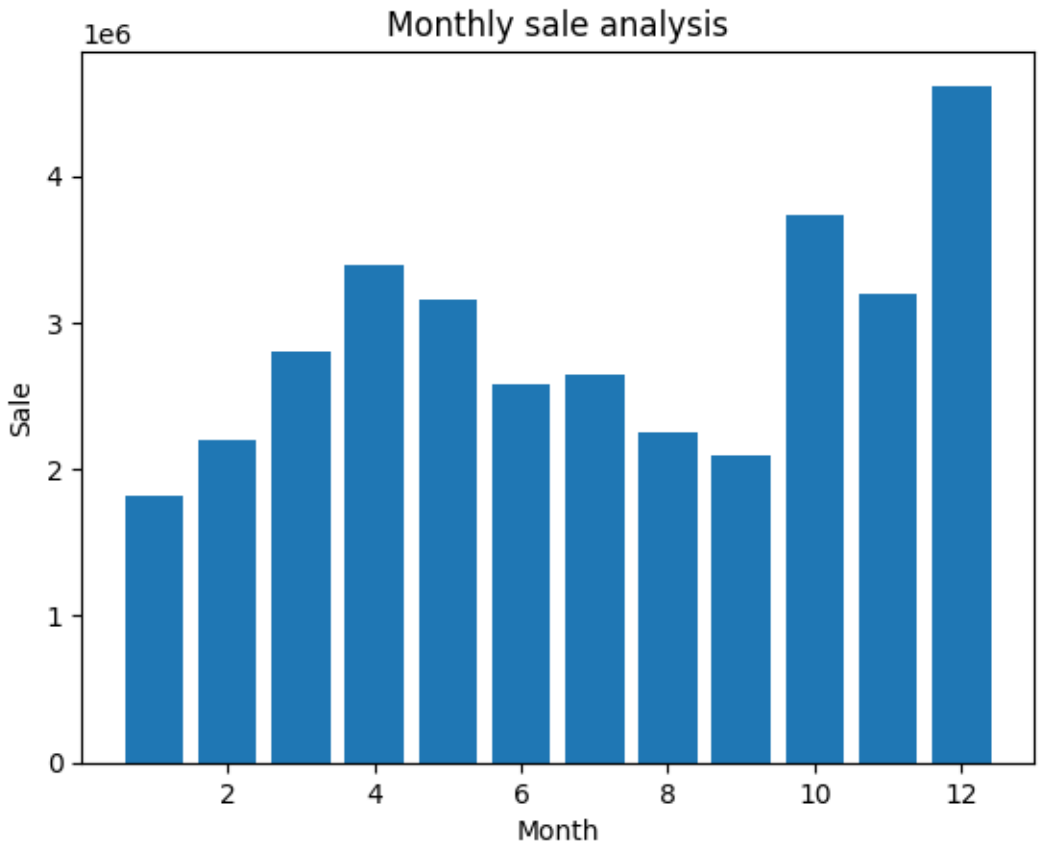
[14]:
```
result=all_data.groupby('Month').sum()
result
```

[14]:
```
                                                Order ID  \
Month
1      141234141235141236141237141238141239141240141…
2      145212145372146442147309147663148987150502150…
3      162009162009162009162010162011162012162013162…
4      162358162541165007165622166250166309166567167…
5      194095194096194097194098194099194100194101194…
6      195748195869196072196132196638196639197698199…
7      211665211790212604213660213699214099214099214…
8      236670236671236672236673236674236675236676236…
9      238834239285240636241054242343242865243667244…
10     248643250139250139250275250684251243252164252…
11     278797278798278799278800278801278802278803278…
12     279095279982280275280809282675283095283689283…

                                                Product  Quantity Ordered  \
Month
1      iPhoneLightning Charging CableWired Headphones…             10903
2      Lightning Charging CableAAA Batteries (4-pack)…             13449
3      iPhoneLightning Charging CableWired Headphones…             17005
4      Flatscreen TVAAA Batteries (4-pack)34in Ultraw…             20558
5      Wired HeadphonesAA Batteries (4-pack)27in FHD …             18667
6      27in FHD MonitorAAA Batteries (4-pack)Lightnin…             15253
7      27in FHD MonitorAAA Batteries (4-pack)27in FHD…             16072
8      Wired HeadphonesBose SoundSport HeadphonesiPho…             13448
```

```
9      Apple Airpods Headphones34in Ultrawide Monitor…              13109
10     Lightning Charging CableGoogle PhoneUSB-C Char…              22703
11     Wired HeadphonesUSB-C Charging CableApple Airp…              19798
12     AA Batteries (4-pack)Bose SoundSport Headphone…              28114

       Price Each                                          Order Date  \
Month
1      1811768.38  01/22/19 21:2501/28/19 14:1501/17/19 13:3301/0…
2      2188884.72  02/01/19 00:3602/01/19 04:0202/01/19 01:4802/0…
3      2791207.83  03/28/19 20:5903/28/19 20:5903/28/19 20:5903/1…
4      3367671.02  04/01/19 01:1104/01/19 01:1504/01/19 00:1204/0…
5      3135125.13  05/16/19 17:1405/19/19 14:4305/24/19 11:3605/0…
6      2562025.61  06/01/19 03:2606/01/19 01:0606/01/19 00:1806/0…
7      2632539.56  07/01/19 00:5407/01/19 02:0507/01/19 00:5007/0…
8      2230345.42  08/31/19 22:2108/15/19 15:1108/06/19 14:4008/2…
9      2084992.09  09/01/19 04:1309/01/19 01:0909/01/19 02:0709/0…
10     3715554.83  10/01/19 01:3610/01/19 00:5310/01/19 00:5310/0…
11     3180600.68  11/21/19 09:5411/17/19 10:0311/19/19 14:5611/2…
12     4588415.41  12/01/19 01:1312/01/19 04:0712/01/19 00:3712/0…

                                          Purchase Address       Sales  \
Month
1      944 Walnut St, Boston, MA 02215185 Maple St, P…  1822256.73
2      484 6th St, Dallas, TX 75001459 West St, Dalla…  2202022.42
3      942 Church St, Austin, TX 73301942 Church St, …  2807100.38
4      444 12th St, New York City, NY 10001672 2nd St…  3390670.24
5      669 2nd St, New York City, NY 10001844 Walnut …  3152606.75
6      856 Elm St, San Francisco, CA 94016877 Center …  2577802.26
7      300 9th St, San Francisco, CA 94016791 13th St…  2647775.76
8      359 Spruce St, Seattle, WA 98101492 Ridge St, …  2244467.88
9      761 Forest St, San Francisco, CA 94016373 1st …  2097560.13
10     321 Chestnut St, Austin, TX 73301132 10th St, …  3736726.88
11     46 Park St, New York City, NY 10001962 Hickory…  3199603.20
12     134 North St, San Francisco, CA 94016174 Sunse…  4613443.34

                                                    City
Month
1       Boston (MA) Portland (OR) San Francisco (CA) …
2       Dallas (TX) Dallas (TX) Los Angeles (CA) Dall…
3       Austin (TX) Austin (TX) Austin (TX) San Franc…
4       New York City (NY) Atlanta (GA) New York City…
5       New York City (NY) Dallas (TX) New York City …
6       San Francisco (CA) Dallas (TX) San Francisco …
7       San Francisco (CA) New York City (NY) San Fra…
8       Seattle (WA) Dallas (TX) Portland (OR) Los An…
9       San Francisco (CA) San Francisco (CA) Seattle…
10      Austin (TX) San Francisco (CA) San Francisco …
```

```
11      New York City (NY) Austin (TX) Los Angeles (C…
12      San Francisco (CA) Boston (MA) Seattle (WA) D…
```

[15]:
```
month=np.arange(1,13)
monthlysale=np.array(result['Sales'])
plt.bar(month,monthlysale)
plt.xlabel('Month')
plt.ylabel('Sale')
plt.title('Monthly sale analysis')
plt.show()
```



This graph shows that Sales are highest in December, likely due to both Black Friday deals and people buying gifts for Christmas.

[ ]:

[ ]:

[ ]:

2.0.2 Question 2: Which city had the highest number of sale ??

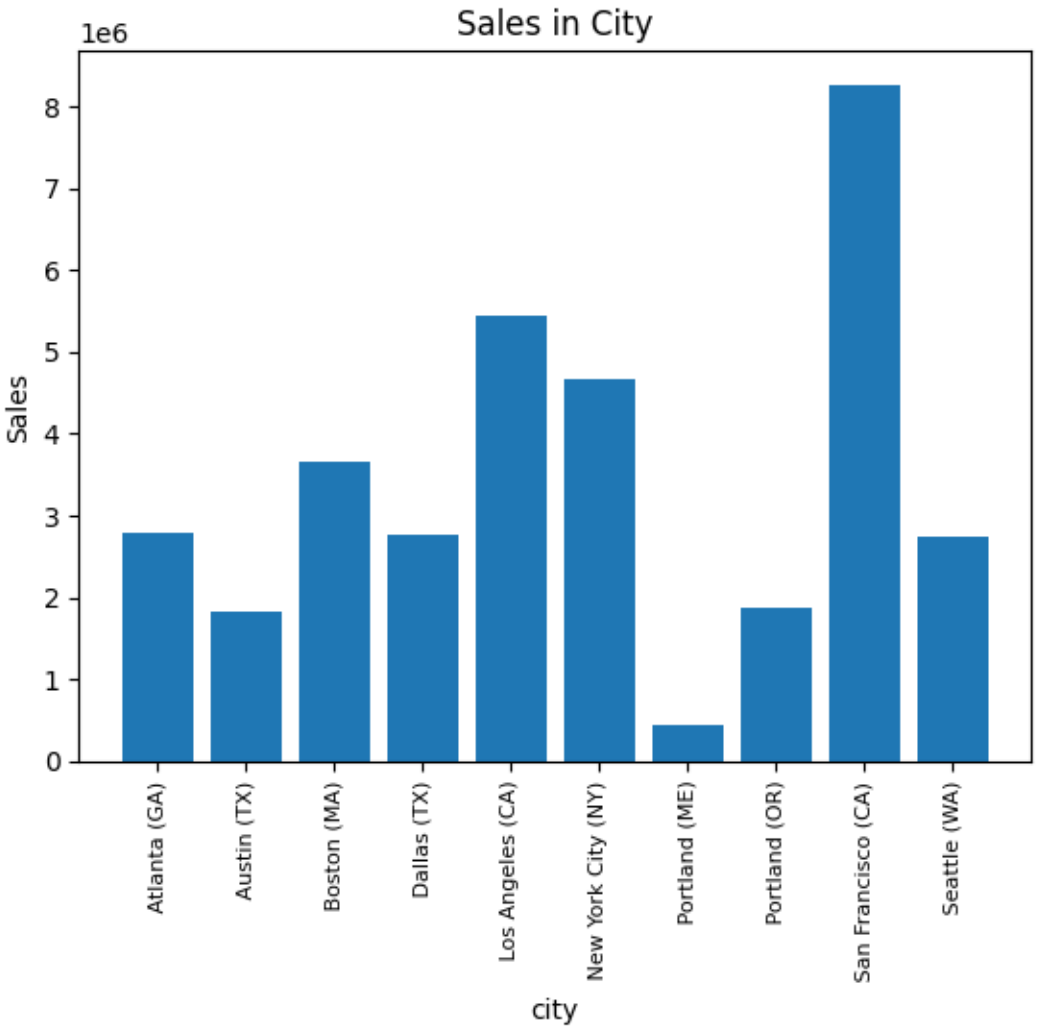
[16]:
```
result2=all_data.groupby('City').sum()
result2.head()
```

[16]:

```
                                                      Order ID  \
City
 Atlanta (GA)      278822278867278877278887278904278927278952278 9…
 Austin (TX)       278798278804278807278826278848278874278885278 9…
 Boston (MA)       278801278806278806278808278810278813278814278 8…
 Dallas (TX)       278809278821278859278869278871278892278894278 9…
 Los Angeles (CA)  278799278829278831278834278840278840278844278 8…

                                                       Product  \
City
 Atlanta (GA)      Bose SoundSport HeadphonesApple Airpods Headph…
 Austin (TX)       USB-C Charging CableBose SoundSport Headphones…
 Boston (MA)       Bose SoundSport HeadphonesBose SoundSport Head…
 Dallas (TX)       AA Batteries (4-pack)USB-C Charging Cable27in …
 Los Angeles (CA)  Apple Airpods HeadphonesiPhoneBose SoundSport …

                   Quantity Ordered  Price Each  \
City
 Atlanta (GA)                16602  2779908.20
 Austin (TX)                 11153  1809873.61
 Boston (MA)                 22528  3637409.77
 Dallas (TX)                 16730  2752627.82
 Los Angeles (CA)            33289  5421435.23

                                                     Order Date  \
City
 Atlanta (GA)      11/20/19 08:1711/13/19 11:5511/24/19 20:0811/1…
 Austin (TX)       11/17/19 10:0311/15/19 11:4811/25/19 21:5211/2…
 Boston (MA)       11/09/19 13:5611/19/19 19:1211/19/19 19:1211/2…
 Dallas (TX)       11/17/19 12:3811/25/19 16:1711/21/19 22:2911/2…
 Los Angeles (CA)  11/19/19 14:5611/20/19 22:1911/11/19 12:3711/0…

                                                  Purchase Address   Month  \
City
 Atlanta (GA)      816 Park St, Atlanta, GA 30301249 Madison St, …  104794
 Austin (TX)       962 Hickory St, Austin, TX 73301866 Sunset St,…   69829
 Boston (MA)       522 Hill St, Boston, MA 02215174 2nd St, Bosto…  141112
 Dallas (TX)       969 13th St, Dallas, TX 75001327 13th St, Dall…  104620
 Los Angeles (CA)  464 Cherry St, Los Angeles, CA 90001977 Johnso…  208325

                        Sales
City
```

```
Atlanta (GA)      2795498.58
Austin (TX)       1819581.75
Boston (MA)       3661642.01
Dallas (TX)       2767975.40
Los Angeles (CA)  5452570.80
```

[17]:
```
plt.title('Sales in City')

cities=[city for city,df in all_data.groupby('City')]
plt.bar(cities,result2['Sales'])

plt.xticks(cities,rotation='vertical',size=8)
plt.xlabel('city')
plt.ylabel('Sales')


plt.show()
```



Sales are highest in San Francisco, possibly influenced by the presence of Silicon Valley, as our data specifically focuses on electronics sales.

[ ]:

[ ]:

[ ]:

2.0.3 QUESTION 3 :What time should we display advertisements to maximize likelihood of customers buying Product

[18]:
```
all_data['Order Date']=pd.to_datetime(all_data['Order Date'])
```

```
/tmp/ipykernel_33955/2539822065.py:1: UserWarning: Could not infer format, so
each element will be parsed individually, falling back to `dateutil`. To ensure
parsing is consistent and as-expected, please specify a format.
  all_data['Order Date']=pd.to_datetime(all_data['Order Date'])
```

[19]:
```
all_data['Hour']=all_data['Order Date'].dt.hour
all_data['Minute']=all_data['Order Date'].dt.minute
all_data.head()
```

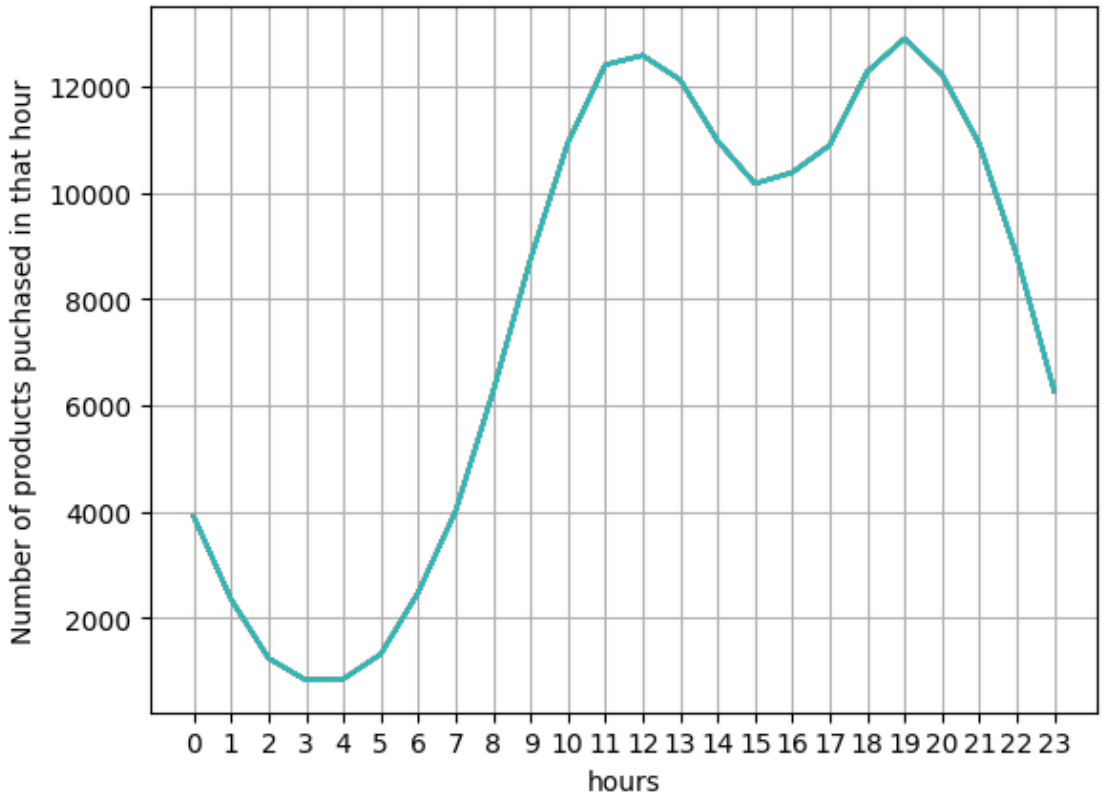
[19]:

	Order ID	Product	Quantity Ordered	Price Each	\
0	278797	Wired Headphones	1	11.99	
1	278798	USB-C Charging Cable	2	11.95	
2	278799	Apple Airpods Headphones	1	150.00	
3	278800	27in FHD Monitor	1	149.99	
4	278801	Bose SoundSport Headphones	1	99.99	

	Order Date	Purchase Address	Month	Sales	\
0	2019-11-21 09:54:00	46 Park St, New York City, NY 10001	11	11.99	
1	2019-11-17 10:03:00	962 Hickory St, Austin, TX 73301	11	23.90	
2	2019-11-19 14:56:00	464 Cherry St, Los Angeles, CA 90001	11	150.00	
3	2019-11-25 22:24:00	649 10th St, Seattle, WA 98101	11	149.99	
4	2019-11-09 13:56:00	522 Hill St, Boston, MA 02215	11	99.99	

	City	Hour	Minute
0	New York City (NY)	9	54
1	Austin (TX)	10	3
2	Los Angeles (CA)	14	56
3	Seattle (WA)	22	24
4	Boston (MA)	13	56

[20]:
```
hours=[hour for hour,df in all_data.groupby('Hour')]

plt.plot(hours,all_data.groupby('Hour').count())
plt.xticks(hours)
plt.grid()
plt.xlabel('hours')
plt.ylabel('Number of products puchased in that hour')
plt.show()
```



Maximum products are sold during 11am, 12 noon and 7pm which is valid as these are usually the peek working hours. Therefore, advertising during these times would be most effective

[ ]:

[ ]:

[ ]:

2.0.4 QUESTION 4:Maximum selling product

[21]:
```
all_data.head()
```

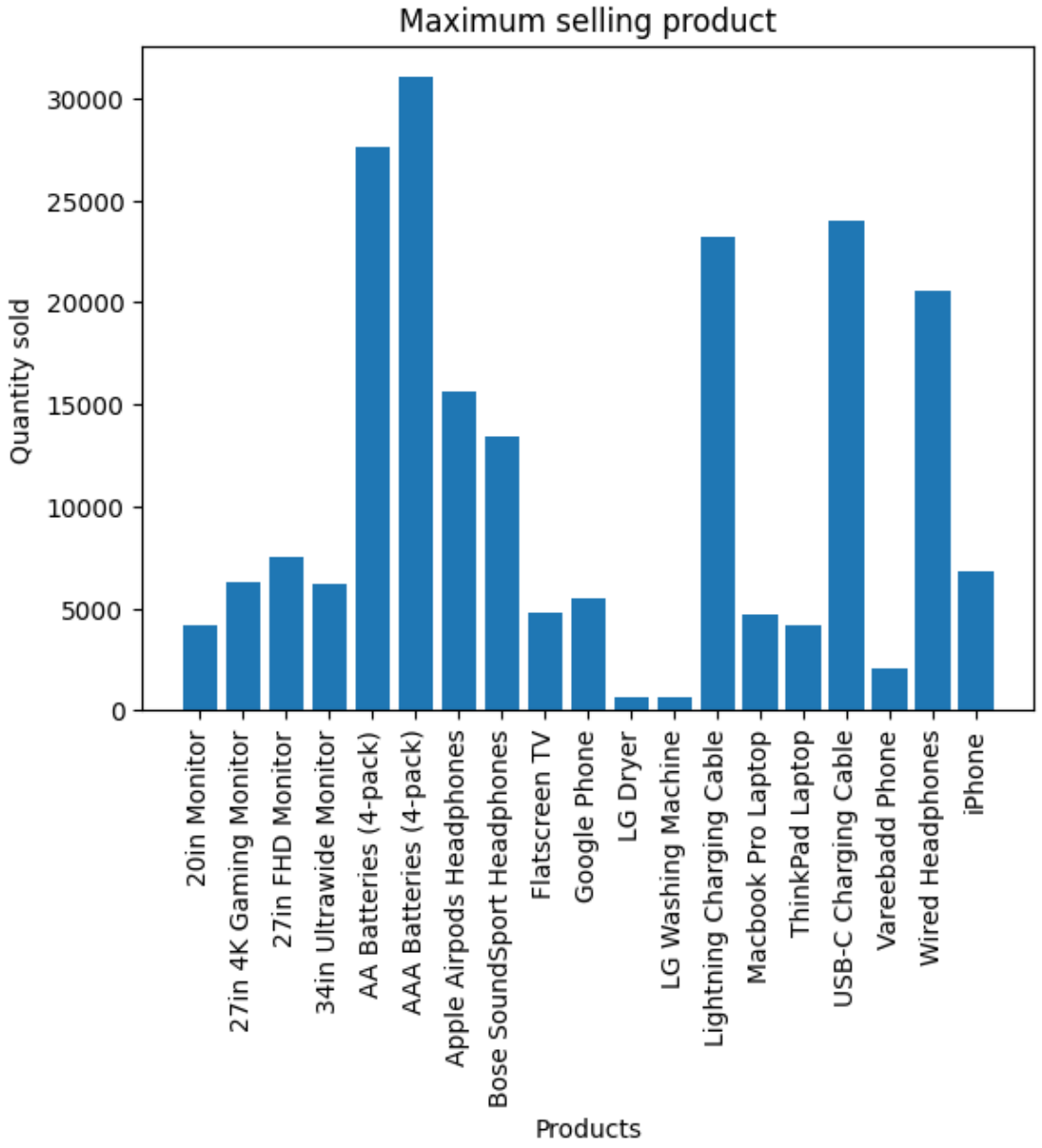
[21]:
```
  Order ID                    Product  Quantity Ordered  Price Each  \
0   278797            Wired Headphones                 1       11.99
1   278798       USB-C Charging Cable                 2       11.95
2   278799   Apple Airpods Headphones                 1      150.00
3   278800            27in FHD Monitor                 1      149.99
4   278801  Bose SoundSport Headphones                 1       99.99

           Order Date                      Purchase Address  Month   Sales  \
0 2019-11-21 09:54:00   46 Park St, New York City, NY 10001     11   11.99
1 2019-11-17 10:03:00      962 Hickory St, Austin, TX 73301     11   23.90
2 2019-11-19 14:56:00  464 Cherry St, Los Angeles, CA 90001     11  150.00
3 2019-11-25 22:24:00        649 10th St, Seattle, WA 98101     11  149.99
4 2019-11-09 13:56:00         522 Hill St, Boston, MA 02215     11   99.99

                  City  Hour  Minute
0   New York City (NY)     9      54
1          Austin (TX)    10       3
2     Los Angeles (CA)    14      56
3         Seattle (WA)    22      24
4          Boston (MA)    13      56
```

[22]:
```
quantity_total=all_data.groupby('Product')['Quantity Ordered'].sum()
quantity_total
```

[22]:
```
Product
20in Monitor                  4129
27in 4K Gaming Monitor        6244
27in FHD Monitor              7550
34in Ultrawide Monitor        6199
AA Batteries (4-pack)        27635
AAA Batteries (4-pack)       31017
Apple Airpods Headphones     15661
Bose SoundSport Headphones   13457
Flatscreen TV                 4819
Google Phone                  5532
LG Dryer                       646
LG Washing Machine             666
Lightning Charging Cable     23217
Macbook Pro Laptop            4728
ThinkPad Laptop               4130
USB-C Charging Cable         23975
Vareebadd Phone               2068
Wired Headphones             20557
```

```
iPhone                          6849
Name: Quantity Ordered, dtype: int64
```

[23]:
```
products=[product for product,df in all_data.groupby('Product')]


plt.bar(products,quantity_total)
plt.xticks(products,rotation='vertical')
plt.xlabel('Products')
plt.ylabel('Quantity sold')
plt.title('Maximum selling product')
plt.show()
```



AAA Batteries(4-pack) is the product that is sold in large quantities throughout the year. Batteries get worn out more quickly than other products and needs to be replaced.And futher they are used in many electronics devices. So people purchase them more frequently.

[ ]:

[ ]:

2.0.5 QUESTION 5: Maximum revenue earning product

[24]:
```
all_data.head()
```

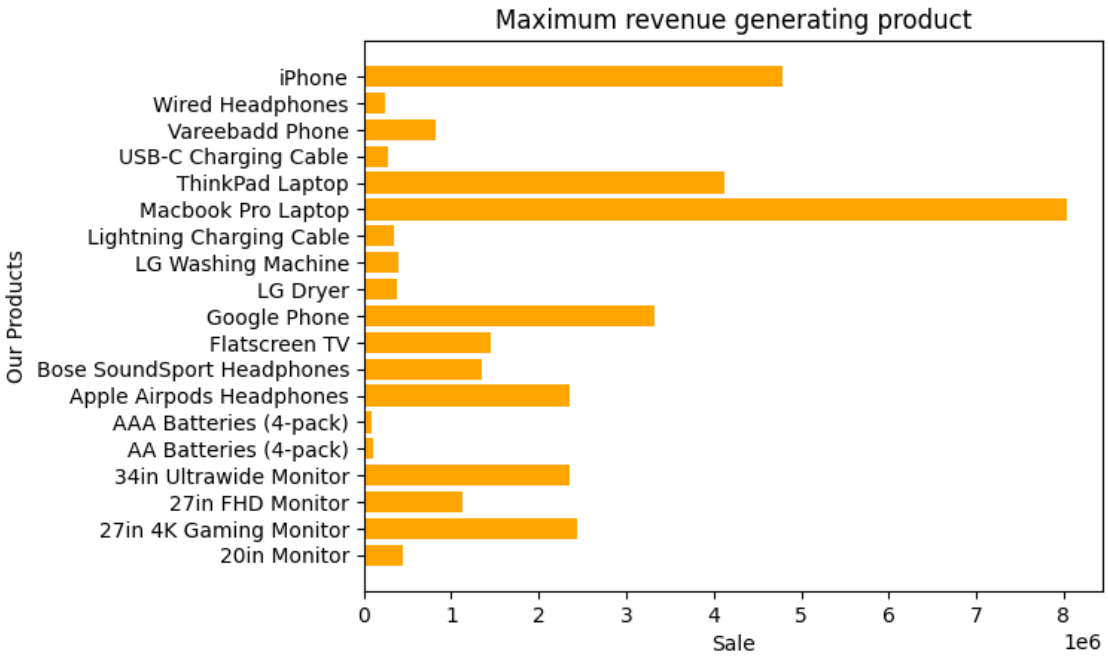
[24]:
```
  Order ID                    Product  Quantity Ordered  Price Each  \
0   278797            Wired Headphones                 1       11.99
1   278798        USB-C Charging Cable                 2       11.95
2   278799    Apple Airpods Headphones                 1      150.00
3   278800            27in FHD Monitor                 1      149.99
4   278801  Bose SoundSport Headphones                 1       99.99

           Order Date                      Purchase Address  Month   Sales  \
0 2019-11-21 09:54:00   46 Park St, New York City, NY 10001     11   11.99
1 2019-11-17 10:03:00      962 Hickory St, Austin, TX 73301     11   23.90
2 2019-11-19 14:56:00  464 Cherry St, Los Angeles, CA 90001     11  150.00
3 2019-11-25 22:24:00        649 10th St, Seattle, WA 98101     11  149.99
4 2019-11-09 13:56:00         522 Hill St, Boston, MA 02215     11   99.99

                  City  Hour  Minute
0   New York City (NY)     9      54
1          Austin (TX)    10       3
2     Los Angeles (CA)    14      56
3         Seattle (WA)    22      24
4          Boston (MA)    13      56
```

[25]:
```
maxrev = all_data.groupby('Product')['Sales'].sum()
maxrev
```

[25]:
```
Product
20in Monitor                 454148.71
27in 4K Gaming Monitor      2435097.56
27in FHD Monitor            1132424.50
34in Ultrawide Monitor      2355558.01
AA Batteries (4-pack)        106118.40
AAA Batteries (4-pack)        92740.83
Apple Airpods Headphones    2349150.00
```

```
Bose SoundSport Headphones    1345565.43
Flatscreen TV                 1445700.00
Google Phone                  3319200.00
LG Dryer                       387600.00
LG Washing Machine             399600.00
Lightning Charging Cable       347094.15
Macbook Pro Laptop            8037600.00
ThinkPad Laptop               4129958.70
USB-C Charging Cable           286501.25
Vareebadd Phone                827200.00
Wired Headphones               246478.43
iPhone                        4794300.00
Name: Sales, dtype: float64
```

[26]:
```
products=[product for product,df in all_data.groupby('Product')]

plt.barh(products,maxrev,color="orange")
plt.title('Maximum revenue generating product')
plt.xlabel('Sale')
plt.ylabel('Our Products')
plt.show()
```



MacBooks are typically expensive but serve as a lucrative source of revenue. While they may not be purchased frequently, each sale generates substantial revenue compared to batteries.

[ ]:

2.0.6 Question 6:Product Costs

[28]:
```
uniqueProd=all_data.drop_duplicates(subset='Product',keep="first")
```

[29]:
```
all_data.to_csv('filterd.csv')
```

[30]:
```
uniqueProd
```

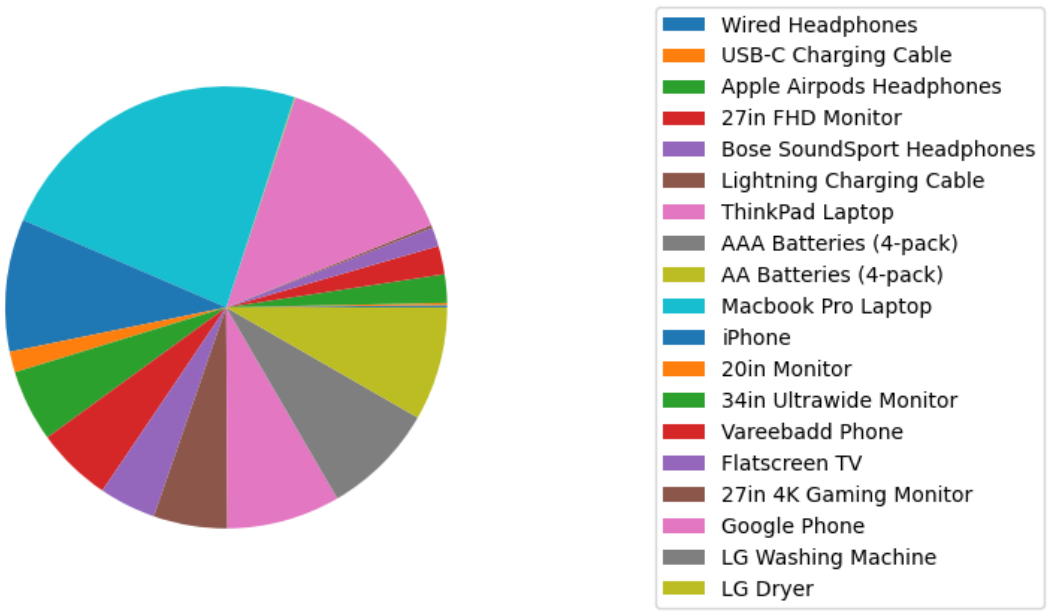
[30]:

	Order ID	Product	Quantity Ordered	Price Each	Order Date	Purchase Address	Month
0	278797	Wired Headphones	1	11.99	2019-11-21 09:54:00	46 Park St, New York City, NY 10001	11
1	278798	USB-C Charging Cable	2	11.95	2019-11-17 10:03:00	962 Hickory St, Austin, TX 73301	11
2	278799	Apple Airpods Headphones	1	150.00	2019-11-19 14:56:00	464 Cherry St, Los Angeles, CA 90001	11
3	278800	27in FHD Monitor	1	149.99	2019-11-25 22:24:00	649 10th St, Seattle, WA 98101	11
4	278801	Bose SoundSport Headphones	1	99.99	2019-11-09 13:56:00	522 Hill St, Boston, MA 02215	11
6	278803	Lightning Charging Cable	1	14.95	2019-11-11 08:05:00	724 5th St, San Francisco, CA 94016	11
10	278806	ThinkPad Laptop	1	999.99	2019-11-19 19:12:00	174 2nd St, Boston, MA 02215	11
12	278808	AAA Batteries (4-pack)	1	2.99	2019-11-23 13:19:00	155 Highland St, Boston, MA 02215	11
13	278809	AA Batteries (4-pack)	1	3.84	2019-11-17 12:38:00	969 13th St, Dallas, TX 75001	11
18	278813	Macbook Pro Laptop	1	1700.00	2019-11-09 22:40:00	131 6th St, Boston, MA 02215	11
24	278819	iPhone	1	700.00	2019-11-04 06:20:00	880 Maple St, New York City, NY 10001	11
32	278826	20in Monitor	1	109.99	2019-11-26 15:58:00	532 Cedar St, Austin, TX 73301	11
34	278828	34in Ultrawide Monitor	1	379.99	2019-11-12 20:24:00	470 13th St, San Francisco, CA 94016	11
38	278832	Vareebadd Phone	1	400.00	2019-11-10 16:10:00	783 12th St, San Francisco, CA 94016	11
45	278838	Flatscreen TV	1	300.00	2019-11-12 15:37:00	835 Main St, San Francisco, CA 94016	11
62	278854	27in 4K Gaming Monitor	1	389.99			
113	278903	Google Phone	1	600.00			
136	278926	LG Washing Machine	1	600.00			
208	278992	LG Dryer	1	600.00			

```
62  2019-11-04 00:24:00       952 Dogwood St, Portland, OR 97035     11
113 2019-11-05 17:19:00  478 Dogwood St, San Francisco, CA 94016     11
136 2019-11-21 13:11:00           772 Maple St, Boston, MA 02215     11
208 2019-11-13 19:40:00            456 West St, Boston, MA 02215     11
```

	Sales	City	Hour	Minute
0	11.99	New York City (NY)	9	54
1	23.90	Austin (TX)	10	3
2	150.00	Los Angeles (CA)	14	56
3	149.99	Seattle (WA)	22	24
4	99.99	Boston (MA)	13	56
6	14.95	San Francisco (CA)	8	5
10	999.99	Boston (MA)	19	12
12	2.99	Boston (MA)	13	19
13	3.84	Dallas (TX)	12	38
18	1700.00	Boston (MA)	22	40
24	700.00	New York City (NY)	6	20
32	109.99	Austin (TX)	15	58
34	379.99	San Francisco (CA)	20	24
38	400.00	San Francisco (CA)	16	10
45	300.00	San Francisco (CA)	15	37
62	389.99	Portland (OR)	0	24
113	600.00	San Francisco (CA)	17	19
136	600.00	Boston (MA)	13	11
208	600.00	Boston (MA)	19	40

[42]:
```
plt.pie(uniqueProd['Price Each'])
plt.legend(uniqueProd['Product'],loc="right",bbox_to_anchor=(2, 0.5))
plt.show()
```



The MacBook stands out as the most expensive product, while batteries are priced at the lower end of the spectrum.

[ ]: