Tugas LAB WEEK 2-ASYNCHRON Christopher Darren

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In [1]:
```
# Import library
import numpy as np
import pandas as pd
```

In [2]:
```
#reading data
dataSales = pd.read_excel(r'D:\SEMESTER 4\IS411 Data Modelling\LAB\Bahan Modul 2\sales_data_sample.xlsx',engine = 'openpyxl'
#engine = 'openpyxl' ditambahkan jika muncul error "Excel xlsx file; not supported"
dataSales
```

Out[2]:

	ORDERNUMBER	QUANTITYORDERED	PRICEEACH	ORDERLINENUMBER	SALES	ORDERDATE	STATUS	QTR_ID	MONTH_ID	YEAR_ID	...	ADDRE
0	10107	30	95.70	2	2871.00	2/24/2003 0:00	Shipped	1	2	2003	...	897 Lor
1	10121	34	81.35	5	2765.90	2003-07-05 00:00:00	Shipped	2	5	2003	...	
2	10134	41	94.74	2	3884.34	2003-01-07 00:00:00	Shipped	3	7	2003	...	Color
3	10145	45	83.26	6	3746.70	8/25/2003 0:00	Shipped	3	8	2003	...	7893
4	10159	49	100.00	14	5205.27	2003-10-10 00:00:00	Shipped	4	10	2003	...	7734 S
...	...	...	...	...	...	...	...	...	...	...	...	
2818	10350	20	100.00	15	2244.40	2004-02-12 00:00:00	Shipped	4	12	2004	...	C/ Mo

In [3]:
```
dataSales.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 2823 entries, 0 to 2822
Data columns (total 25 columns):
 #   Column            Non-Null Count  Dtype
```

Gambar 1. Importing and Reading Data

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```
12  PRODUCTCODE       2823 non-null   object
13  CUSTOMERNAME      2823 non-null   object
```

Visualization data dengan matplotlib

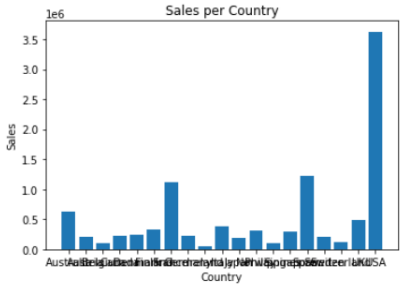
In [4]:
```
#mengambil data penjualan per tahun
SalesperYr = dataSales[['YEAR_ID','SALES']].groupby(['YEAR_ID'])['SALES'].sum().reset_index()
SalesperYr['YEAR_ID'] = SalesperYr['YEAR_ID'].astype('string')
```

In [5]:
```
import matplotlib.pyplot as plt
```

In [6]:
```
#menampilkan data penjualan per negara

SalesperCnt = dataSales[['COUNTRY','SALES']].groupby(['COUNTRY'])['SALES'].sum().reset_index()

plt.bar(SalesperCnt['COUNTRY'], SalesperCnt['SALES'])
plt.title('Sales per Country')
plt.xlabel('Country')
plt.ylabel('Sales')
plt.show()
```



Gambar 2. Visualization Data

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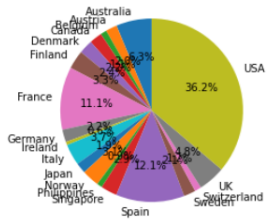
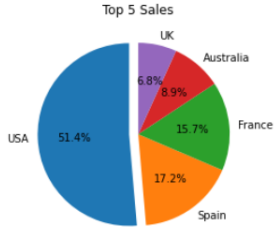
In [7]:
```
#menampilkan data dalam bentuk pie chart
plt.pie(SalesperCnt['SALES'], labels=SalesperCnt['COUNTRY'], autopct='%1.1f%%', startangle=90)
plt.show()
```



In [8]:
```
#menampilkan negara dengan top 5 sales

top5sales = SalesperCnt.nlargest(5,['SALES'])

plt.pie(top5sales['SALES'], labels=top5sales['COUNTRY'], autopct='%1.1f%%', startangle=90, explode = (0.1, 0, 0, 0, 0))
plt.title('Top 5 Sales')
plt.show()
```



Gambar 3. Visualization Pie chart 1

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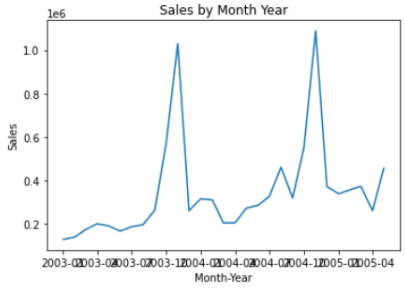
In [9]:
```
#mendapatkan data jumlah sales per bulan

dataSales['MonthYear'] = pd.to_datetime(dataSales['YEAR_ID'].astype('string')+dataSales['MONTH_ID'].astype('string'),
                                        format='%Y%m')

SalesMY = dataSales[['MonthYear','SALES']].groupby(['MonthYear'])['SALES'].sum().reset_index()
```

In [10]:
```
#menampilkan tingkat sales per bulan menggunakan line chart

plt.plot(SalesMY['MonthYear'], SalesMY['SALES'])
plt.title('Sales by Month Year')
plt.ylabel('Sales')
plt.xlabel('Month-Year')
```

Out[10]: Text(0.5, 0, 'Month-Year')



In [11]:
```
#menampilkan beberapa chart dan mengatur posisi tampilan chart

fig = plt.figure(figsize=(15,15))
```

Gambar 4. Line graph

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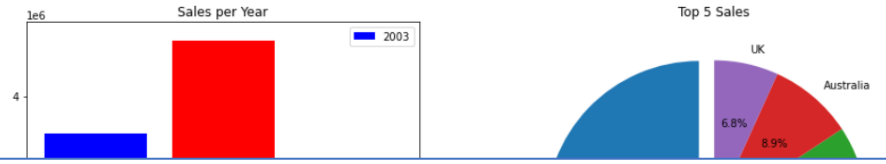
Run Markdown

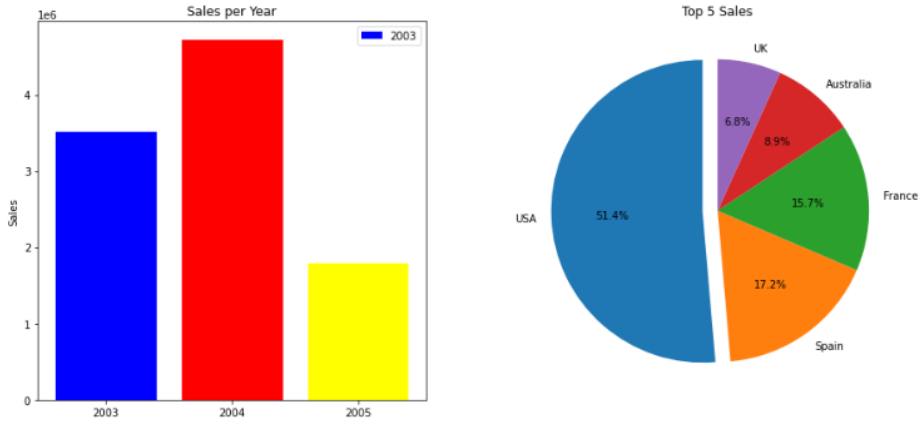
In [11]:

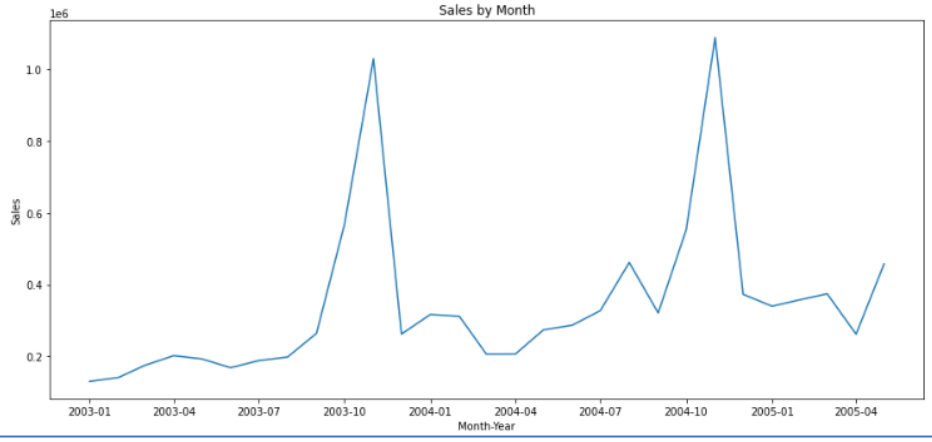
```
#menampilkan beberapa chart dan mengatur posisi tampilan chart

fig = plt.figure(figsize=(15,15))

plt.subplots_adjust(wspace= 0.25, hspace= 0.25)

#bar chart
ax1 = fig.add_subplot(2,2,1)
ax1.bar(SalesperYr['YEAR_ID'], SalesperYr['SALES'],color=('blue','red','yellow'))
ax1.set_title('Sales per Year')
ax1.set_ylabel('Sales')
ax1.legend(labels=SalesperYr['YEAR_ID'])

#pie chart
ax2 = fig.add_subplot(2,2,2)
ax2.pie(top5sales['SALES'],labels=top5sales['COUNTRY'], autopct='%1.1f%%', startangle=90, explode= (0.1, 0, 0, 0, 0))
ax2.set_title('Top 5 Sales')

#line chart
ax3 = fig.add_subplot(2,2,(3,4))
ax3.plot(SalesMY['MonthYear'], SalesMY['SALES'])
ax3.set_ylabel('Sales')
ax3.set_xlabel('Month-Year')
ax3.set_title('Sales by Month')

fig.show()
```

```
C:\Users\Darren\AppData\Local\Temp\ipykernel_4508\2565617729.py:26: UserWarning: Matplotlib is currently using module://matplot
lib_inline.backend_inline, which is a non-GUI backend, so cannot show the figure.
  fig.show()
```



lib_inline.backend_inline, which is a non-GUI backend, so cannot show the figure.
  fig.show()





Gambar 5. Graph combo

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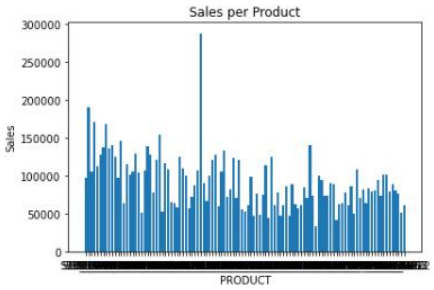
Challenge

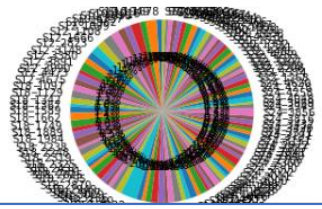
In [12]:

```
#Tampilkanlah menggunakan chart data penjualan per produk.
#Kreasikan bagaimana data ditampilkan dan gunakan chart yang menurut Anda
#paling sesuai dan mudah dipahami oleh pembaca sehingga informasi dapat tersampaikan dengan benar dan menarik.

#mengambil data penjualan per produk

SalesperProd = dataSales[['PRODUCTCODE','SALES']].groupby(['PRODUCTCODE'])['SALES'].sum().reset_index()

plt.bar(SalesperProd['PRODUCTCODE'], SalesperProd['SALES'])
plt.title('Sales per Product')
plt.xlabel('PRODUCT')
plt.ylabel('Sales')
plt.show()
```



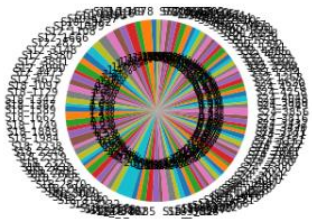
In [13]:

```
#menampilkan data dalam bentuk pie chart
plt.pie(SalesperProd['SALES'], labels=SalesperProd['PRODUCTCODE'], autopct='%1.1f%%', startangle=90)
plt.show()
```



Gambar 6. Challenge

In [13]:
```
#menampilkan data dalam bentuk pie chart
plt.pie(SalesperProd['SALES'], labels=SalesperProd['PRODUCTCODE'], autopct='%1.1f%%', startangle=90)
plt.show()
```



In [14]:
```
#menampilkan produk dengan top 10 sales

top5salesProd = SalesperProd.nlargest(10,['SALES'])

plt.pie(top5salesProd['SALES'], labels=top5salesProd['PRODUCTCODE'], autopct='%1.1f%%', startangle=90, explode = (0.1, 0, 0,
plt.title('Top 10 Sales')
plt.show()
```

In [ ]:
```

```

Gambar 7. Pie Chart