CS591 Data Analysis

December 3, 2019

0.0.1 Preliminary data analysis for CS591 Project on secondary shoe market StockX.com

by David Neary and Anton Njavro

```
In [221]: import pandas as pd
          import numpy as np
          import matplotlib.pyplot as plt
          import gc
```

```
In [228]: #Load our data
          stockx_2019_data = pd.read_csv('data/2019_data_stockx.csv')
```

```
In [229]: #Edit dates to datetime format YYY/MM/DD
          stockx_2019_data['Order Date'] = pd.to_datetime(stockx_2019_data['Order Date'])
          stockx_2019_data['Release Date'] = pd.to_datetime(stockx_2019_data['Release Date'])
          #Add column containing day difference between Release Date and Order Date
          stockx_2019_data['Date Difference'] = abs((stockx_2019_data['Release Date'] - stockx
```

```
In [230]: stockx_2019_data.head(10)
```

Out[230]:

	Order Date	Brand	Sneaker Name	Sale Price	Retail Price	Release Date	Shoe Size	Buyer Region
0	2017-09-01	Yeezy	Adidas-Yeezy-Boost-350-Low-V2-Beluga	$1,097	$220	2016-09-24	11.0	California
1	2017-09-01	Yeezy	Adidas-Yeezy-Boost-350-V2-Core-Black-Copper	$685	$220	2016-11-23	11.0	California
2	2017-09-01	Yeezy	Adidas-Yeezy-Boost-350-V2-Core-Black-Green	$690	$220	2016-11-23	11.0	California
3	2017-09-01	Yeezy	Adidas-Yeezy-Boost-350-V2-Core-Black-Red	$1,075	$220	2016-11-23	11.5	Kentucky
4	2017-09-01	Yeezy	Adidas-Yeezy-Boost-350-V2-Core-Black-Red-2017	$828	$220	2017-02-11	11.0	Rhode Island
5	2017-09-01	Yeezy	Adidas-Yeezy-Boost-350-V2-Core-Black-Red-2017					
6	2017-09-01	Yeezy	Adidas-Yeezy-Boost-350-V2-Core-Black-White					
7	2017-09-01	Yeezy	Adidas-Yeezy-Boost-350-V2-Cream-White					
8	2017-09-01	Yeezy	Adidas-Yeezy-Boost-350-V2-Cream-White					
9	2017-09-01	Yeezy	Adidas-Yeezy-Boost-350-V2-Cream-White					

```
5       $798         $220   2017-02-11        8.5      Michigan
6       $784         $220   2016-12-17       11.0    California
7       $460         $220   2017-04-29       10.0      New York
8       $465         $220   2017-04-29       11.0        Kansas
9       $465         $220   2017-04-29       11.0       Florida

   Date Difference
0              342
1              282
2              282
3              282
4              202
5              202
6              258
7              125
8              125
9              125
```

In [176]:
```
stockx_2019_data.shape
```

Out[176]:
```
(99956, 8)
```

In [234]:
```
#List of Brands
brands = stockx_2019_data.Brand.unique()
#List of dates
dates = stockx_2019_data['Order Date'].unique()
#List of sneaker names
sneaker_names = stockx_2019_data['Sneaker Name'].unique()
#Shoe sizes
shoe_sizes = sorted(stockx_2019_data['Shoe Size'].unique())
#Buyer State
buyer_state = stockx_2019_data['Buyer Region'].unique()
#Release dates
release_dates = stockx_2019_data['Release Date'].unique()
#Date difference
date_difference = sorted(stockx_2019_data['Date Difference'].unique())

our_lists = [brands,dates,sneaker_names,shoe_sizes,buyer_state,release_dates]
```

In [256]:
```
#Calculate percentages
#Percentage between Yeezy/Off-White
brand_percentage = stockx_2019_data['Brand'].value_counts(normalize=True) * 100
#Gives top 25 states, 92.8% of all sales
state_percentage = stockx_2019_data['Buyer Region'].value_counts(normalize=True)[:25]
#Shoe Size percentages
shoe_size_percentage = stockx_2019_data['Shoe Size'].value_counts(normalize=True) *
#Shoe models percentages (top 25 of shoe_models are 91% of sales)
shoe_models_percentage = stockx_2019_data['Sneaker Name'].value_counts(normalize=Tru
#Dates percentages (Top 2 dates are related to Yeezy releases)
```

```
dates_percentage = stockx_2019_data['Order Date'].value_counts(normalize=True) * 100
#Date Difference percentages (Info, 10% of all sales happen within 2 days of release
date_difference_percentage = stockx_2019_data['Date Difference'].value_counts(normali
```

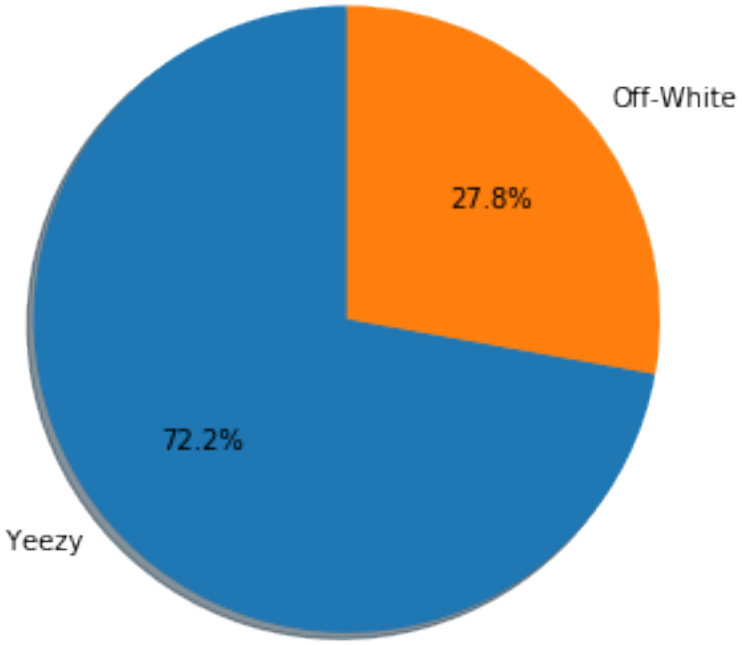
In [259]:
```
#date_difference_percentage[:10]
```

In [132]:
```
#Function to plot Pie-charts
def pie_chart(labels,sizes):
    #explode = (0, 0.1, 0, 0)
    fig1, ax1 = plt.subplots()
    ax1.pie(sizes, labels=labels, autopct='%1.1f%%',shadow=True, startangle=90)# Equ
    ax1.axis('equal')
    plt.tight_layout()
    plt.show()

#Extract labels from percentages
def extract_label_list(given_np_list):
    #Return 2 lists, 1st: [labels], 2nd: [percentages]
    #given_np_list
    label_list = []
    pct_list = []
    for i in range(len(given_np_list)):
        #print(given_np_list[i])
        label_list.append(given_np_list[given_np_list==given_np_list[i]].index[0])
        pct_list.append(given_np_list[i])
    print(label_list)
    return label_list, pct_list
```

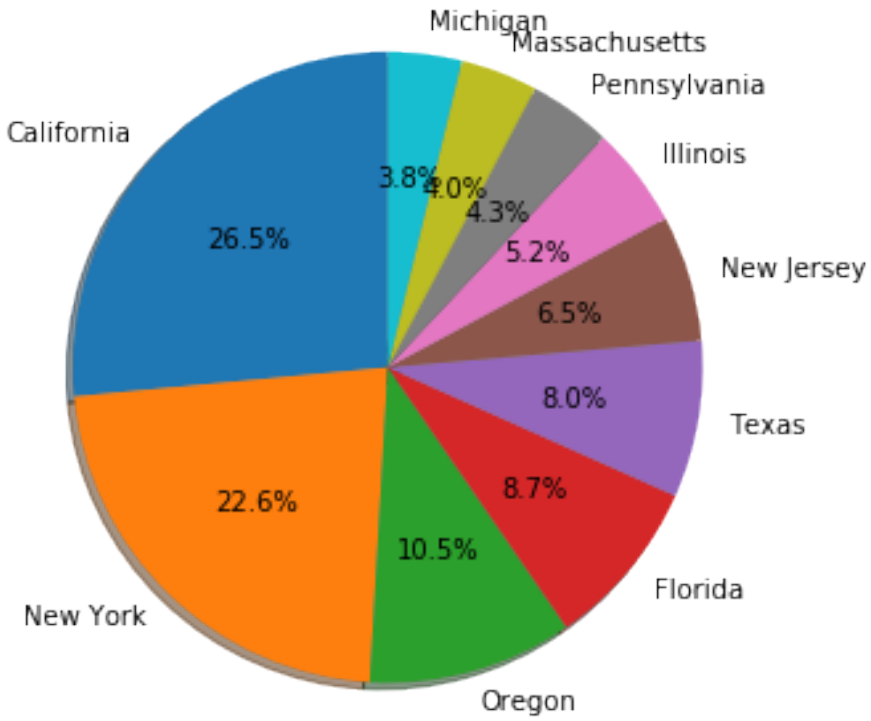
In [133]:
```
#Brands Pie-Chart
brand_label,brand_pct = extract_label_list(brand_percentage)
pie_chart(brand_label,brand_pct)
```

```
[' Yeezy', 'Off-White']
```



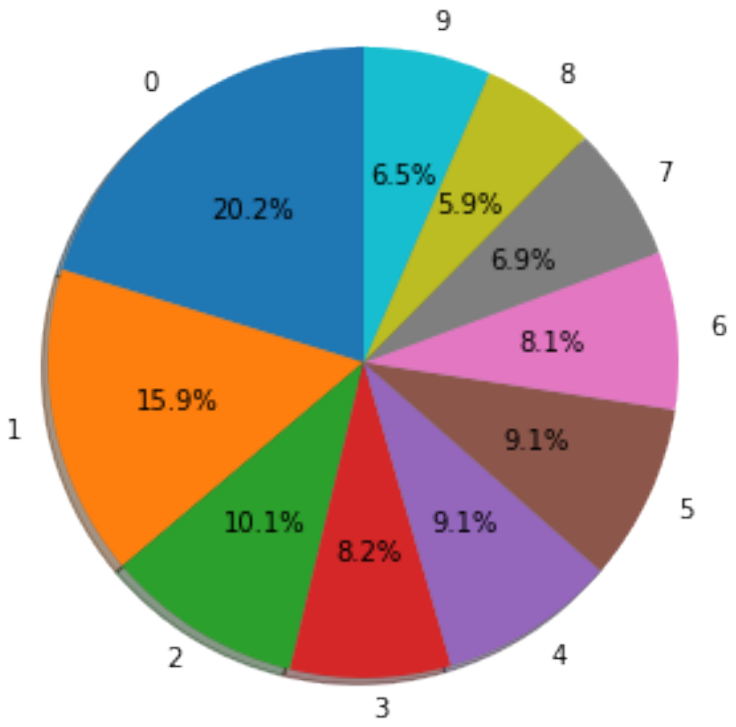

```
In [135]: #State Percentages (Only for top 10 states)
          state_label, state_pct = extract_label_list(state_percentage[:10])
          pie_chart(state_label,state_pct)
```

```
['California', 'New York', 'Oregon', 'Florida', 'Texas', 'New Jersey', 'Illinois', 'Pennsylvani
```



In [258]:
```
#Percentage of sales within release date (Only for top 10 differences)
date_difference_label, date_difference_pct = extract_label_list(date_difference_perce
pie_chart(date_difference_label,date_difference_pct)
```

```
[0, 1, 2, 3, 4, 5, 6, 7, 8, 9]
```



In [ ]: