DSC640_Exercise2_2_Asumbaraju

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1 DSC640

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3 Exercise 2.2 - tree maps, area charts, stacked area charts, and step charts

[30]:
```
# load all the necessary libraries
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import squarify
```

[31]:
```
# Load the expenditures.txt into the dataframe
expenditures = pd.read_csv('C:\BU\DSC640\ex2-2\expenditures.txt', sep = '\t',␣
↪header=0)
expenditures
```

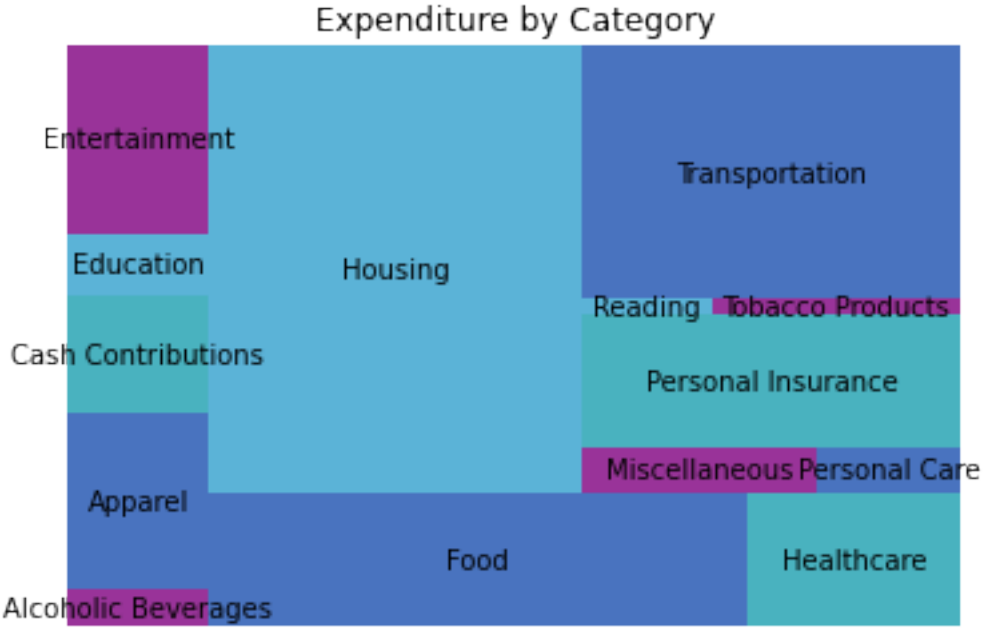
[31]:

	year	category	expenditure	sex
0	2008	Food	6443	1
1	2008	Alcoholic Beverages	444	1
2	2008	Housing	17109	1
3	2008	Apparel	1801	1
4	2008	Transportation	8604	1
..	…	…	…	…
345	1984	Education	303	1
346	1984	Tobacco Products	228	1
347	1984	Miscellaneous	451	1
348	1984	Cash Contributions	706	1
349	1984	Personal Insurance	1897	1

[350 rows x 4 columns]

4 Tree Map

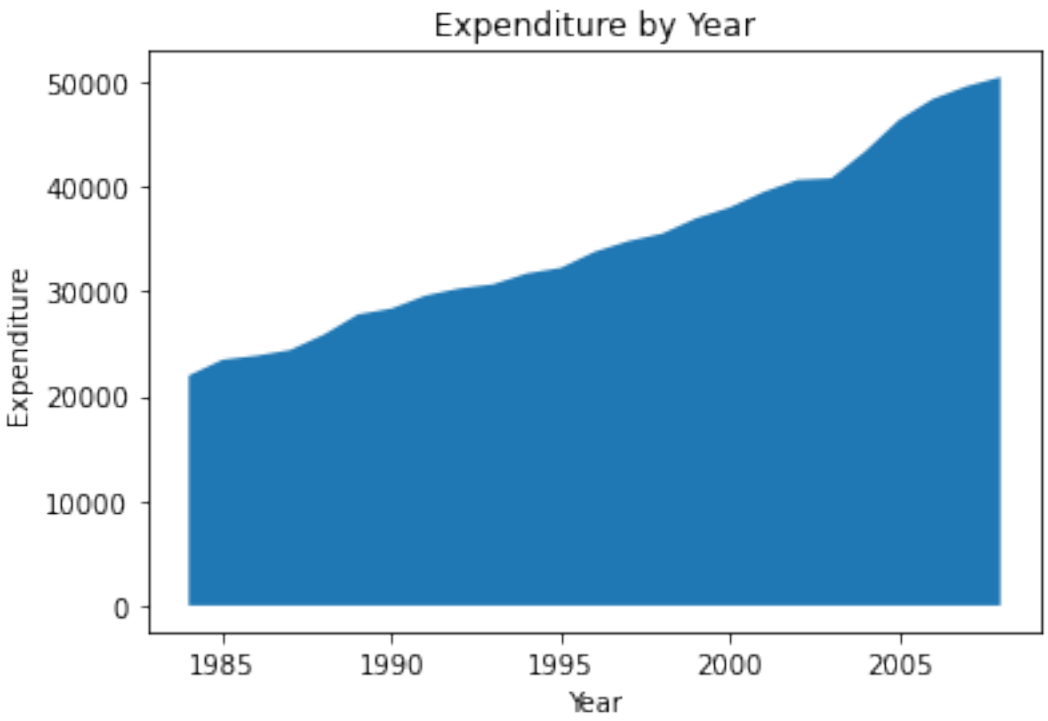
[32]:
```
# Calculate total expenditure for categories
expenditures_cat = expenditures.groupby(['category'])['expenditure'].sum().
 ↪reset_index()
color=['purple','#1C51B0','#1C9FB0','#32A0CE']
squarify.plot(sizes=expenditures_cat['expenditure'],␣
 ↪label=expenditures_cat['category'], color=color,alpha=.8 )
plt.title('Expenditure by Category')
plt.axis('off')
plt.show()
```



5 Area Chart

[37]:
```
# Calculate total expenditure by year
expenditures_year = expenditures.groupby(['year'])['expenditure'].sum().
 ↪reset_index()

# Area Chart
plt.fill_between(expenditures_year['year'], expenditures_year['expenditure'])
plt.xlabel('Year')
plt.ylabel('Expenditure')
plt.title('Expenditure by Year')
plt.show()
```



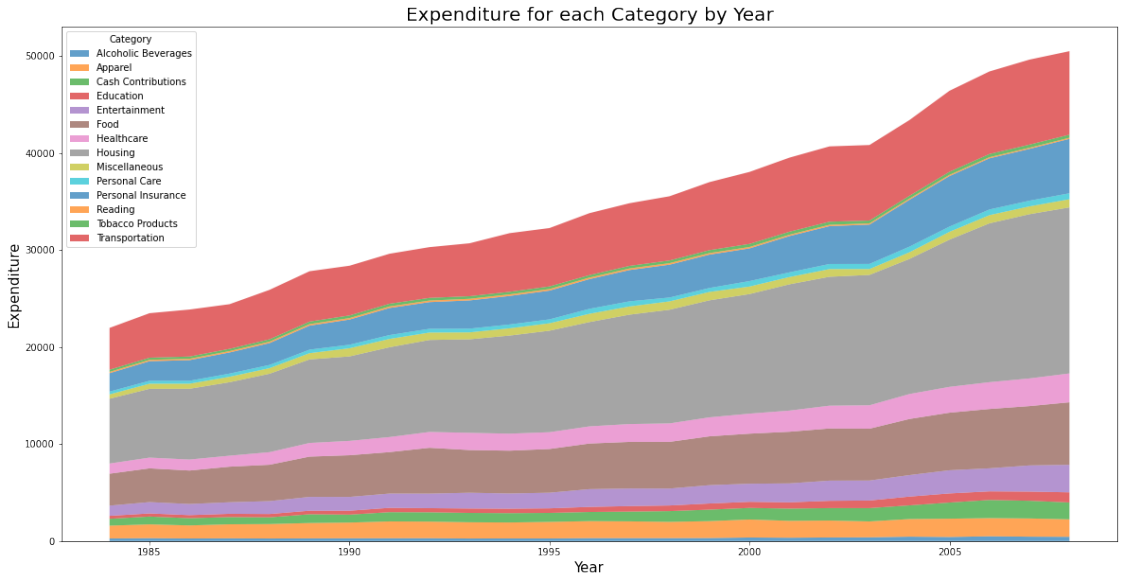
6 Stacked Area Chart

[36]:
```
# Stack the dataset based on category of expenditure
exp_by_category = expenditures.loc[:, expenditures.columns != 'sex'].
 ↪pivot(index='year', columns='category', values='expenditure')
exp_by_category .reset_index(level=0, inplace=True)
labs = exp_by_category.columns[1:].values.tolist()

#exp_by_category
plt.figure(figsize=(20,10))
plt.stackplot(exp_by_category['year'],
              exp_by_category['Alcoholic Beverages'],
              exp_by_category['Apparel'],
              exp_by_category['Cash Contributions'],
              exp_by_category['Education'],
              exp_by_category['Entertainment'],
              exp_by_category['Food'],
              exp_by_category['Healthcare'],
              exp_by_category['Housing'],
              exp_by_category['Miscellaneous'],
              exp_by_category['Personal Care'],
              exp_by_category['Personal Insurance'],
              exp_by_category['Reading'],
```

```
              exp_by_category['Tobacco Products'],
              exp_by_category['Transportation'],
              labels=labs, alpha=0.7)
plt.title('Expenditure for each Category by Year', fontsize=20)
plt.xlabel('Year', fontsize=15)
plt.ylabel('Expenditure', fontsize=15)
plt.legend(title='Category', fontsize=10, ncol=1, loc = 'upper left')
```

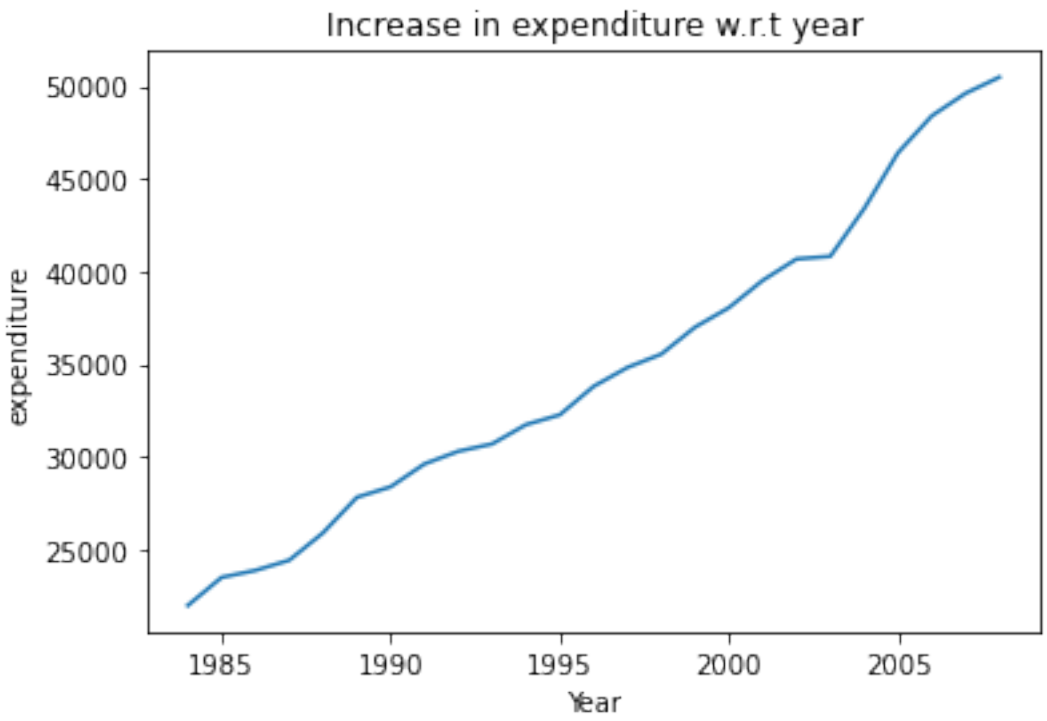
[36]: <matplotlib.legend.Legend at 0x26d09922190>



7 Line Chart

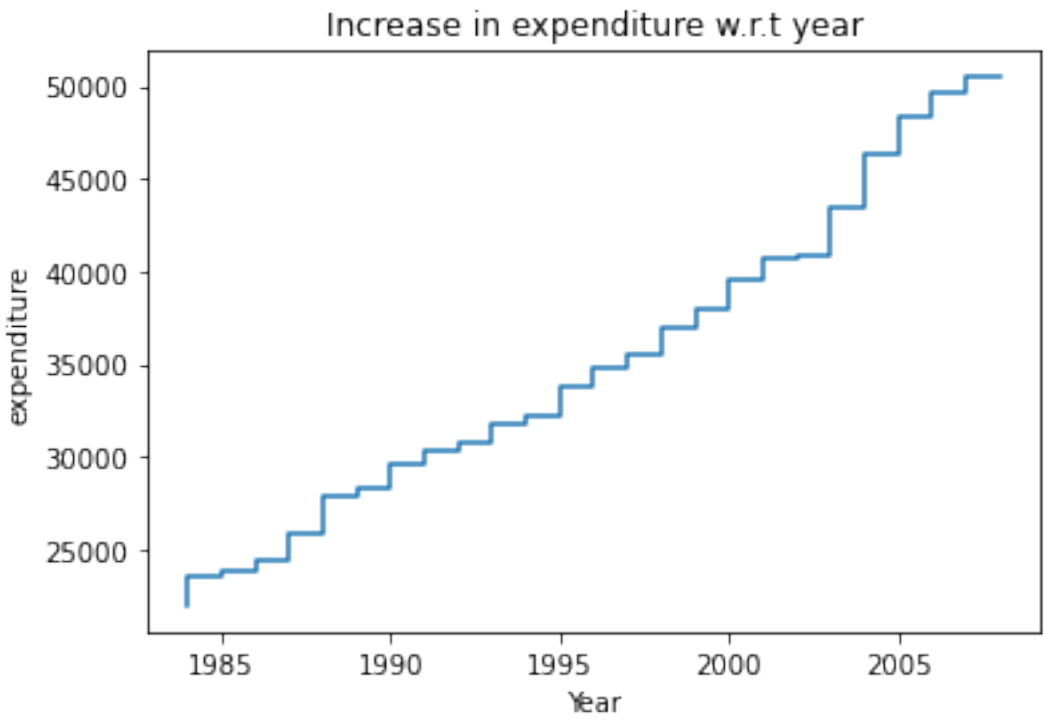
[27]:
```
# Line Chart
expenditures = pd.read_csv('C:\BU\DSC640\ex2-2\expenditures.txt', sep = '\t',␣
 ↪header=0)
expenditures.drop('category', axis=1, inplace=True)
expenditures.drop('sex', axis=1, inplace=True)

expenditures1=expenditures.groupby(['year'])['expenditure'].sum().reset_index()
plt.plot(expenditures1.year, expenditures1.expenditure)
plt.title('Increase in expenditure w.r.t year')
plt.xlabel('Year')
plt.ylabel('expenditure')
plt.show()
```



8 Step Chart

[28]:
```
# STEP Chart
plt.step(expenditures1.year, expenditures1.expenditure)
plt.title('Increase in expenditure w.r.t year')
plt.xlabel('Year')
plt.ylabel('expenditure')
plt.show()
```


Increase in expenditure w.r.t year
50000
45000
40000
35000
30000
25000
expenditure
1985
1990
1995
2000
2005
Year

[ ]: