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# -*- coding: utf-8 -*-
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"""
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Created on Sat Mar 4 12:49:11 2023
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```
importing libraries
```

```
pandas, matplotlib, seaborn
```

```
to plot graphs with our data
```

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"""
```

```
import pandas as pd # giving pandas functions to pd
```

```
import matplotlib.pyplot as plt # giving matplotlib.pyplot functions to plt
```

```
import seaborn as sns # giving seaborn functions to sns
```

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```
reading the csv file using pandas
```

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"""
```

```
data_file = pd.read_csv(r"C:\Users\karan\Desktop\assignment\data.csv.csv")
```

```
print(data_file.head()) # printing the data for our use
```

```
#converting it into date time format
```

```
data_file['Pivotable date'] = pd.to_datetime(data_file['Pivotable date'])
```

```
data_file.set_index('Pivotable date', inplace = True) # setting it as index
```

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```

storing data we are using in variables

```
"""
```

```
detached_houses = data_file['Percentage change (yearly) Detached houses']
```

```
semi_detached_houses = data_file["Percentage change (yearly) Semi-detached houses"]
```

```
terraced_houses = data_file['Percentage change (yearly) Terraced houses']
```

```
"""
```

line plot graph

```
"""
```

```
def lineplt():
```

```
    plt.figure(figsize = (10, 6)) # size of figure
```

```
    plt.plot(detached_houses.index, detached_houses, label = 'Detached houses',  
             alpha = 0.8, marker = 'o')
```

```
    plt.plot(semi_detached_houses.index, semi_detached_houses,  
             label = 'Semi-detached houses', alpha = 0.8, marker = 'v')
```

```
    plt.plot(terraced_houses.index, terraced_houses, label = 'Terraced houses',  
             alpha = 0.8, marker = '*')
```

```
    plt.grid(visible = True, color = 'black', alpha = 0.3, linestyle = '-.',  
            linewidth = 2) # for hor & vert lines
```

```
"""
```

```
plot's title, x axis label, y axis label and legend
```

```
"""
```

```
plt.title('Yearly percentage change in house prices')
```

```
plt.xlabel('Year')
```

```
plt.ylabel('Percentage change')
```

```
plt.legend()
```

```
# Show's the plot
```

```
plt.show()
```

```
"""
```

```
Pie chart graph
```

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"""
```

```
def pieplot():
```

```
    # data for pie chart to plot
```

```
    pie_data = [data_file['Average price Detached houses'].sum(),
```

```
data_file['Average price Semi-detached houses'].sum(),  
data_file['Average price Terraced houses'].sum(),  
data_file['Average price Flats and maisonettes'].sum()]
```

```
# Extracting variables to create the pie chart
```

```
labels = ['Detached', 'Semi-Detached', 'Terraced', 'Flat']
```

```
# plotting the pie chart
```

```
fig, ax = plt.subplots(figsize = (10, 10)) # size of pie chart
```

```
ax.pie(pie_data, labels = labels, autopct = '%1.1f%%', startangle = 90)
```

```
ax.axis('equal')
```

```
# title for pie chart
```

```
plt.title('Distribution of Property Types within the year of 2020-22')
```

```
plt.legend(labels, loc = "best")
```

```
# displaying the pie plot
```

```
plt.show()
```

```
"""
```

Bar plot graph

```
"""
```

```
sns.set_style("whitegrid") # background
```

```
sns.set(font_scale=1.2) # fontsize
```

```
fig, ax = plt.subplots(figsize=(26, 18)) # figure size
```

```
"""
```

```
plotting bar graph
```

```
"""
```

```
def barplot():
```

```
    sns.barplot(x="Percentage change (yearly) All property types",  
                y="Sales volume", data=data_file, ci = None )
```

```
    plt.grid(visible = True, color = 'black', alpha = 0.3, linestyle = '-.',  
            linewidth = 2) # for hor & vert lines
```

```
    plt.show()
```

```
lineplt()
```

```
pieplot()
```

```
barplot()
```