Adhish Bahl

2347203

Python Practice Lab

Question 1) Create a form using Tkinter on your Domain details. (Domain name, Student name and other details, with text boxes, radio buttons, menu and the required widgets you can use)

```python
import tkinter as tk

def submit_form():
    brand = brand_entry.get()
    model = model_entry.get()
    size = size_entry.get()
    color = color_entry.get()
    gender = gender_var.get()
    category = category_var.get()

    print(f"Brand: {brand}")
    print(f"Model: {model}")
    print(f"Size: {size}")
    print(f"Color: {color}")
    print(f"Gender: {gender}")
    print(f"Category: {category}")

root = tk.Tk()
root.geometry("400x400")
root.title("New Shoes Details")

brand_label = tk.Label(root, text="Brand:", font=("Arial", 15))
brand_label.place(x=20, y=20)
brand_entry = tk.Entry(root, font=("Arial", 15))
brand_entry.place(x=110, y = 20)

model_label = tk.Label(root, text="Model:", font=("Arial", 15))
model_label.place(x=20, y=60)
model_entry = tk.Entry(root, font=("Arial", 15))
model_entry.place(x=110, y = 60)

size_label = tk.Label(root, text="Size:", font=("Arial", 15))
size_label.place(x=20, y = 100)
size_entry = tk.Entry(root, font=("Arial", 15))
size_entry.place(x=110, y = 100)

color_label = tk.Label(root, text="Color:", font=("Arial", 15))
color_label.place(x=20, y = 140)
color_entry = tk.Entry(root, font=("Arial", 15))
color_entry.place(x=110, y = 140)
```

```python
gender_label = tk.Label(root, text="Gender:", font=("Arial", 15))
gender_label.place(x=20, y = 180)
gender_var = tk.StringVar()
male_radio = tk.Radiobutton(root, text="Male", variable=gender_var,
value="Male", font=("Arial", 15))
female_radio = tk.Radiobutton(root, text="Female",
variable=gender_var, value="Female", font=("Arial", 15))
unisex_radio = tk.Radiobutton(root, text="Unisex",
variable=gender_var, value="Unisex", font=("Arial", 15))
male_radio.place(x=110, y = 180)
female_radio.place(x=190, y = 180)
unisex_radio.place(x=270, y = 180)

category_label = tk.Label(root, text="Category:", font=("Arial", 15))
category_label.place(x=20, y = 220)
category_var = tk.StringVar()
options = ["Running", "Casual", "Athletic", "Formal"]
category_menu = tk.OptionMenu(root, category_var, *options)
category_menu.config(width=13, font=("Arial", 15))
category_menu.place(x=150, y = 220)

# Submit Button
submit_button = tk.Button(root, text="Submit", command=submit_form,
font=("Arial", 15))
submit_button.place(x=140, y=300)

root.mainloop()
```

Question 2) Visualize your dataset using Matplotlib and write a program to create line graph, bar graph, scatter plot and correlation graph or heat map.

Import Libraries

```python
import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
```

Importing Dataset

```python
df = pd.read_csv("./Nike_shoes.csv")
```

Displaying Dataset Basic Information

```
df.info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 259 entries, 0 to 258
Data columns (total 13 columns):
 #   Column          Non-Null Count  Dtype
---  ------          --------------  -----
```

```
 0   Unnamed: 0        259 non-null    int64
 1   title             259 non-null    object
 2   sub_title         259 non-null    object
 3   brand             259 non-null    object
 4   color_breif       259 non-null    object
 5   fullPrice         259 non-null    float64
 6   currentPrice      259 non-null    float64
 7   country           259 non-null    object
 8   availability      259 non-null    bool
 9   publish_date      259 non-null    object
 10  created_date      259 non-null    object
 11  discount_amount   259 non-null    float64
 12  asof_date         259 non-null    object
dtypes: bool(1), float64(3), int64(1), object(8)
memory usage: 24.7+ KB

print(df.head(10))

   Unnamed: 0                        title             sub_title  \
0           0              Nike Go FlyEase      Easy On/Off Shoes
1           1          Nike Air Force 1 '07            Men's Shoes
2           2          Nike Air Force 1 '07            Men's Shoes
3           3                Nike Dunk Low            Men's Shoes
4           4             Nike Air Max Plus            Men's Shoes
5           5  Nike Air Max Alpha Trainer 5  Men's Training Shoes
6           6             Nike Air Max Excee            Men's Shoe
7           7          Nike Air Force 1 '07           Men's shoes
8           8          Nike Dunk Low By You   Custom Men's Shoes
9           9          Nike Dunk Low By You   Custom Men's Shoes


         brand                                         color_breif
\
0  Nike Sportswear                                      Black/White

1  Nike Sportswear                                      White/White

2  Nike Sportswear                                White/White/Wolf Grey

3  Nike Sportswear  Midnight Navy/Summit White/White/Light Smoke Grey

4  Nike Sportswear                                 Black/Black/Black

5            Nike                                  Black/Black/White

6  Nike Sportswear                            Black/Dark Grey/Black

7  Nike Sportswear                        White/Picante Red/Wolf Grey

8  Nike Sportswear                          Multi-Colour/Multi-Colour

9  Nike Sportswear                          Multi-Colour/Multi-Colour
```

```
    fullPrice  currentPrice country  availability
publish_date  \
0     114.95        114.95      GB          True   2022-09-
13T08:44:00.000Z
1     109.95        109.95      GB          True   2020-07-
20T22:00:00.000Z
2     109.95        109.95      GB          True   2022-12-
16T08:00:00.000Z
3     109.95        109.95      GB          True   2023-01-
30T15:26:00.000Z
4     169.95        169.95      GB          True   2012-06-
30T22:00:00.000Z
5      72.95         51.47      GB          True   2022-06-
29T12:48:00.000Z
6     109.95         54.97      GB          True   2022-11-
01T08:00:00.000Z
7     114.95        114.95      GB          True   2023-01-
03T08:00:00.000Z
8     114.95        114.95      GB          True   2022-03-
01T17:00:00.000Z
9     114.95        114.95      GB          True   2022-03-
01T17:00:00.000Z

                created_date  discount_amount   asof_date
0  2023-04-13T15:10:39.580Z             0.00  2023-04-16
1  2023-04-06T05:41:20.507Z             0.00  2023-04-16
2  2023-04-15T07:31:47.750Z             0.00  2023-04-16
3  2023-04-06T06:56:18.880Z             0.00  2023-04-16
4  2023-04-11T21:39:18.716Z             0.00  2023-04-16
5  2023-04-15T08:05:45.473Z            21.48  2023-04-16
6  2023-04-13T18:24:45.316Z            54.98  2023-04-16
7  2023-04-13T11:22:19.952Z             0.00  2023-04-16
8  2023-04-12T22:38:03.863Z             0.00  2023-04-16
9  2023-04-12T22:38:04.012Z             0.00  2023-04-16
```
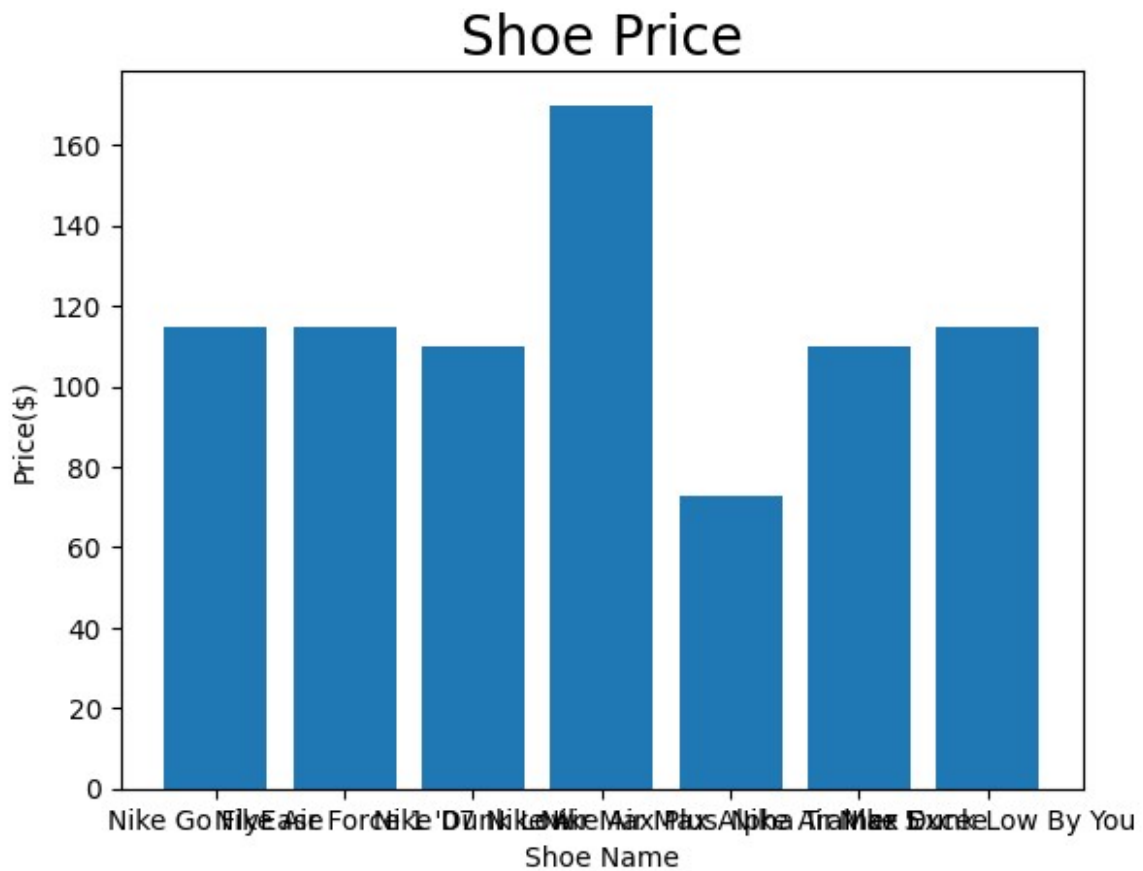
Line Graph

```python
df2 = df.head(10)
plt.plot(df2["title"], df2["fullPrice"])
plt.xlabel('Shoe Name')
plt.ylabel('Price($)')
plt.title('Shoe Price', fontsize = 20)
plt.show()
```
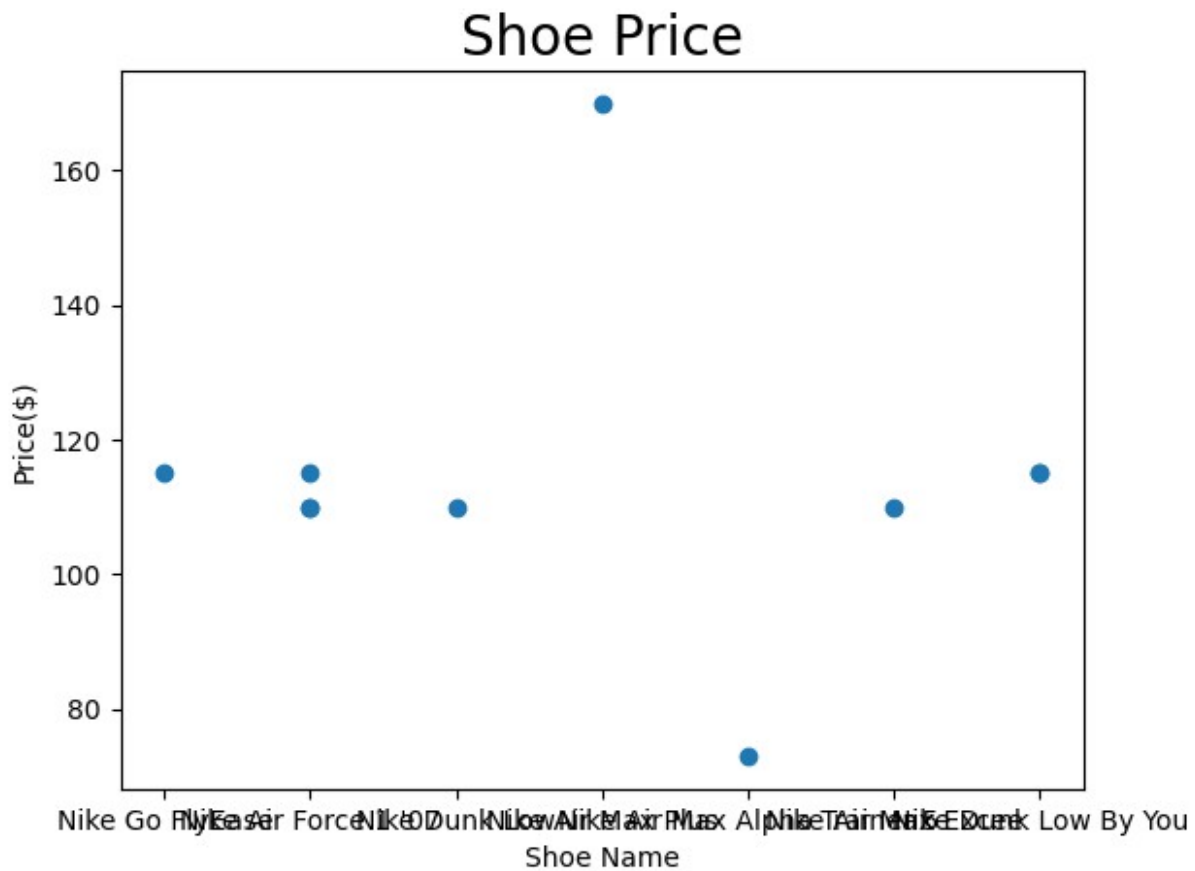
Shoe Price

Bar Graph

```
plt.bar(df2["title"], df2["fullPrice"])
plt.xlabel('Shoe Name')
plt.ylabel('Price($)')
plt.title('Shoe Price', fontsize = 20)
plt.show()
```

Shoe Price

Scatter plot

```
plt.scatter(df2["title"], df2["fullPrice"])
plt.xlabel('Shoe Name')
plt.ylabel('Price($)')
plt.title('Shoe Price', fontsize = 20)
plt.show()
```

Shoe Price

Correlation between Current Price and Full Price

```python
plt.title('Correlation')

x = df["currentPrice"]
y = df["fullPrice"]

plt.scatter(x,y)

plt.plot(np.unique(x),
         np.poly1d(np.polyfit(x, y, 1))
         (np.unique(x)), color='red')

# Labelling axes
plt.xlabel('x axis')
plt.ylabel('y axis')

Text(0, 0.5, 'y axis')
```

Correlation