Young Programmer Challenge - Data Visualization with Python

Date: _____

Name: _____

Group name: _____

Programming

- Programming is the process of creating a set of instructions
- Instructions to tell a computer how to perform a task in steps
- Programming can be done using a variety of computer languages

Tools we use

- Python compiler: https://www.w3schools.com/python/trypython.asp?filename=demo_compiler

  Or https://www.w3schools.com/ -> Python -> Try it yourself
- If you are interested in keeping on learning Python, here are more free online tutorials: https://www.w3schools.com/python/

Project 1 Function & Parameters

- **Example 1.1 function putAIF**

```
def putAIF(animal):
        print("How do you put an %s into a fridge?" %animal)
        print("- open the fridge")
        print("- put in the %s" %animal)
        print("- and close the door")

putAIF("Dino")
```

- **Example 1.2 function myHello**

```
def myHello(myName):
        print("Hello, my name is %s!" %(myName))

myHello("Batman")
```

Project 2 data visualization

- https://www.w3schools.com/python/pandas/trypandas.asp?filename=demo_pandas_plot

  Or https://www.w3schools.com/ -> Python -> Pandas -> Plotting -> Try it yourself

Pandas is a Python library that is used to analyze data.

Matplotlib is another Python library that is used for graph plotting as a visualization utility.

```
#Three lines to make our compiler able to draw:
import sys
import matplotlib
matplotlib.use('Agg')


import pandas as pd
import matplotlib.pyplot as plt


df = pd.read_csv('data.csv')
df = df.dropna() #drop the NA values
df.plot(kind = 'scatter', x = 'Duration', y = 'Calories', c='Pulse', colormap='cool', s=df['Maxpulse'])
plt.show()


#Two  lines to make our compiler able to draw:
plt.savefig(sys.stdout.buffer)
sys.stdout.flush()
```

Scatter plots traditionally show your data up to 4 dimensions – X-axis, Y-axis, Size, and Color. Of course, you can do more (transparency, movement, textures, etc.) but be careful you aren't overloading your chart.

Contacts:

If you have any questions, please don't hesitate to reach out:

Shen, Bingxin Bingxin.Shen@bms.com

Narayan, Nitya Nitya.Narayan@bms.com

Liu, William William.Liu@bms.com

All the teaching materials can be found on GitHub https://github.com/BingxinS