

PYTHON FOR DATA SCIENCE

TEST #1 (UNITS 1- 7)

PART TWO (CODING)

1. You can add code cells as you see fit.
2. When you complete this portion of the test, upload your completed version to Google Classroom as both a Jupyter Notebook .ipynb file and as a PDF.

```
In [14]: # set up notebook to display multiple output in one cell

from IPython.core.interactiveshell import InteractiveShell
InteractiveShell.ast_node_interactivity = "all"
```

Question #1: Tom had to take 3 tests during his second-term AP Statistics class. His scores on those tests were 94 out of 100, 68 out of 75, and 46 out of 50.

Write the proper code to do the following:

- a. Create two variables -- one called **points_earned** and the other called **points_possible** and assign the points that Tom earned on the first test to the variable **points_earned** and assign the points possible on the first test to the variable **points_possible**.
- b. Update the two variables after each test.
- c. After the final test, display Tom's overall percent on the 3 tests to the nearest tenths place in an output statement that says ... "Tom's overall average on the 3 AP Statistics tests was a ___ %." In the blank include Tom's overall percent that you calculated.

```
In [6]: points_earned = 94
points_possible = 100
points_earned += 68
points_possible += 75
points_earned += 46
points_possible += 50
```

```
percentage = (points_earned/points_possible)*100
print("Tom's overall average on the 3 AP Statistics tests was a %.1f"%(percentage))
```

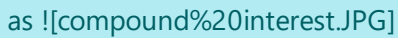
Tom's overall average on the 3 AP Statistics tests was a 92.4

Question #2: Write the proper code to accomplish the following steps:

- Assign the string "Early to bed and early to rise makes a person healthy, wealthy, and wise." to a variable named **words_of_wisdom**.
- Display the variable **words_of_wisdom**.
- Display the type of the variable **words_of_wisdom**.
- Display the number of characters in the string variable **words_of_wisdom**.

```
In [8]: words_of_wisdom = "Early to bed and early to rise makes a person healthy, wealthy, and
print(words_of_wisdom)
print(type(words_of_wisdom))
print(len(words_of_wisdom))
```

```
Early to bed and early to rise makes a person healthy, wealthy, and wise.
<class 'str'>
73
```

Question #3: The formula for computing the final amount if one is earning compound interest is given on Wikipedia as  (attachment:compound%20interest.JPG)

- Write a Python program that assigns the principal amount of 5000 to variable P, assigns to n the value 52, and assigns to r the interest rate of 6.5% (0.065). Then have the program prompt the user for the number of years, t, that the money will be compounded for. b. Calculate and print the final amount accurate to the nearest cent if the user answers that the number of years is t = 14.

```
In [15]: P = 5000
n = 52
r = 0.065
t = int(input("Please enter the number of years: "))
A = P * ((1 + (r/n))**(n*t))
print("The final amount in 14 years is: $%.2f"%(A))
```

```
Please enter the number of years: 14
The final amount in 14 years is: $12414.56
```

Question #4: Instructions

- Create the variables **number**, **league**, **sport**, and **shooting_percent** and then assign the given values to those variables.
- Use %-Formatting along with the conversion types d, s, and f to print out the statement found below.

20 NBA basketball players have shooting percentages higher than 0.565.

Note: Use the s conversion type in conjunction with NBA and basketball.

```
In [13]: number = 20
league = "NBA"
sport = "basketball"
shooting_percent = 0.565

print("%d %s %s players have shooting percentages higher than %.3f"%(number, league, s
20 NBA basketball players have shooting percentages higher than 0.565
```

Question #5: Step #1: Write code that asks the user for their name, their age, their nationality, and how many seconds it took for them to run the marathon.

Step #2: Write a formatted print statement to print the user's name, age, nation and their time in the marathon in hours, minutes, and seconds.

Note: You will need to convert their time in seconds to their time in hours, minutes, and seconds.

Your output should be similar in form to the example illustrated below:

John Smith is a 42-year old runner from Canada. He ran the marathon in 2 hours 25 minutes 18 seconds.

```
In [13]: name = input("What is your name: ")
age = input("What is your age: ")
nationality = input("What is your nationality: ")
seconds = int(input("How many seconds did it take you to run the marathon: "))
hours = seconds // 3600
minutes = (seconds // 360) + 1
final_seconds = seconds - ((hours * 3600) + (minutes * 60))
print(f"{name} is a {age}-year-old runner from {nationality}. He ran the marathon in {
```

What is your name: John Smith

What is your age: 42

What is your nationality: Canada

How many seconds did it take you to run the marathon: 8718

John Smith is a 42-year-old runner from Canada. He ran the marathon in 2 hours 25 minutes 18 seconds.

Question #6: a. Create a variable called hour and assign the value 6 to that variable. Create a second variable called minute and assign the value 24 to that variable. Create a third variable called seconds and assign the value 19 to that variable. Then use the sep= parameter to write code that prints out the time 6:24:19.

b. Do the same question as Part(a), but also use the end= parameter to write code that prints out the time 6:24:19 PM.

c. Create three variables month, day, and year. Assign values to those variables that correspond to today's date (September 30, 2022). Then use the sep= parameter to write code that takes today's date and prints it out in the format 09-30-2022.

d. Create a variable user_name and assign a value of rodgersa to that variable. Create a second variable organization and assign a value of greenbaypackers.org to that variable. Then use the sep= parameter to write code that incorporates the two variable that you created to print out the following email address: rodgersa@greenbay packers.org

```
In [6]: hour = "6"
second = "24"
seconds = "19"
print(hour, second, seconds, sep = ":")

month = "September"
day = "30"
year = "2022"
print(month, day, year, sep="-")

user_name = "rodgersa"
organization = "greenbaypackers.org"
print(user_name, organization, sep="@")
```

6:24:19

September-30-2022

rodgersa@greenbaypackers.org