SCHOOL OF COMPUTING

Programming for Data Science
Practical 1 Submission Worksheet (Graded as part of CA3)

Instructions:
1. Complete, print and submit this worksheet to your lecturer.

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Course/Module Class	EP0302

Section 2 Tasks

Task 2-3: Average of electricity bills

Copy and paste the Python code that you have written for this task in this area

```
# 2-3 answer
print("*"*60 + "\nCalculate the average electricity bill for the last 6 months\n" + "*"*60)
totalSum = 0
totalCount = 0
totalString = ""
for i in range(1,7):
    total = (float(input(f"Enter bill #{i}: ")))
    totalSum += total
    totalCount = i
    totalString += str(f"${total:.2f}, ")

print(f"\nYour electricity bill for the past 6 months are :\n{totalString[0:len(totalString)-2]}\n")
print(f"Your average electricity bill is ${(totalSum/totalCount):.2f}")
```

Paste a screenshot of the output of your program here

```
************************************************************
Calculate the average electricity bill for the last 6 months
************************************************************
Enter bill #1: 156.79
Enter bill #2: 138.67
Enter bill #3: 120.34
Enter bill #4: 179.33
Enter bill #5: 162.10
Enter bill #6: 142.89

Your electricity bill for the past 6 months are :
$156.79, $138.67, $120.34, $179.33, $162.10, $142.89

Your average electricity bill is $150.02
```

Section 5 Tasks

Task 5-2: Perform simple string operations

Copy and paste the Python code that you have written for this task in this area

```
# 5-2 answer
stringValue = input("Enter 3 random strings, separated by commas: ")

[s1, s2 ,s3] = stringValue.split(",")

print(f"\ns1 is {s1}")
print(f"Length of {s1} is {len(s1)}")
print(f"2nd and 3rd characters of {s1} is {s1[1:3]}")

print(f"\ns2 is {s2}")
print(f"Length of {s2} is {len(s2)}")
print(f"5th and 7th characters of {s2} is {s2[4:7]}")

print(f"\ns3 is {s3}")
print(f"Length of {s3} is {len(s3)}")
print(f"Last two characters of {s3} is {s3[len(s3)-2:len(s3)]}")
```

Paste a screenshot of the output of your program here

```
Enter 3 random strings, separated by commas: When Breath Becomes Air,The 91-Storey Treehouse,Harry Potter and the Prisoner of A
zkaban

s1 is When Breath Becomes Air
Length of When Breath Becomes Air is 23
2nd and 3rd characters of When Breath Becomes Air is he

s2 is The 91-Storey Treehouse
Length of The 91-Storey Treehouse is 23
5th and 7th characters of The 91-Storey Treehouse is 91-

s3 is Harry Potter and the Prisoner of Azkaban
Length of Harry Potter and the Prisoner of Azkaban is 40
Last two characters of Harry Potter and the Prisoner of Azkaban is an
```

Section 6 Tasks

Task 6-2: Spdonalds

Copy and paste the Python code that you have written for this task in this area

```
# 6-2 answers
menu = {1: ('SPMuffin', 5.00), 2: ('SPanCakes', 3.00), 3: ('SPHashbrown', 1.50)}

print("Welcome to SPdonalds!\nBelow is our Breakfast menu:\n" + "1.SPMuffin ($5.00)
2.SPancakes ($3.00) 3.SPHashbrown ($1.50)")
userInput = input("Enter your choice food:")

if(userInput.isnumeric()):
    userIntInput = int(userInput)
    if(userIntInput in menu):
        print(f'{menu.get(userIntInput)[0]} ${menu.get(userIntInput)[1]:.2f} added!')
        numberOfOrders = int(input(f"How many {menu.get(userIntInput)[0]} do you want to order?
"))
        print(f'The total cost for {menu.get(userIntInput)[0]} is ${numberOfOrders *
menu.get(userIntInput)[1]:.2f}')
    else:
        print("Sorry, you have entered an invalid choice. Exiting program...")
else:
    print("Please key in an actual number!")

    #object that has a method to return the next member, internally has a counter. next time it just +1
so the next function will
    #return the val
```

Paste a screenshot of the output of your program here

```
Welcome to SPdonalds!
Below is our Breakfast menu:
1.SPMuffin ($5.00) 2.SPancakes ($3.00) 3.SPHashbrown ($1.50)
Enter your choice food:1
SPMuffin $5.00 added!
How many SPMuffin do you want to order? 2
The total cost for SPMuffin is $10.00
```

Section 7 Tasks

Task 7-2: Calculate sum of numbers within a range

Copy and paste the Python code that you have written for this task in this area

```
# 7-2 answers
print(f'This program prints the sum of a range of numbers from x to y\nFor example,if x is 10 and y
is 50, the program will print the sum of numbers from 10 to 50')
x = input("Please enter the value of x: ")
y = input("Please enter the value of y: ")

if x.strip('-').isnumeric() and y.strip('-').isnumeric():
```

```
    x = int(x)
    y = int(y)
    if (x == 0 or y == 0):
        print("One or more of your inputs are not greater than zero!\nUnable to continue. Program
terminated.")
    elif(x > y):
        print("You did not enter a value of y that is greater than x\nUnable to continue. Program
terminated.")
    else:
        sum_of_numbers = 0
        for i in range (x, y + 1):
            sum_of_numbers += i
        print(f"The sum of numbers between {x} and {y} is {sum_of_numbers}")
else:
    print("One or more of your inputs are not numeric!\nUnable to continue. Program terminated.")
```

Paste a screenshot of the output of your program here

```
This program prints the sum of a range of numbers from x to y
For example,if x is 10 and y is 50, the program will print the sum of numbers from 10 to 50
Please enter the value of x: 50
Please enter the value of y: 100
The sum of numbers between 50 and 100 is 3825
```

Section 9 Python Lists

Task 9-3: List Slicing

Copy and paste the Python code that you have written for this task in this area

```
#9-3: answers
list_1 = [300, 50, 80, 90, 199, 800, 74, 33]
list_2 = ['Apple', 'Banana', 'Durian', 'Grapes', 'Papaya', 'Watermelon']
list_3 = [0.0, 1.1, 2.2, 3.3, 4.4, 5.5, 6.6, 7.7, 8.8, 9.9]

print(f'{list_1[len(list_1)-3:len(list_1)]}')
print(f'{list_2[len(list_2)-2:len(list_2)]}')
print(f'{list_3[1:len(list_3)-1]}')
```

Paste a screenshot of the output of your program here

```
[800, 74, 33]
['Papaya', 'Watermelon']
[1.1, 2.2, 3.3, 4.4, 5.5, 6.6, 7.7, 8.8]
```

Section 10 Tasks

Task 10-2: Odd and Even

Copy and paste the Python code that you have written for this task in this area

```
#10-2: Odd and Even (SUBMISSION REQUIRED)
import random

original_list = [random.randint(1,100) for x in range(0,20)]
even_numbers =[]
odd_numbers=[]

def oddandeven(numbers_list):
    for number in original_list:
        if(number % 2 == 0):
            even_numbers.append(number)
        else:
            odd_numbers.append(number)

    print(f'Original List: {original_list}')
    print(f'Odd: {even_numbers}')
    print(f'Even: {odd_numbers}')

oddandeven(original_list)
```

Paste a screenshot of the output of your program here

```
Original List: [5, 6, 24, 12, 85, 52, 95, 32, 66, 41, 9, 93, 85, 97, 26, 31, 26, 58, 79, 33]
Odd: [6, 24, 12, 52, 32, 66, 26, 26, 58]
Even: [5, 85, 95, 41, 9, 93, 85, 97, 31, 79, 33]
```