Lab #3

COMP 120-401

Week 13

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Week 5: Introduction to Python

HelloWorld.py

Code:

```
print("Hello, World!")
```

Screenshot:

```
(base) yaatuadem@Yaatus-MacBook-Pro Week 5 % /Users/yaatuadem/op
t/anaconda3/bin/python "/Users/yaatuadem/Desktop/COMP 120/Lab 3/
Week 5/HelloWorld.py"
Hello, World!
```

Week 6: Strings and List

Exercise 1

1. Create 3 favorite things about you using mulitline string

```
favouriteThings = '''food
friends
family'''
print(favouriteThings)
```

Screenshot:

```
(base) yaatuadem@Yaatus-MacBook-Pro Week 6 % /usr/bin/python3 "/Users/
yaatuadem/Desktop/COMP 120/Lab 3/Week 6/exercise1.1.py"
food
friends
family
```

2. Using variables in string print - student full details . (firstname,lastname, address)

```
first_name = "Yaatu"
last_name = "Adem"
address = "Toronto, ON"
full_detail = f"{first_name} {last_name} {address}"
print(full_detail)
```

Screenshot:

```
(base) yaatuadem@Yaatus-MacBook-Pro Week 6 % /usr/bin/python3 "/Users/
yaatuadem/Desktop/COMP 120/Lab 3/Week 6/exercise1.2.py"
Yaatu Adem Toronto, ON
```

Exercise 2:

Create a list of agile software. Insert the values, delete one item from the list. Use slicing and display the list of software.

```python
agile_software = ['Jira', 'Azure DevOps', 'GitLab']
del agile_software[1]
print(agile_software[1:])
print(agile_software[:1])
```

Screenshot:

```
(base) yaatuadem@Yaatus-MacBook-Pro Week 6 % /usr/bin/python3 "/Users/
yaatuadem/Desktop/COMP 120/Lab 3/Week 6/exercise2.py"
['GitLab']
['Jira']
```

Exercise 3:

Start with the list by printing three course's name like comp100, comp120, comp213. Print a message saying that you are enrolled in that course. The text of each message should be the same, but each message should be personalized with the course's name. Append a new course GNET

```python
course = ['comp100', 'comp120', 'comp213']
print(course)

print("You are enrolled in the course: " + course[0])
print("You are enrolled in the course: " + course[1])
print("You are enrolled in the course: " + course[2])

course.append('GNET')
```

Screenshot:

```
(base) yaatuadem@Yaatus-MacBook-Pro Week 6 % /usr/bin/python3 "/Users/
yaatuadem/Desktop/COMP 120/Lab 3/Week 6/exercise3.py"
['comp100', 'comp120', 'comp213']
You are enrolled in the course: comp100
You are enrolled in the course: comp120
You are enrolled in the course: comp213
```

Week 8: Dictionaries

Exercise 1:

Use the following dictionary and answer the question

favorite_languages = {

   'jen': 'HTML',

   'sarah': 'c',

   'edward': 'ruby',

   'phil': 'C#',

   }

Change the value from C# to Python for the key phil

Add an item in the dictionary

Remove an item from the dictionary

List all the values in the dictionary

```python
favorite_languages = {
    'jen': 'HTML',
    'sarah': 'c',
    'edward': 'ruby',
    'phil': 'C#',
}

favorite_languages['phil'] = 'Python'
favorite_languages['yaatu'] = 'java'
favorite_languages.pop('sarah')
print(favorite_languages)
```

Screenshot:

```
(base) yaatuadem@Yaatus-MacBook-Pro Week 8 % /usr/bin/python3 "/Users/
yaatuadem/Desktop/COMP 120/Lab 3/Week 8/exercise1.py"
{'jen': 'HTML', 'edward': 'ruby', 'phil': 'Python', 'yaatu': 'java'}
```

Exercise 2:

Create a python dictionary called student. Include student name, age, subject, semester, grade and lab keys. Include the value for each key accordingly. Display keys separately and values separately in the print statement.

```python
student = {
    'name': 'yaatu',
    'age': '26',
    'subject': 'comp120',
    'semester': 'fall 2020',
    'grade': 100,
    'lab': 3
}


print(student.keys())
print(student.values())
```

Screenshot:

```
(base) yaatuadem@Yaatus-MacBook-Pro Week 8 % /usr/bin/python3 "/Users/
yaatuadem/Desktop/COMP 120/Lab 3/Week 8/exercise2.py"
dict_keys(['name', 'age', 'subject', 'semester', 'grade', 'lab'])
dict_values(['yaatu', '26', 'comp120', 'fall 2020', 100, 3])
```

Week 9: Control Structures -Decision Making, Loops

Exercise 1:

Write a program in python using if condition. Input the temperature (user input). Check if the temperature is less than 98 display the result as cold. Otherwise, if the temperature more than 98, display the result as Hot. otherwise display them as normal.

```
input_string_temperature = int(input("Enter the temperature: "))


if (input_string_temperature < 98):
    print("The temperature is cold.")
elif (input_string_temperature > 98):
    print("The temperature is hot.")
else:
    print("The temperature is normal.")
```

Screenshot:

```
(base) yaatuadem@Yaatus-MacBook-Pro Week 9 % /usr/bin/python3 "/Users/
yaatuadem/Desktop/COMP 120/Lab 3/Week 9/exercise1.py"
Enter the temperature: 90
The temperature is cold.
(base) yaatuadem@Yaatus-MacBook-Pro Week 9 % /usr/bin/python3 "/Users/
yaatuadem/Desktop/COMP 120/Lab 3/Week 9/exercise1.py"
Enter the temperature: 100
The temperature is hot.
(base) yaatuadem@Yaatus-MacBook-Pro Week 9 % /usr/bin/python3 "/Users/
yaatuadem/Desktop/COMP 120/Lab 3/Week 9/exercise1.py"
Enter the temperature: 98
The temperature is normal.
```

Exercise 2:

Program to iterate agile values through a list using indexing. Create the following agile values in list. Use for loop and iterate over the list.

```
agile_values = ['Individuals and interactions', 'Working
software ', 'Customer collaboration ','Responding to change']


for value in agile_values:
    print(value)
```

Screenshot:

```
(base) yaatuadem@Yaatus-MacBook-Pro Week 9 % /usr/bin/python3 "/Users/
yaatuadem/Desktop/COMP 120/Lab 3/Week 9/exercise2.py"
Individuals and interactions
Working software
Customer collaboration
Responding to change
```

Week 10: Functions

Exercise 1:

Create a function called team_collaboration() . Pass two team collaboration software names as the arguments. The function should print "I use ------- software for team collaboration"

```python
def team_collaboration(software_name):
    print("I use " + software_name + " software for team
collaboration.")


team_collaboration('Slack')
team_collaboration('Microsoft Teams')
```

Screenshot:

```
(base) yaatuadem@Yaatus-MacBook-Pro Week 10 % /Users/yaatuadem/opt/ana
conda3/bin/python "/Users/yaatuadem/Desktop/COMP 120/Lab 3/Week 10/exe
rcise1.py"
I use Slack software for team collaboration.
I use Microsoft Teams software for team collaboration.
```

Exercise 2:

Create a function called project() that store project_id globally and locally . Call the function and display both the id's.

Print the statement as

"My global project id is :"

"My internal project id is :"

```python
def project(internal_project_id):
    print("My internal project id is: " + internal_project_id)


project_id = "1234"
```

```
print("My global project id is: " + project_id)
project(project_id)
```

Screenshot:

```
(base) yaatuadem@Yaatus-MacBook-Pro Week 10 % /Users/yaatuadem/opt/ana
conda3/bin/python "/Users/yaatuadem/Desktop/COMP 120/Lab 3/Week 10/exe
rcise2.py"
My global project id is: 1234
My internal project id is: 1234
```

Week 11: Modules (Importing Libraries)

Exercise 1:

Import the correct library and print a calendar for your project. Print October month calendar of this year

```
import calendar


print(calendar.month(2022,10))
```

Screenshot:

```
(base) yaatuadem@Yaatus-MacBook-Pro Modules (Importing Libraries) % /u
sr/bin/python3 "/Users/yaatuadem/Desktop/COMP 120/Lab 3/Week 11/Module
s (Importing Libraries)/exercise1.py"
    October 2022
Mo Tu We Th Fr Sa Su
                1  2
 3  4  5  6  7  8  9
10 11 12 13 14 15 16
17 18 19 20 21 22 23
24 25 26 27 28 29 30
31
```

Exercise 2:

Use 5 Functions in Python Math Module and print the results

```
import math


number = int(9)
print(f"Original number: {number}")
```

```python
print(f"Square root: {math.sqrt(number)}")
print(f"Factorial: {math.factorial(number)}")
print(f"Remainder when divided by 4:
{math.remainder(number,4)}")
print(f"Raised to the power of 3: {math.pow(number, 3)}")
print(f"GCD with 24: {math.gcd(number, 24)}")
```

Screenshot:

```
(base) yaatuadem@Yaatus-MacBook-Pro Modules (Importing Libraries) % /u
sr/bin/python3 "/Users/yaatuadem/Desktop/COMP 120/Lab 3/Week 11/Module
s (Importing Libraries)/exercise2.py"
Original number: 9
Square root: 3.0
Factorial: 362880
Remainder when divided by 4: 1.0
Raised to the power of 3: 729.0
GCD with 24: 3
```

Week 11 (cont.): Libraries - Pandas, OS Module

Exercise 1:

Using OSmodule , explore the following functions and execute the command

1. Write a command to create a new directory using OS Library
2. Write a command to delete the existing file

```python
import os


os.mkdir(sample_directory) #creates directory
os.rmdir(sample_directory) #deletes directory created
```

Exercise 2:

Using Pandas library, produce the following output. Using pandas data frame organize the data into rows and columns.

```python
import pandas as pd


data = {
    'subject_id': [1, 2, 3, 4],
```

```
    'student_name': ['Joseph', 'Eva', 'Kevin', 'Joseph'],
    'courses': ['software engineering', 'Artificial
Intelligence', 'Gaming', 'Software engineering technician']
}
student_information = pd.DataFrame(data)


print(student_information)
```

Screenshot:

```
(base) yaatuadem@Yaatus-MacBook-Pro Pandas, OS Module % /usr/bin/pytho
n3 "/Users/yaatuadem/Desktop/COMP 120/Lab 3/Week 11/Pandas, OS Module/
exercise2.py"
   subject_id student_name                          courses
0           1       Joseph               software engineering
1           2          Eva              Artificial Intelligence
2           3        Kevin                               Gaming
3           4       Joseph  Software engineering technician
```

Week 12: File Handling

Exercise 1:

Create a text file called pi_digits.txt as shown below

3.1415926535

8979323846

2643383279

1. Read the file
2. use readline() method
3. write a number to the existing file

```
f = open("pi_digits.txt", "r")


print(f.readline())
print(f.readline())
print(f.readline())


f.close()
```

```
f = open("pi_digits.txt", "a")
f.write("1279")
f.close()
```

Screenshot:

```
(base) yaatuadem@Yaatus-MacBook-Pro Week 12 % /usr/bin/python3 "/Users
/yaatuadem/Desktop/COMP 120/Lab 3/Week 12/exercise1.py"
3.1415926535

8979323846

2643383279
```