

Question-1 [10 points]: What is the difference between a while loop and a for loop in Python?

While loops are statements that will execute continuously until the condition in the statement is reached, then it will stop executing. In contrast, a For loop will execute a string of statements in an order for a specified number of times.

Question-2 [5 points] (Research Question): What does “while True” mean in python? Putting in “While true” instead of just “While” will cause the code to go on endlessly.

Question-3 [5 points]: What is the significance of flowchart in Programming? [NOTE: You may

use online resources to research this question]

Flowcharts may be used to describe the process of the statement being worked either to make it easier to visualize the project or show it to others to help them understand what you are working on.

Question-4 [5 points]: Define the following terms in one or two sentence(s):

1. Iteration variable

Stores the information of the looping iterable when the code is executed.

2. Finite loop

A finite loop is a loop with a conditional to determine how many times it should be looped once executed in a program.

3. Infinite loop

An infinite loop is a loop with no condition to tell the program how many times it will be executed.

4. Iteration or pass

The repeats of an action executed as part of the loop.

Question -5 (15 points)

write a program to calculate the average test score for a student.

Your program should also congratulate the student enthusiastically if the average is greater than 95.

Here is the algorithm in pseudocode:

- Get the first test score
- Get the second test score
- Get the third test score
- Calculate the average
- Display the average
- If the average is greater than 95, congratulate the user

The screenshot shows the PyCharm IDE with a Python script named 'assignment 10 plus.py'. The script calculates the average of three scores and prints a message based on the average. The execution output shows the user entering scores 74, 88, and 100, resulting in an average of 87.33, which is less than 95.

```

pythonProject \ assignment 10 plus.py
Project
  pydoc.bat
  python.exe
  pythonw.exe
  .gitignore
  exampleforifelses.py
  pyenv.cfg
  Areaofsortz.py
  Assignment Tuple Threat.py
  assignment8s.py
  assignment 10 plus.py
  cheesebrick1.py
  comparenumbers.py
  definefunctions.py
  diction thy lists.py
  extraloopassignment.py
  For while 1.py
  functions but with area.py
  intfinder.py
  lah-6 nv
Run: assignment 10 plus
C:\Users\fezza\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:\Users\fezza\PycharmProjects\pythonProject\assignment 10 plus.py"
First score here please! : 74
Second score here please! : 88
Third score here please! : 100
You average is less than 95!
Process finished with exit code 0

```

The screenshot shows the same PyCharm IDE with the 'assignment 10 plus.py' script. The execution output shows the user entering scores 100, 100, and 74, resulting in an average of 91.33, which is greater than 95.

```

pythonProject \ assignment 10 plus.py
Project
  pydoc.bat
  python.exe
  pythonw.exe
  .gitignore
  exampleforifelses.py
  pyenv.cfg
  Areaofsortz.py
  Assignment Tuple Threat.py
  assignment8s.py
  assignment 10 plus.py
  cheesebrick1.py
  comparenumbers.py
  definefunctions.py
  diction thy lists.py
  extraloopassignment.py
  For while 1.py
  functions but with area.py
  intfinder.py
  lah-6 nv
Run: assignment 10 plus
C:\Users\fezza\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:\Users\fezza\PycharmProjects\pythonProject\assignment 10 plus.py"
First score here please! : 100
Second score here please! : 100
Third score here please! : 74
Your average is greater than 95, nicely done!
Process finished with exit code 0

```

Question -6 (15 points)

Chris owns an auto repair business and has several employees. If any employee works over 40 hours a week, he pays them 1.5 times their regular hourly pay rates for all hours over 40.

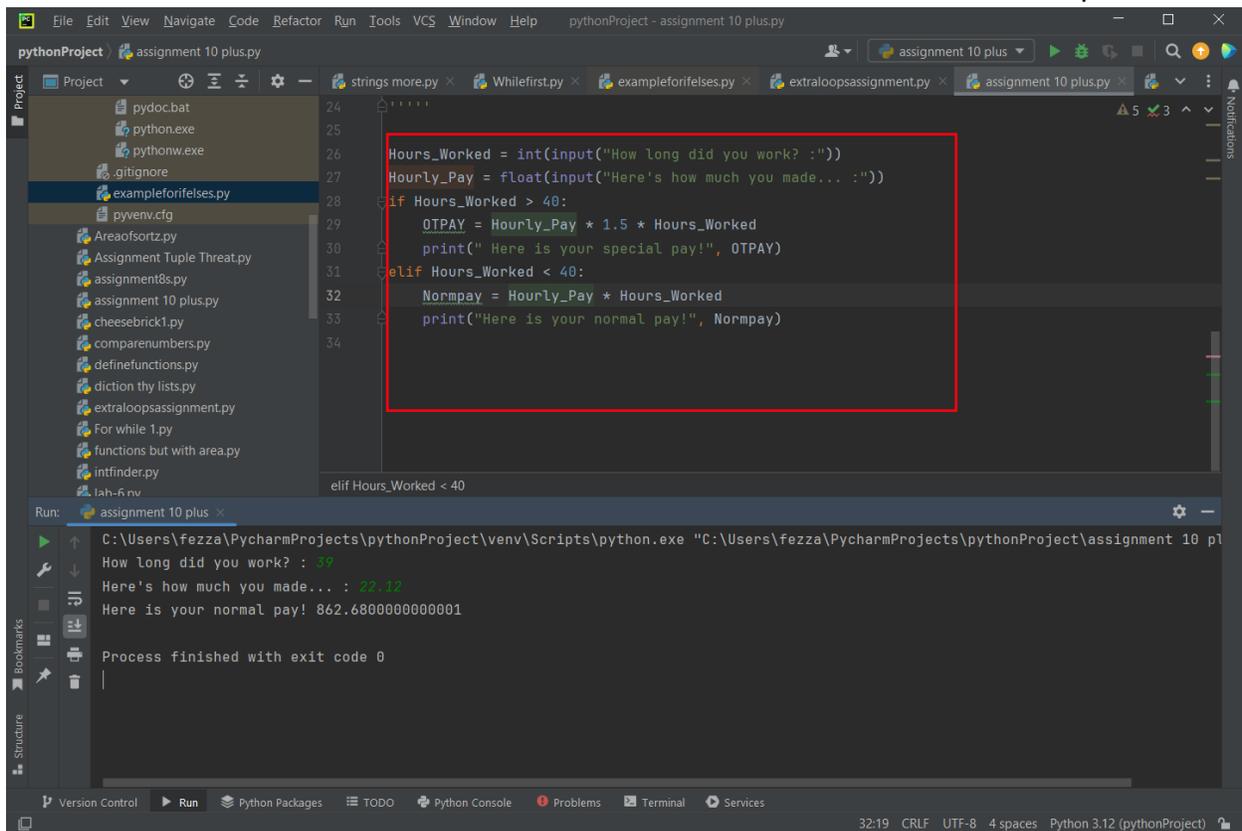
Write a program in python to design a simple payroll program that calculates an employee's

gross pay, including any overtime wages.

Hint: You design the following algorithm:

- Get the number of hours worked.
- Get the hourly pay rate.
- If the employee worked more than 40 hours:
- Calculate and display the gross pay with overtime.
- Else:
- Calculate and display the gross pay as usual.

NOTE: You need to submit the screenshot of the executed code with the output.



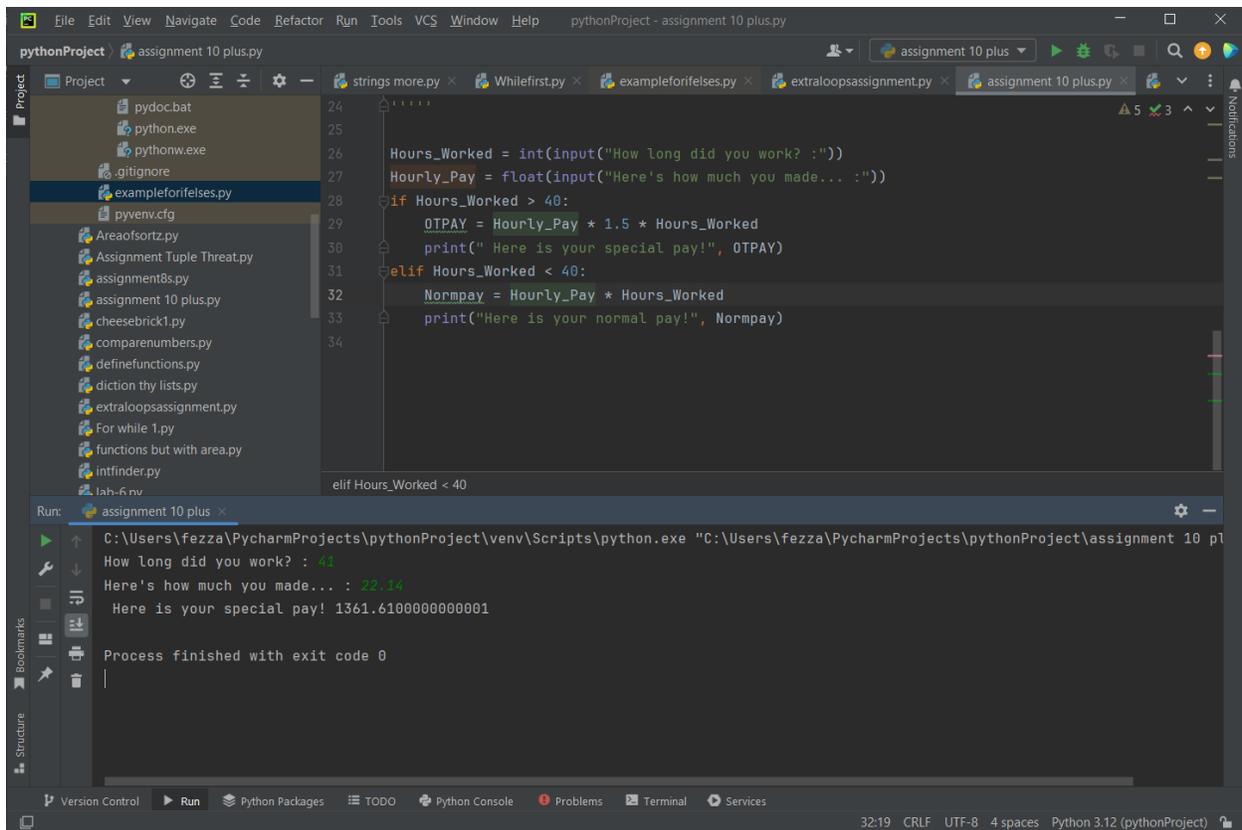
The screenshot shows a Python IDE with a project named 'pythonProject - assignment 10 plus.py'. The code editor displays the following Python code:

```
24 *****
25
26 Hours_Worked = int(input("How long did you work? :"))
27 Hourly_Pay = float(input("Here's how much you made... :"))
28 if Hours_Worked > 40:
29     OTPAY = Hourly_Pay * 1.5 * Hours_Worked
30     print(" Here is your special pay!", OTPAY)
31 elif Hours_Worked < 40:
32     Normpay = Hourly_Pay * Hours_Worked
33     print("Here is your normal pay!", Normpay)
34
```

The Run console shows the execution output:

```
Run: assignment 10 plus x
C:\Users\fezza\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:\Users\fezza\PycharmProjects\pythonProject\assignment 10 plus.py"
How long did you work? : 33
Here's how much you made... : 862.68
Here is your normal pay! 862.6800000000001
Process finished with exit code 0
```

The status bar at the bottom indicates the current time is 32:19, the encoding is CRLF, the file encoding is UTF-8, there are 4 spaces, and the Python version is 3.12 (pythonProject).



Extra Credit Question (10 points)

Draw the flowchart for the following script:

```
gender = input("Gender? ")
gender = gender.lower()
if gender == "male":
    print("Your cat is male")
elif gender == "female":
    print("Your cat is female")
else:
    print("Invalid input")
```