

ASSIGNMENT 2 – PYTHON CONDITIONAL AND LOOPING STATEMENT

1.Name your file: MonthNames.py Write a program that reads an integer value between 1 and 12 from the user and prints output the corresponding month of the year. An example run of the program (numbers in bold are typed in by the user) Enter the month: 3 Month 3 is March

```
months = [ "January", "February", "March", "April", "May", "June", "July", "August",  
"September", "October", "November", "December" ]
```

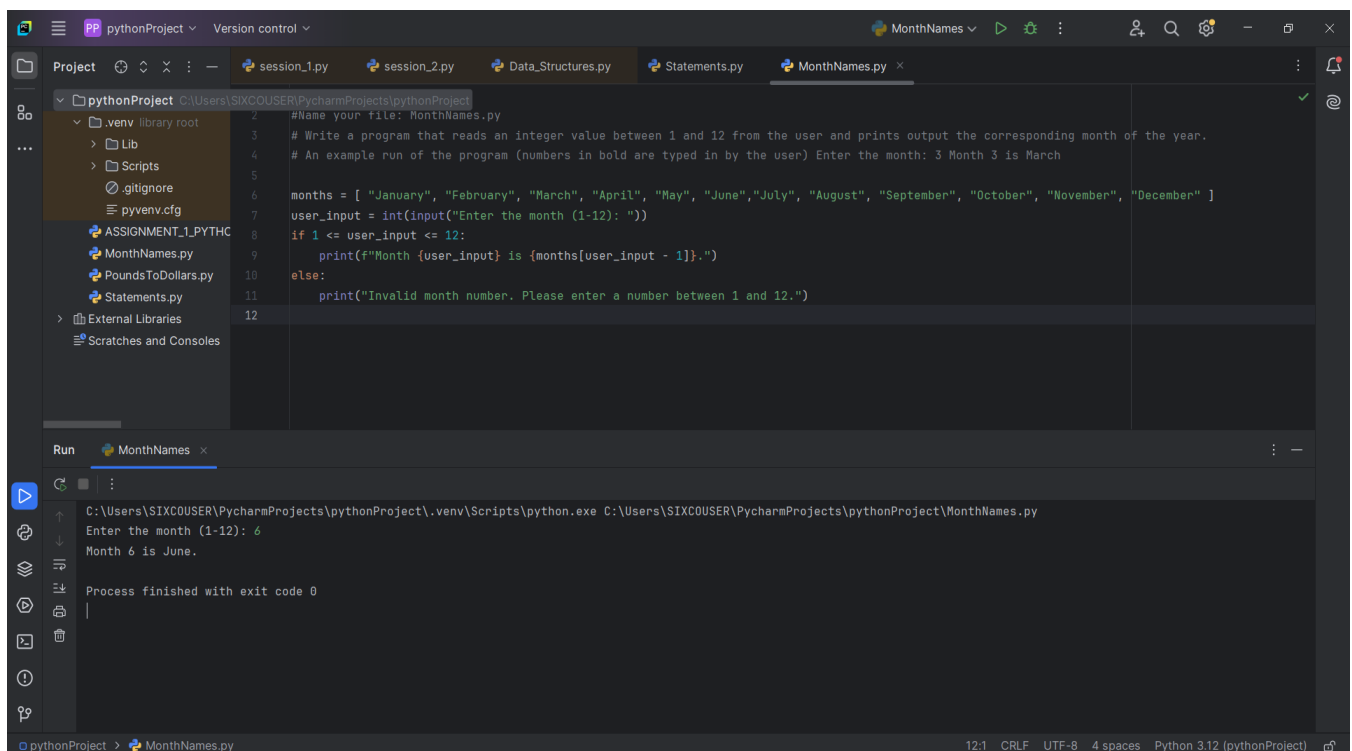
```
user_input = int(input("Enter the month (1-12): "))
```

```
if 1 <= user_input <= 12:
```

```
    print(f"Month {user_input} is {months[user_input - 1]}")
```

```
else:
```

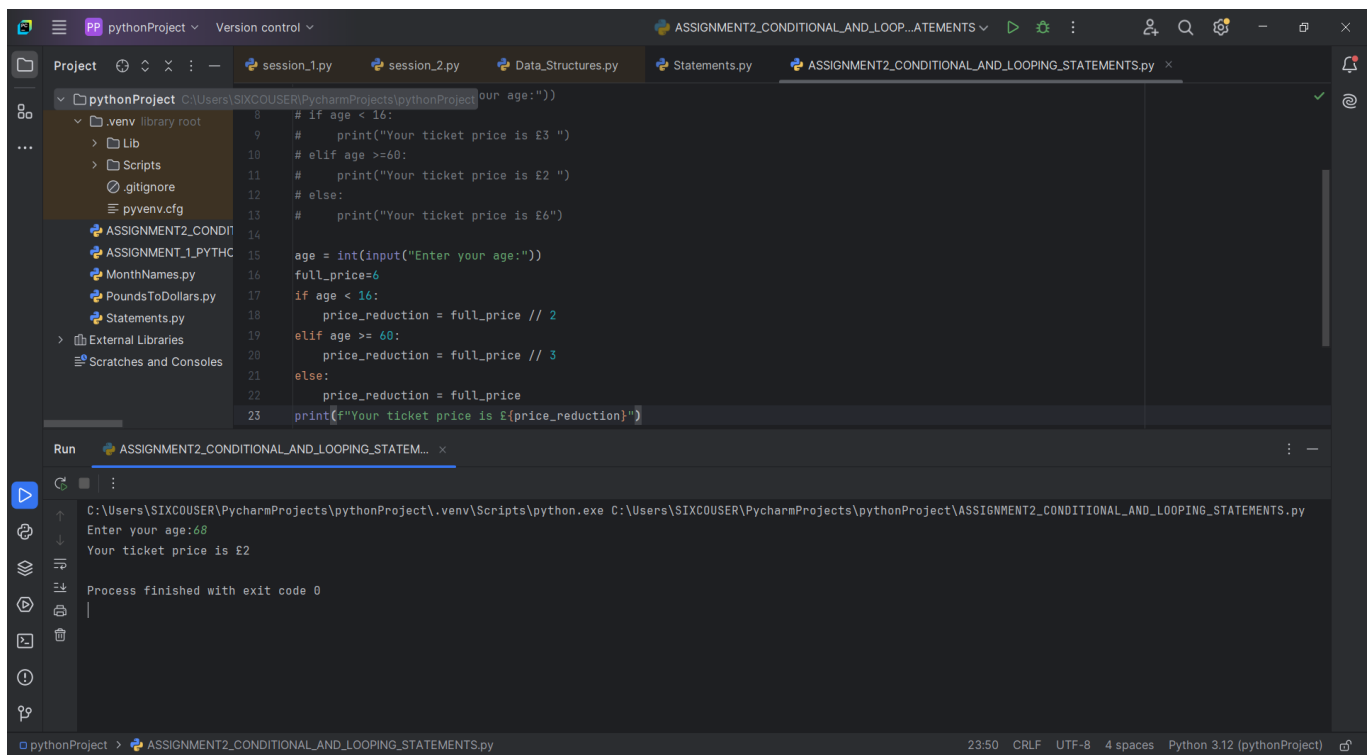
```
    print("Invalid month number. Please enter a number between 1 and 12.")
```



2.A certain cinema currently sells tickets for a full price of 6 pounds, but always sells tickets for half price to people who are less than 16 years old, and for a third of the price for people

who are 60 years old or more. An example run of the program (numbers in bold are typed in by the user) Enter your age: **63**
Your ticket costs £2.00

```
age = int(input("Enter your age:"))
full_price=6
if age < 16:
    price_reduction = full_price // 2
elif age >= 60:
    price_reduction = full_price // 3
else:
    price_reduction = full_price
print(f"Your ticket price is £{price_reduction}")
```

The screenshot shows the PyCharm IDE interface. The top toolbar includes icons for file operations, search, and running code. The 'Project' view on the left shows a file tree with folders like '.venv' and files like 'session_1.py', 'session_2.py', 'Data_Structures.py', 'Statements.py', and 'ASSIGNMENT2_CONDITIONAL_AND_LOOPING_STATEMENTS.py'. The main editor window displays the Python code from the previous block. The 'Run' window at the bottom shows the execution output: 'Enter your age:68' and 'Your ticket price is £2'. The status bar at the bottom indicates the file is 'ASSIGNMENT2_CONDITIONAL_AND_LOOPING_STATEMENTS.py' in the 'pythonProject' directory, using Python 3.12.

3. Name your file: BodyMassIndex.py Write a program to calculate your BMI and give weight status. Body Mass Index (BMI) is an internationally used measurement to check if you are a healthy weight for your height. The metric BMI formula accepts weight in kilograms and height in meters: $BMI = \frac{\text{weight(kg)}}{\text{height}^2(\text{m}^2)}$ BMI Weight Status Categories table

BMI range - kg/m ²	Category
Below 18.5	Underweight
18.5 - 24.9	Normal
25 - 29.9	Overweight
30 & Above	Obese

An example run of the program (numbers in bold are typed in by

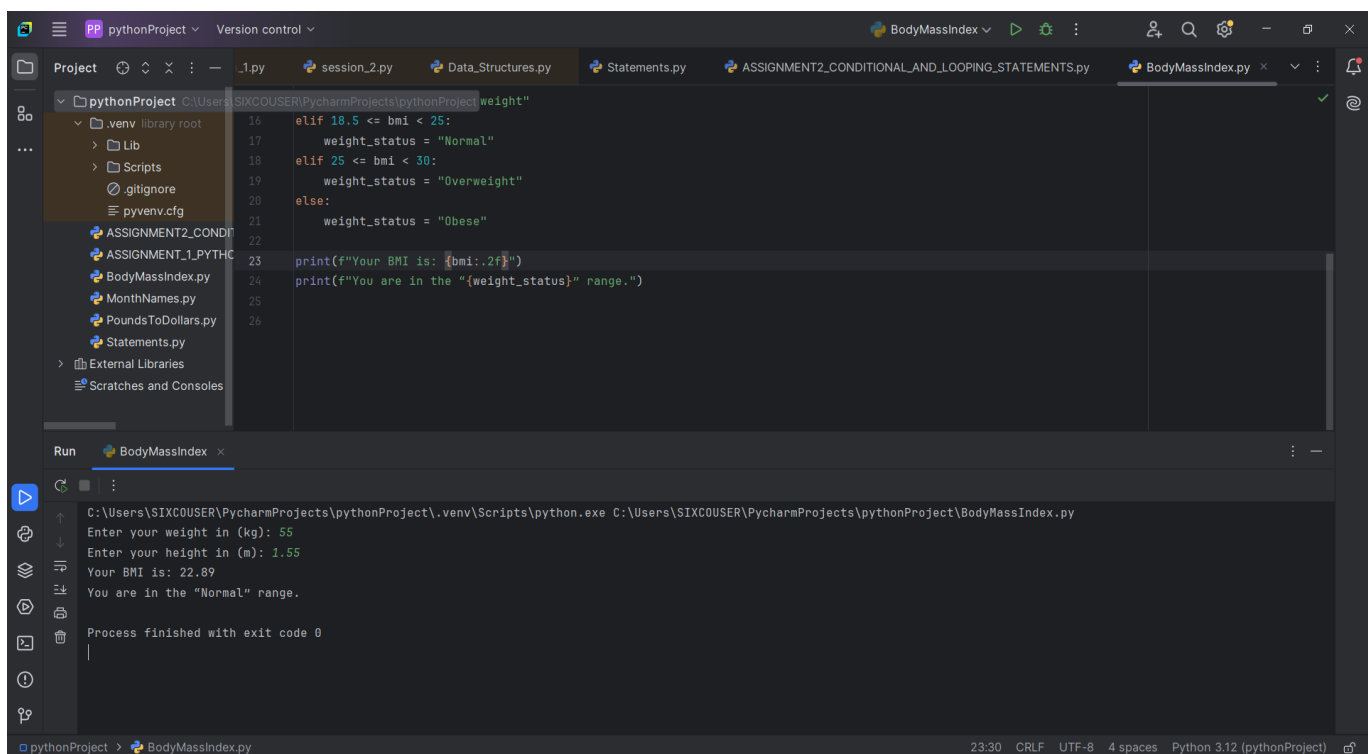
the user) Enter your weight in (kg): 75 Enter your height in (m): 1.70 Your BMI is: 25.95 You are in the “overweight” range.

```
user_weight = float(input("Enter your weight in (kg): "))
user_height = float(input("Enter your height in (m): "))
```

```
bmi = user_weight / (user_height ** 2)
```

```
if bmi < 18.5:
    weight_status = "Underweight"
elif 18.5 <= bmi < 25:
    weight_status = "Normal"
elif 25 <= bmi < 30:
    weight_status = "Overweight"
else:
    weight_status = "Obese"
```

```
print(f"Your BMI is: {bmi:.2f}")
print(f"You are in the “{weight_status}” range.")
```



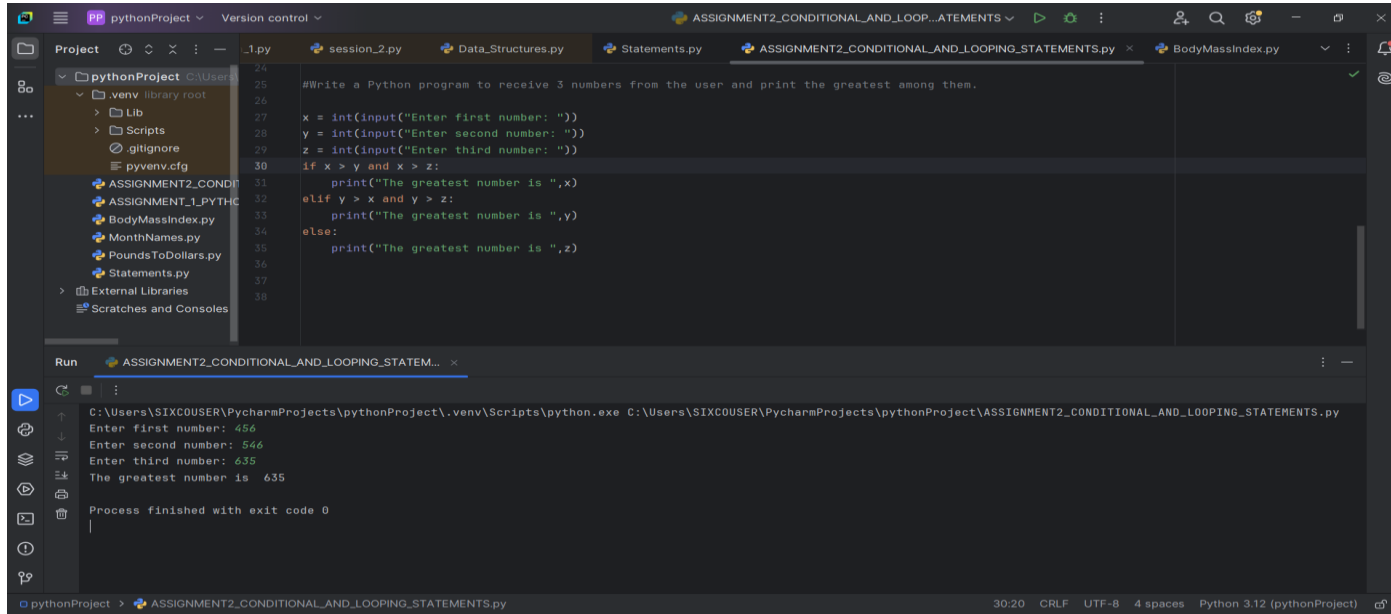
4. Write a Python program to receive 3 numbers from the user and print the greatest among them.

```
x = int(input("Enter first number: "))
y = int(input("Enter second number: "))
```

```

z = int(input("Enter third number: "))
if x > y and x > z:
    print("The greatest number is ",x)
elif y > x and y > z:
    print("The greatest number is ",y)
else:
    print("The greatest number is ",z)

```

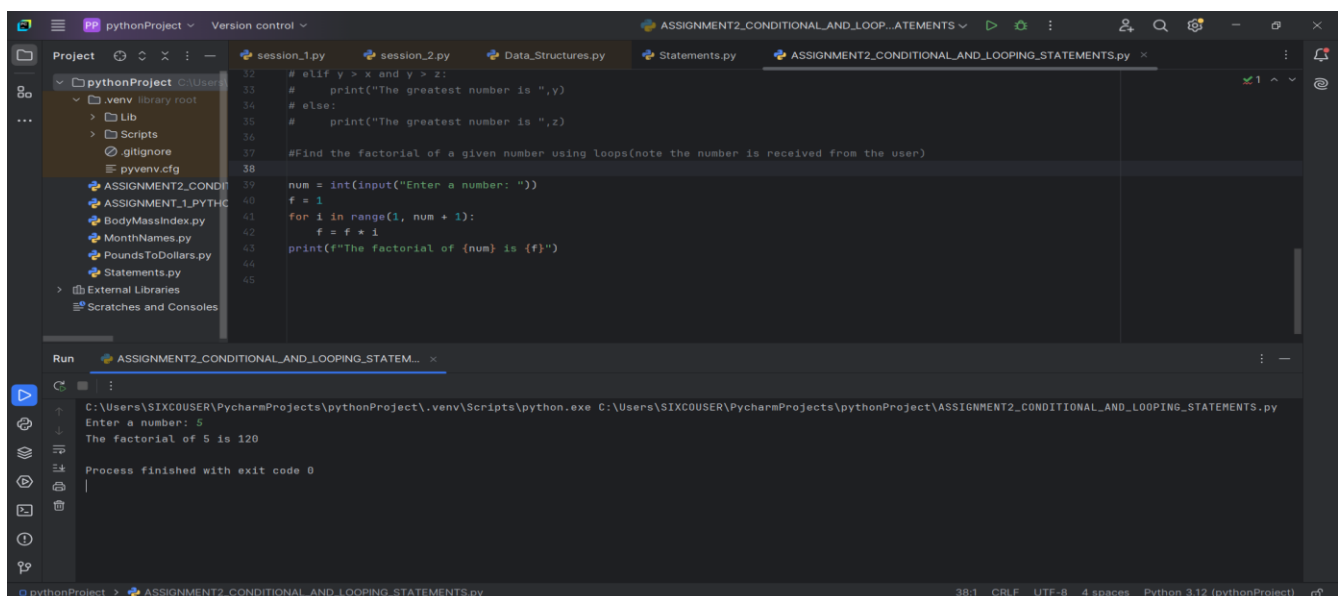


5. Find the factorial of a given number using loops(note the number is received from the user)

```

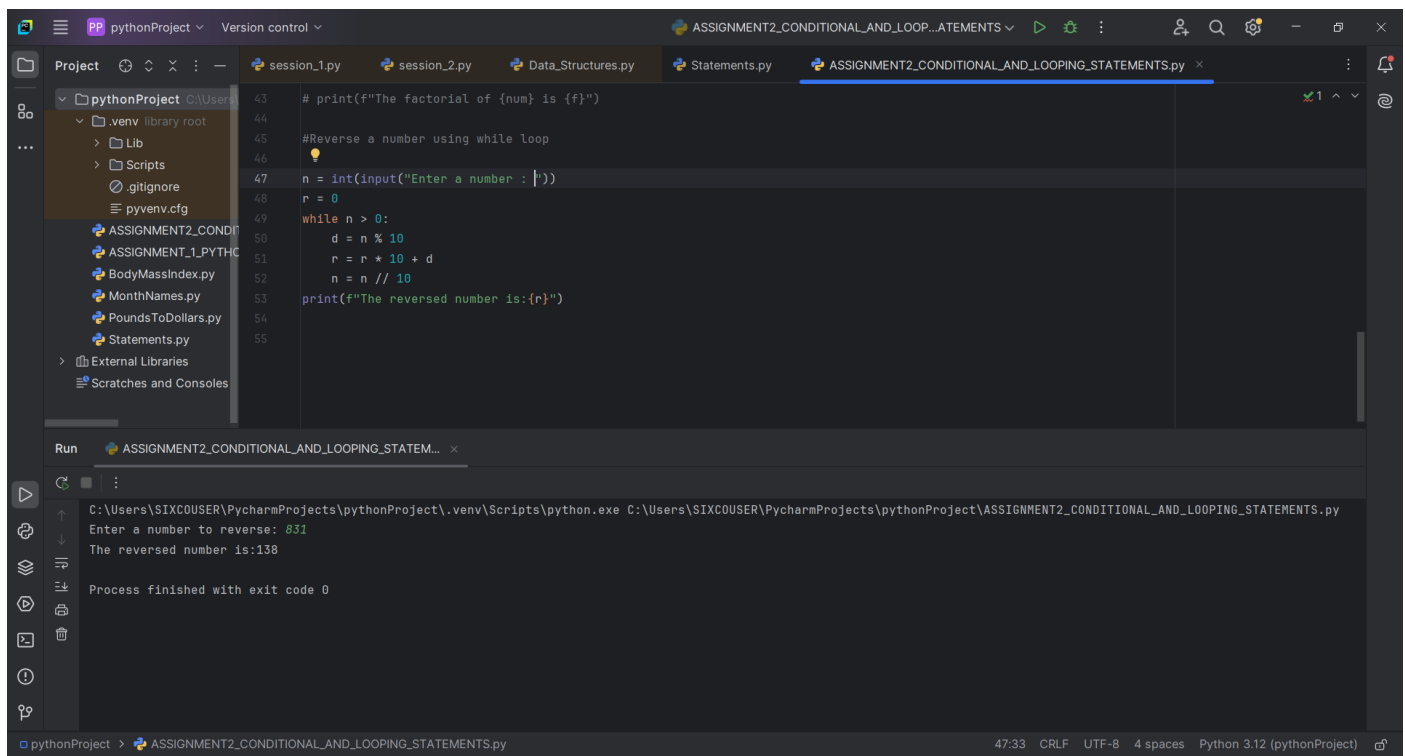
num = int(input("Enter a number: "))
f = 1
for i in range(1, num + 1):
    f = f * i
print(f"The factorial of {num} is {f}")

```



6. Reverse a number using while loop

```
n = int(input("Enter a number : "))  
  
r = 0  
  
while n > 0:  
    d = n % 10  
    r = r * 10 + d  
    n = n // 10  
  
print(f"The reversed number is:{r}")
```



```
43 # print(f"The factorial of {num} is {f}")  
44  
45 #Reverse a number using while loop  
46  
47 n = int(input("Enter a number : "))  
48 r = 0  
49 while n > 0:  
50     d = n % 10  
51     r = r * 10 + d  
52     n = n // 10  
53 print(f"The reversed number is:{r}")  
54  
55
```

Run

```
C:\Users\SIXCOUSER\PycharmProjects\pythonProject\.venv\Scripts\python.exe C:\Users\SIXCOUSER\PycharmProjects\pythonProject\ASSIGNMENT2_CONDITIONAL_AND_LOOPING_STATEMENTS.py  
Enter a number to reverse: 831  
The reversed number is:138  
  
Process finished with exit code 0
```

7. Finding the multiples of a number using loop

```
num = int(input("Enter a number: "))  
  
count = int(input("How many multiples do you want to see? "))  
  
for i in range(1, count + 1):  
    multiple = num * i  
    print(multiple, " ", end="")
```

The screenshot shows the PyCharm IDE with a project named 'pythonProject'. The file explorer on the left shows a directory structure with files like '.venv', 'Lib', 'Scripts', '.gitignore', 'pyvenv.cfg', and several Python files including 'ASSIGNMENT2_CONDITIONAL_AND_LOOPING_STATEMENTS.py'. The main editor window displays the code for this file, which includes a comment about finding multiples of a number using a loop. The code prompts the user to enter a number and how many multiples they want to see, then prints the multiples. The Run window at the bottom shows the execution output: 'Enter a number: 6', 'How many multiples do you want to see? 10', and the resulting multiples '6 12 18 24 30 36 42 48 54 60'.

```
53 # print(f"The reversed number is:{r}")
54
55 #Finding the multiples of a number using loop
56
57 num = int(input("Enter a number: "))
58 count = int(input("How many multiples do you want to see? "))
59
60 for i in range(1, count + 1):
61     multiple = num * i
62     print(multiple, " ",end='')
63
```

Run: C:\Users\SIXCOUSER\PycharmProjects\pythonProject\.venv\Scripts\python.exe C:\Users\SIXCOUSER\PycharmProjects\pythonProject\ASSIGNMENT2_CONDITIONAL_AND_LOOPING_STATEMENTS.py
Enter a number: 6
How many multiples do you want to see? 10
6 12 18 24 30 36 42 48 54 60
Process finished with exit code 0

8. Write a program to print the inputted value as it is and break the loop if the value is 'done'. Example run of the program :hello there hello there :finished finished :done Done

while True:

word = input("Enter a value (type 'done' to finish): ")

print(word)

if word == 'done' or word == 'Done' or word == 'DONE':

break

The screenshot shows the PyCharm IDE with the same project. The main editor window displays the code for 'ASSIGNMENT2_CONDITIONAL_AND_LOOPING_STATEMENTS.py', which includes a comment about writing a program to print input values and break a loop when 'done' is entered. The code uses a 'while True' loop to repeatedly prompt the user for input and print it. The Run window at the bottom shows the execution output: 'Enter a value (type 'done' to finish): hello', 'hello', 'Enter a value (type 'done' to finish): how are you?', 'how are you?', 'Enter a value (type 'done' to finish): Bye', 'Bye', 'Enter a value (type 'done' to finish): Done', 'Done', and 'Process finished with exit code 0'.

```
61 # multiple = num * i
62 # print(multiple, " ",end='')
63
64 #Write a program to print the inputted value as it is and break the loop if the value is 'done'.
65 # Example run of the program :hello there hello there :finished finished :done Done
66
67 while True:
68     word = input("Enter a value (type 'done' to finish): ")
69     print(word)
70     if word == 'done' or word == 'Done' or word == 'DONE':
71         break
72
```

Run: C:\Users\SIXCOUSER\PycharmProjects\pythonProject\.venv\Scripts\python.exe C:\Users\SIXCOUSER\PycharmProjects\pythonProject\ASSIGNMENT2_CONDITIONAL_AND_LOOPING_STATEMENTS.py
Enter a value (type 'done' to finish): hello
hello
Enter a value (type 'done' to finish): how are you?
how are you?
Enter a value (type 'done' to finish): Bye
Bye
Enter a value (type 'done' to finish): Done
Done
Process finished with exit code 0

9. Write a program that prints the numbers from 1 to 10. But for multiples of three print "Fizz" instead of the number and for the multiple of five print "Buzz". For numbers which are multiples of both three and five print "FizzBuzz"

```
for i in range(1, 21):  
    if i % 3 == 0 and i % 5 == 0:  
        print("FizzBuzz")  
    elif i % 3 == 0:  
        print("Fizz")  
    elif i % 5 == 0:  
        print("Buzz")  
    else:  
        print(i, " ", end="")
```

10. Write a program to print the following pattern:

```
5 4 3 2 1  
4 3 2 1  
3 2 1  
2 1  
1
```

n = 5

for i in range(n, 0, -1):

for j in range(i, 0, -1):

print(j, end=' ')

print()

The screenshot shows the PyCharm IDE interface. The top toolbar includes icons for running and debugging. The 'Project' view on the left shows the file structure of the 'pythonProject' directory, including a '.venv' folder and various Python files. The main editor window displays the code from the provided image, with line numbers 91 through 100. The 'Run' window at the bottom shows the execution output, which is a 5x5 grid of numbers from 5 down to 1, printed with spaces between them and a new line after each row. The status bar at the bottom indicates the file encoding (UTF-8) and the Python interpreter (Python 3.12).

```
91 # 2 1
92 # 1
93
94 n = 5
95 for i in range(n, 0, -1):
96     for j in range(i, 0, -1):
97         print(j, end=' ')
98     print()
99
100
```

Run: C:\Users\SIXCOUSER\PycharmProjects\pythonProject\.venv\Scripts\python.exe C:\Users\SIXCOUSER\PycharmProjects\pythonProject\ASSIGNMENT2_CONDITIONAL_AND_LOOPING_STATEMENTS.py

5 4 3 2 1
4 3 2 1
3 2 1
2 1
1

Process finished with exit code 0

pythonProject > ASSIGNMENT2_CONDITIONAL_AND_LOOPING_STATEMENTS.py 99:1 CRLF UTF-8 4 spaces Python 3.12 (pythonProject)