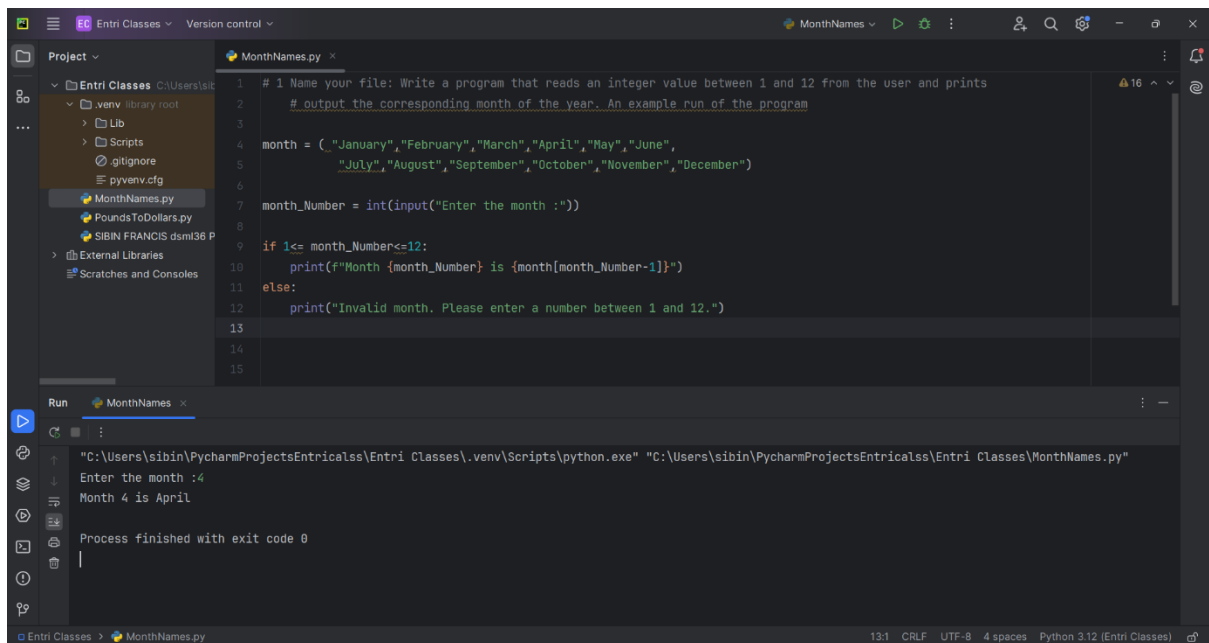


# Conditional and Looping Statements

- A program that reads an integer value between 1 and 12 from the user and prints output the corresponding month of the year.

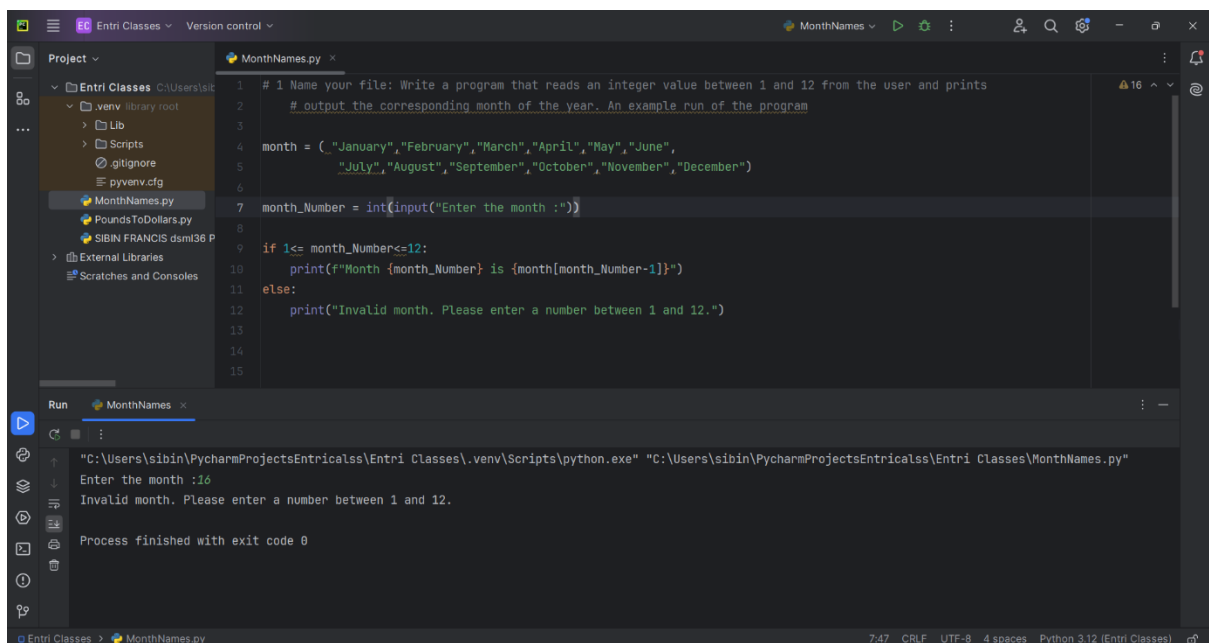


The screenshot shows the PyCharm IDE with a project named 'Entri Classes'. The file 'MonthNames.py' is open, containing the following code:

```
1 # 1 Name your file: Write a program that reads an integer value between 1 and 12 from the user and prints
2 # output the corresponding month of the year. An example run of the program
3
4 month = ("January", "February", "March", "April", "May", "June",
5         "July", "August", "September", "October", "November", "December")
6
7 month_Number = int(input("Enter the month :"))
8
9 if 1<= month_Number<=12:
10     print(f"Month {month_Number} is {month[month_Number-1]}")
11 else:
12     print("Invalid month. Please enter a number between 1 and 12.")
13
14
15
```

The Run console shows the execution of the program:

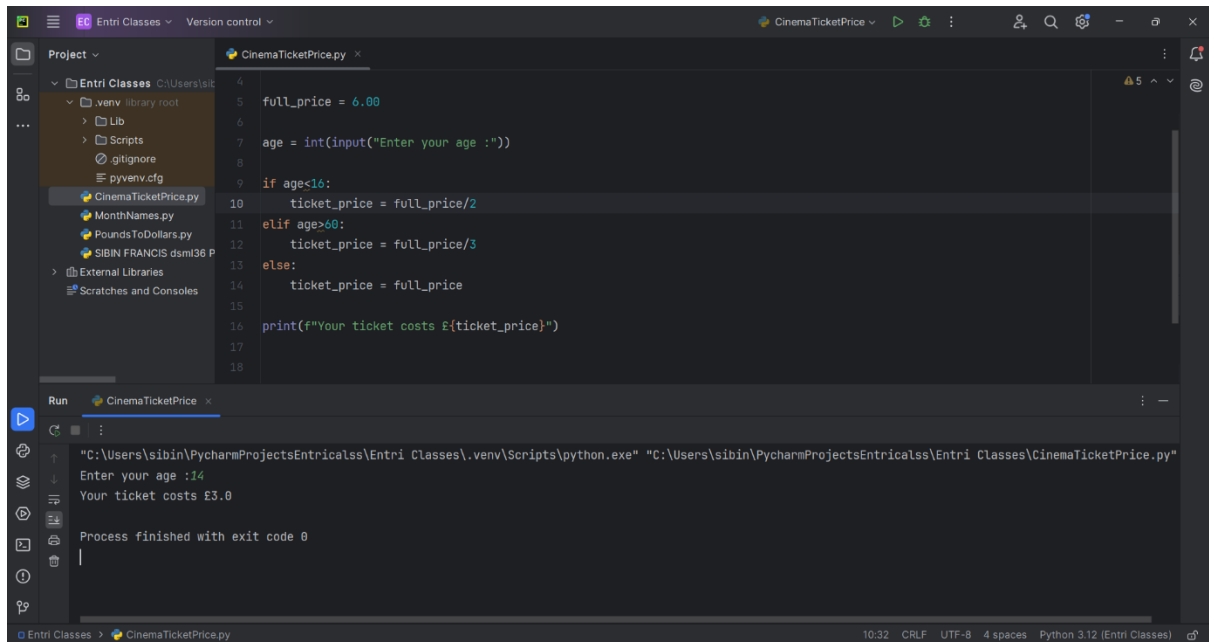
```
"C:\Users\sibin\PycharmProjects\EntriClasses\Entri Classes\.venv\Scripts\python.exe" "C:\Users\sibin\PycharmProjects\EntriClasses\MonthNames.py"
Enter the month :4
Month 4 is April
Process finished with exit code 0
```



The screenshot shows the same PyCharm IDE with the 'MonthNames.py' file. The Run console shows the execution of the program with an invalid input:

```
"C:\Users\sibin\PycharmProjects\EntriClasses\Entri Classes\.venv\Scripts\python.exe" "C:\Users\sibin\PycharmProjects\EntriClasses\MonthNames.py"
Enter the month :16
Invalid month. Please enter a number between 1 and 12.
Process finished with exit code 0
```

- A program where 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



The screenshot shows a Python IDE with the file `CinemaTicketPrice.py` open. The code defines a full price of 6.00 and calculates a discounted ticket price based on age. The Run console shows the program was executed with age 14, resulting in a ticket cost of £3.0.

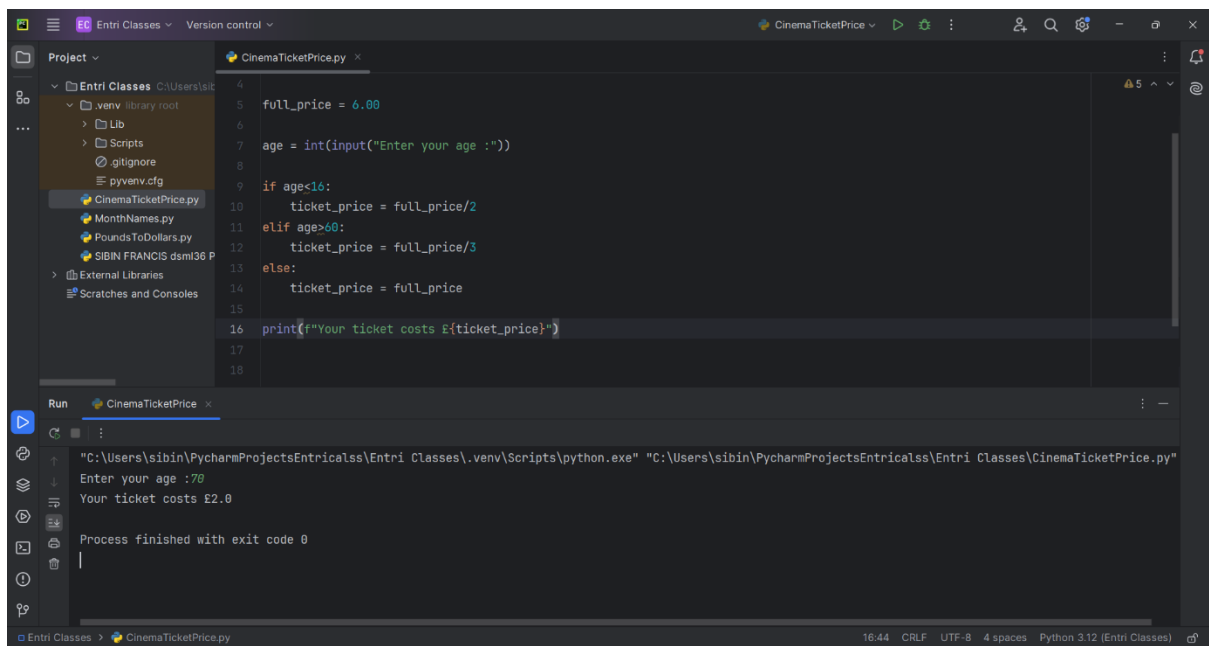
```
4
5 full_price = 6.00
6
7 age = int(input("Enter your age :"))
8
9 if age<16:
10     ticket_price = full_price/2
11 elif age>60:
12     ticket_price = full_price/3
13 else:
14     ticket_price = full_price
15
16 print(f"Your ticket costs £{ticket_price}")
17
18
```

Run CinemaTicketPrice x

"C:\Users\sibin\PycharmProjects\Entricalss\Entri Classes\.venv\Scripts\python.exe" "C:\Users\sibin\PycharmProjects\Entricalss\Entri Classes\CinemaTicketPrice.py"

Enter your age :14  
Your ticket costs £3.0

Process finished with exit code 0



The screenshot shows the same Python IDE with the file `CinemaTicketPrice.py` open. The Run console shows the program was executed with age 70, resulting in a ticket cost of £2.0.

```
4
5 full_price = 6.00
6
7 age = int(input("Enter your age :"))
8
9 if age<16:
10     ticket_price = full_price/2
11 elif age>60:
12     ticket_price = full_price/3
13 else:
14     ticket_price = full_price
15
16 print(f"Your ticket costs £{ticket_price}")
17
18
```

Run CinemaTicketPrice x

"C:\Users\sibin\PycharmProjects\Entricalss\Entri Classes\.venv\Scripts\python.exe" "C:\Users\sibin\PycharmProjects\Entricalss\Entri Classes\CinemaTicketPrice.py"

Enter your age :70  
Your ticket costs £2.0

Process finished with exit code 0

```
4 full_price = 6.00
5
6
7 age = int(input("Enter your age :"))
8
9 if age<16:
10     ticket_price = full_price/2
11 elif age>60:
12     ticket_price = full_price/3
13 else:
14     ticket_price = full_price
15
16 print(f"Your ticket costs £{ticket_price}")
17
18
```

Run CinemaTicketPrice x

```
"C:\Users\sibin\PycharmProjects\Entricalss\Entri Classes\.venv\Scripts\python.exe" "C:\Users\sibin\PycharmProjects\Entricalss\Entri Classes\CinemaTicketPrice.py"
Enter your age :45
Your ticket costs £6.0

Process finished with exit code 0
```

➤ A program to calculate your BMI and give weight status.

```
1 #3 Write a program to calculate your BMI and give weight status. Body Mass Index (BMI) is an internationally used measurement
2 # to check if you are a healthy weight for your height. The metric BMI formula accepts weight in kilograms and height in meters:
3 # BMI= weight(kg)/height2(m2) BMI Weight Status Categories table BMI range - kg/m2 Category
4 # Below 18.5 Underweight 18.5 -24.9 Normal 25 - 29.9 Overweight 30 & Above Obese
5
6 weight = float(input("Enter your weight in (kg): "))
7 height = float(input("Enter your height in (m): "))
8
9 bmi = weight / ( height * height )
10
11 if bmi < 18.5:
12     category = "Underweight"
13 elif 18.5 < bmi < 24.9:
14     category = "Normal"
15 elif 25 < bmi < 29.9:
```

Run BodyMassIndex x

```
"C:\Users\sibin\PycharmProjects\Entricalss\Entri Classes\.venv\Scripts\python.exe" "C:\Users\sibin\PycharmProjects\Entricalss\Entri Classes\BodyMassIndex.py"
Enter your weight in (kg): 45
Enter your height in (m): 1.70
Your bmi is : 15.67
You are in the Underweight range

Process finished with exit code 0
```

```
1 #3 Write a program to calculate your BMI and give weight status. Body Mass Index (BMI) is an internationally used measurement
2 # to check if you are a healthy weight for your height. The metric BMI formula accepts weight in kilograms and height in meters:
3 # BMI= weight(kg)/height2(m2) BMI Weight Status Categories table BMI range - kg/m2 Category
4 # Below 18.5 Underweight 18.5 -24.9 Normal 25 - 29.9 Overweight 30 & Above Obese
5
6 weight = float(input("Enter your weight in (kg): "))
7 height = float(input("Enter your height in (m): "))
8
9 bmi = weight / (height * height)
10
11 if bmi < 18.5:
12     category = "Underweight"
13 elif 18.5 < bmi < 24.9:
14     category = "Normal"
15 elif 25 < bmi < 29.9:
```

Run BodyMassIndex

```
"C:\Users\sibin\PycharmProjects\Entricalss\Entrti Classes\.venv\Scripts\python.exe" "C:\Users\sibin\PycharmProjects\Entrticalss\Entrti Classes\BodyMassIndex.py"
Enter your weight in (kg): 70
Enter your height in (m): 1.70
Your bmi is : 24.22
You are in the Normal range

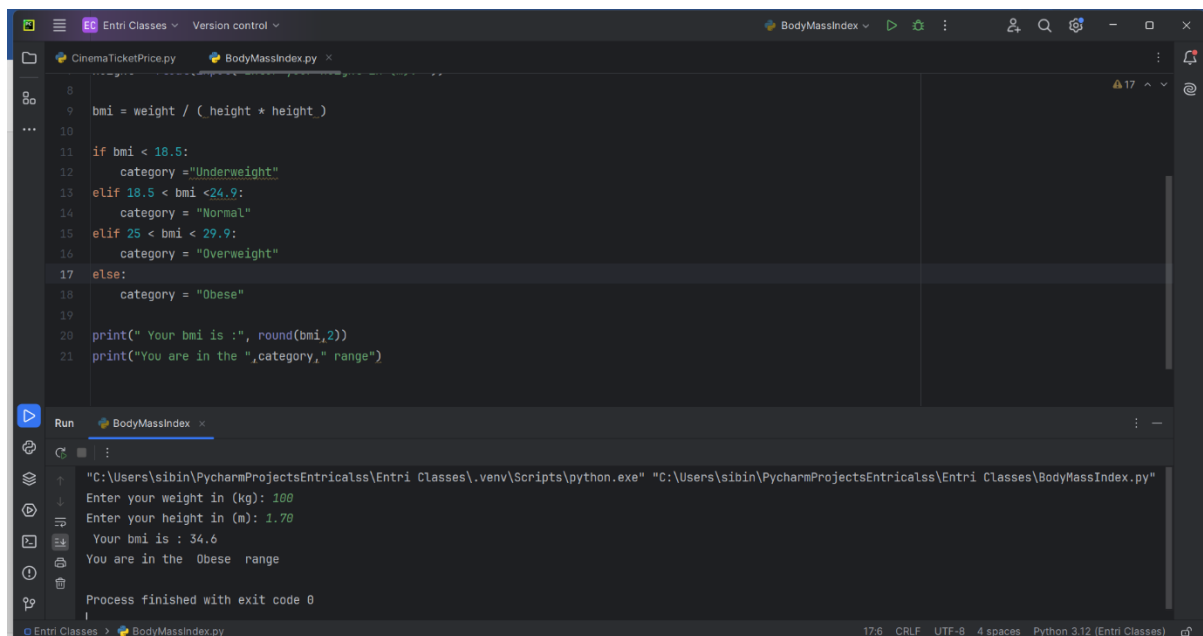
Process finished with exit code 0
```

```
1 #3 Write a program to calculate your BMI and give weight status. Body Mass Index (BMI) is an internationally used measurement
2 # to check if you are a healthy weight for your height. The metric BMI formula accepts weight in kilograms and height in meters:
3 # BMI= weight(kg)/height2(m2) BMI Weight Status Categories table BMI range - kg/m2 Category
4 # Below 18.5 Underweight 18.5 -24.9 Normal 25 - 29.9 Overweight 30 & Above Obese
5
6 weight = float(input("Enter your weight in (kg): "))
7 height = float(input("Enter your height in (m): "))
8
9 bmi = weight / (height * height)
10
11 if bmi < 18.5:
12     category = "Underweight"
13 elif 18.5 < bmi < 24.9:
14     category = "Normal"
15 elif 25 < bmi < 29.9:
```

Run BodyMassIndex

```
"C:\Users\sibin\PycharmProjects\Entrticalss\Entrti Classes\.venv\Scripts\python.exe" "C:\Users\sibin\PycharmProjects\Entrticalss\Entrti Classes\BodyMassIndex.py"
Enter your weight in (kg): 85
Enter your height in (m): 1.70
Your bmi is : 29.41
You are in the Overweight range

Process finished with exit code 0
```



```
8
9  bmi = weight / ( height * height )
10
11  if bmi < 18.5:
12      category = "Underweight"
13  elif 18.5 < bmi < 24.9:
14      category = "Normal"
15  elif 25 < bmi < 29.9:
16      category = "Overweight"
17  else:
18      category = "Obese"
19
20  print(" Your bmi is :", round(bmi,2))
21  print("You are in the ",category," range")
```

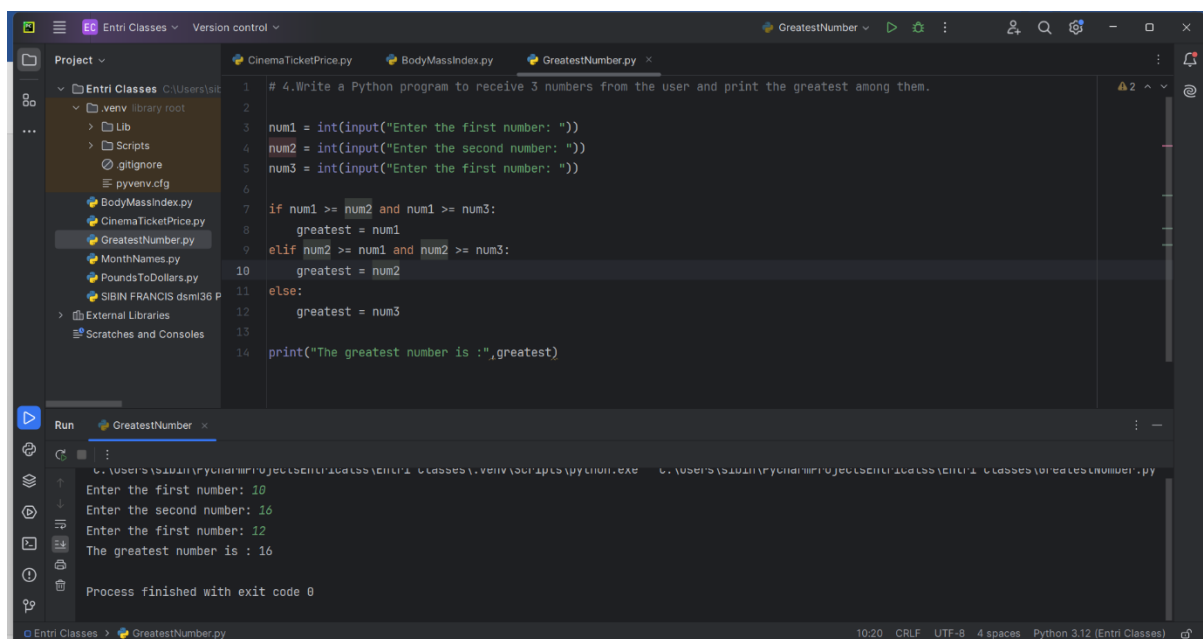
Run BodyMassIndex

"C:\Users\sibin\PycharmProjects\Entricalss\Entricalss\.venv\Scripts\python.exe" "C:\Users\sibin\PycharmProjects\Entricalss\Entricalss\BodyMassIndex.py"

Enter your weight in (kg): 100  
Enter your height in (m): 1.70  
Your bmi is : 34.6  
You are in the Obese range

Process finished with exit code 0

➤ A Python program to receive 3 numbers from the user and print the greatest among them.



```
1  # 4. Write a Python program to receive 3 numbers from the user and print the greatest among them.
2
3  num1 = int(input("Enter the first number: "))
4  num2 = int(input("Enter the second number: "))
5  num3 = int(input("Enter the first number: "))
6
7  if num1 >= num2 and num1 >= num3:
8      greatest = num1
9  elif num2 >= num1 and num2 >= num3:
10     greatest = num2
11  else:
12     greatest = num3
13
14  print("The greatest number is :",greatest)
```

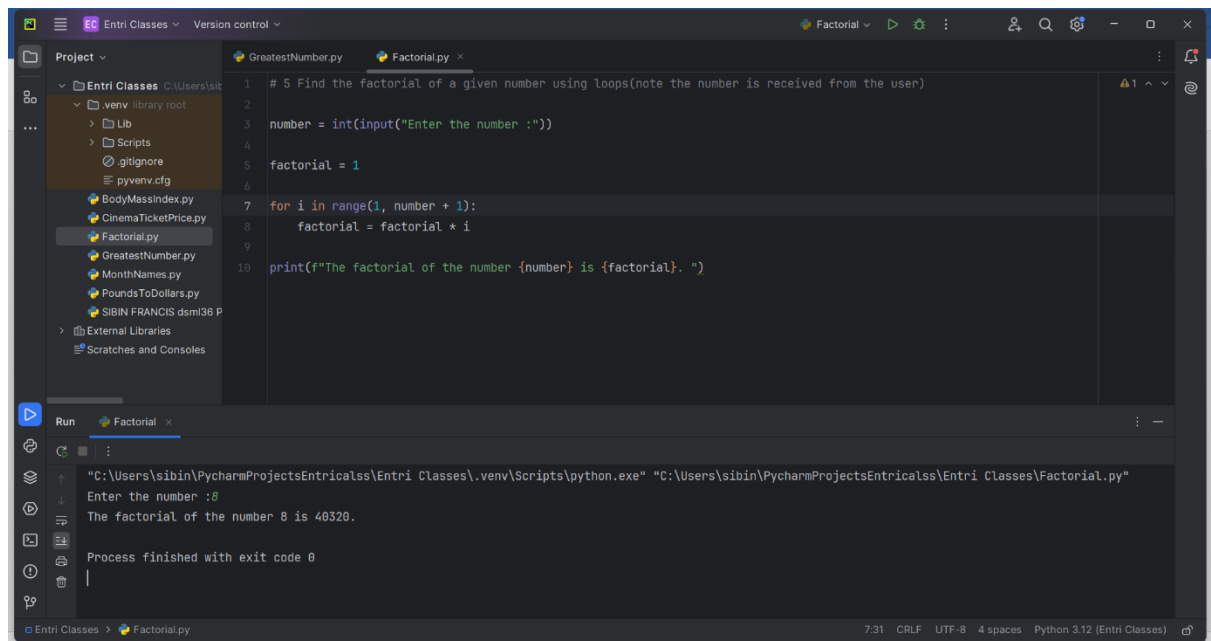
Run GreatestNumber

"C:\Users\sibin\PycharmProjects\Entricalss\Entricalss\.venv\Scripts\python.exe" "C:\Users\sibin\PycharmProjects\Entricalss\Entricalss\GreatestNumber.py"

Enter the first number: 10  
Enter the second number: 16  
Enter the first number: 12  
The greatest number is : 16

Process finished with exit code 0

## ➤ The factorial of a given number using loops.

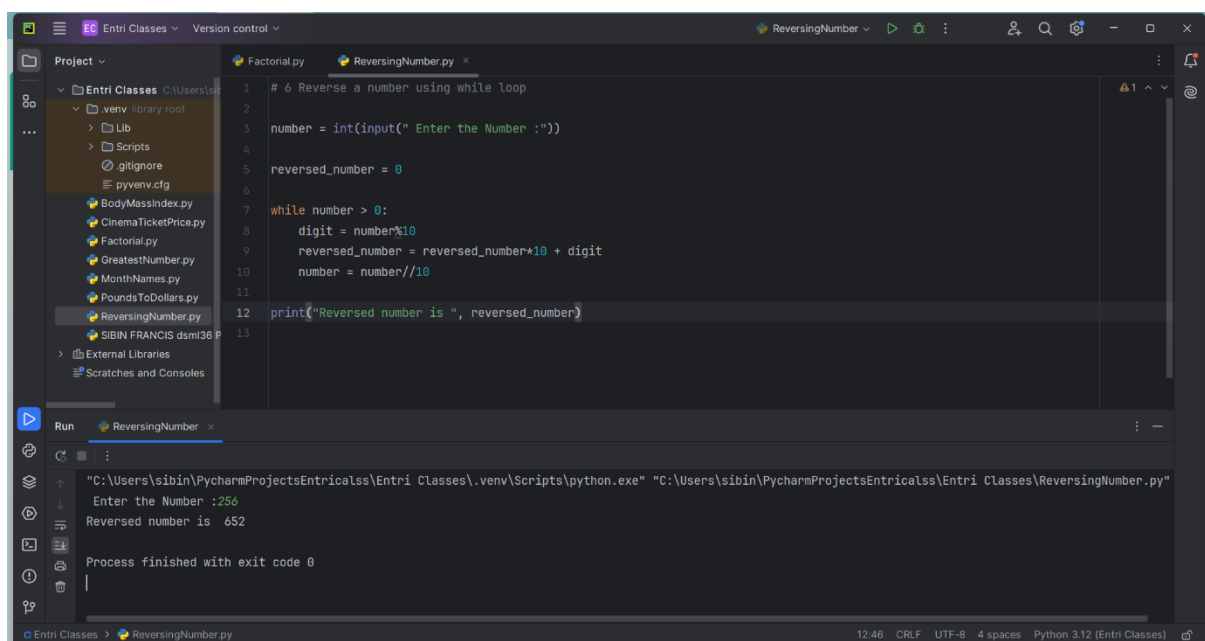


The screenshot shows the PyCharm IDE with a project named 'Entri Classes'. The file explorer on the left shows a directory structure with various Python files, including 'Factorial.py'. The main editor window displays the code for 'Factorial.py', which calculates the factorial of a user-input number using a for loop. The code is as follows:

```
1 # 5 Find the factorial of a given number using loops(note the number is received from the user)
2
3 number = int(input("Enter the number :"))
4
5 factorial = 1
6
7 for i in range(1, number + 1):
8     factorial = factorial * i
9
10 print(f"The factorial of the number {number} is {factorial}. ")
```

The Run window at the bottom shows the execution of the program. The command used is "C:\Users\sibin\PycharmProjects\EntriClasses\.venv\Scripts\python.exe "C:\Users\sibin\PycharmProjects\EntriClasses\Factorial.py". The input is "Enter the number :8", and the output is "The factorial of the number 8 is 40320.". The process finished with exit code 0.

## ➤ Reverse a number using while loop.

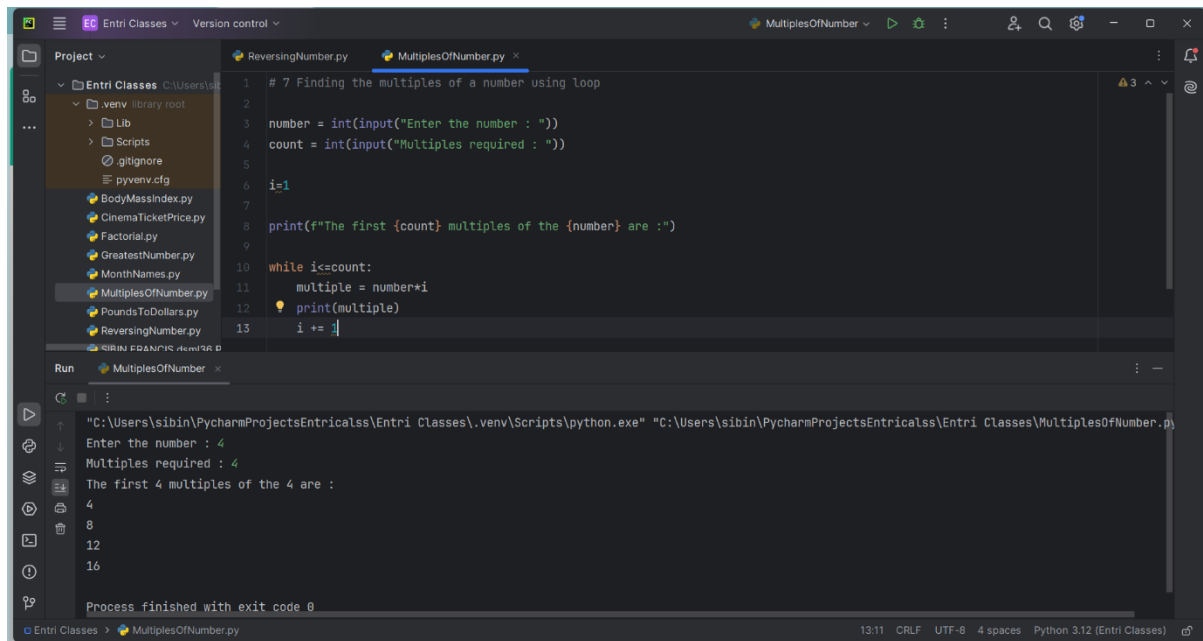


The screenshot shows the PyCharm IDE with a project named 'Entri Classes'. The file explorer on the left shows a directory structure with various Python files, including 'ReversingNumber.py'. The main editor window displays the code for 'ReversingNumber.py', which reverses a user-input number using a while loop. The code is as follows:

```
1 # 6 Reverse a number using while loop
2
3 number = int(input(" Enter the Number :"))
4
5 reversed_number = 0
6
7 while number > 0:
8     digit = number%10
9     reversed_number = reversed_number*10 + digit
10    number = number//10
11
12 print("Reversed number is ", reversed_number)
```

The Run window at the bottom shows the execution of the program. The command used is "C:\Users\sibin\PycharmProjects\EntriClasses\.venv\Scripts\python.exe "C:\Users\sibin\PycharmProjects\EntriClasses\ReversingNumber.py". The input is "Enter the Number :256", and the output is "Reversed number is 652". The process finished with exit code 0.

## ➤ Finding the multiples of a number using loop



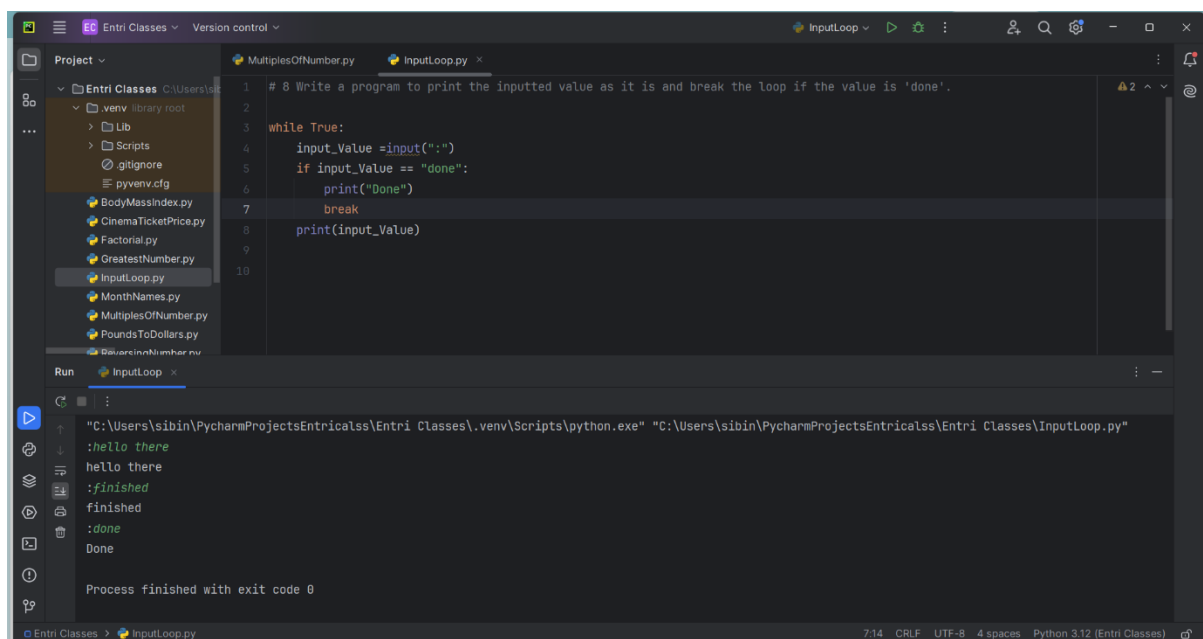
The screenshot shows the PyCharm IDE with a project named 'Entri Classes'. The file explorer on the left lists several Python files, including 'MultiplesOfNumber.py'. The main editor displays the code for 'MultiplesOfNumber.py':

```
1 # 7 Finding the multiples of a number using loop
2
3 number = int(input("Enter the number : "))
4 count = int(input("Multiples required : "))
5
6 i=1
7
8 print(f"The first {count} multiples of the {number} are :")
9
10 while i<=count:
11     multiple = number*i
12     print(multiple)
13     i += 1
```

The Run window at the bottom shows the execution output:

```
"C:\Users\sibin\PycharmProjects\EntriClasses\.venv\Scripts\python.exe" "C:\Users\sibin\PycharmProjects\EntriClasses\MultiplesOfNumber.py"
Enter the number : 4
Multiples required : 4
The first 4 multiples of the 4 are :
4
8
12
16
Process finished with exit code 0
```

## ➤ A program to print the inputted value as it is and break the loop if the value is 'done'.



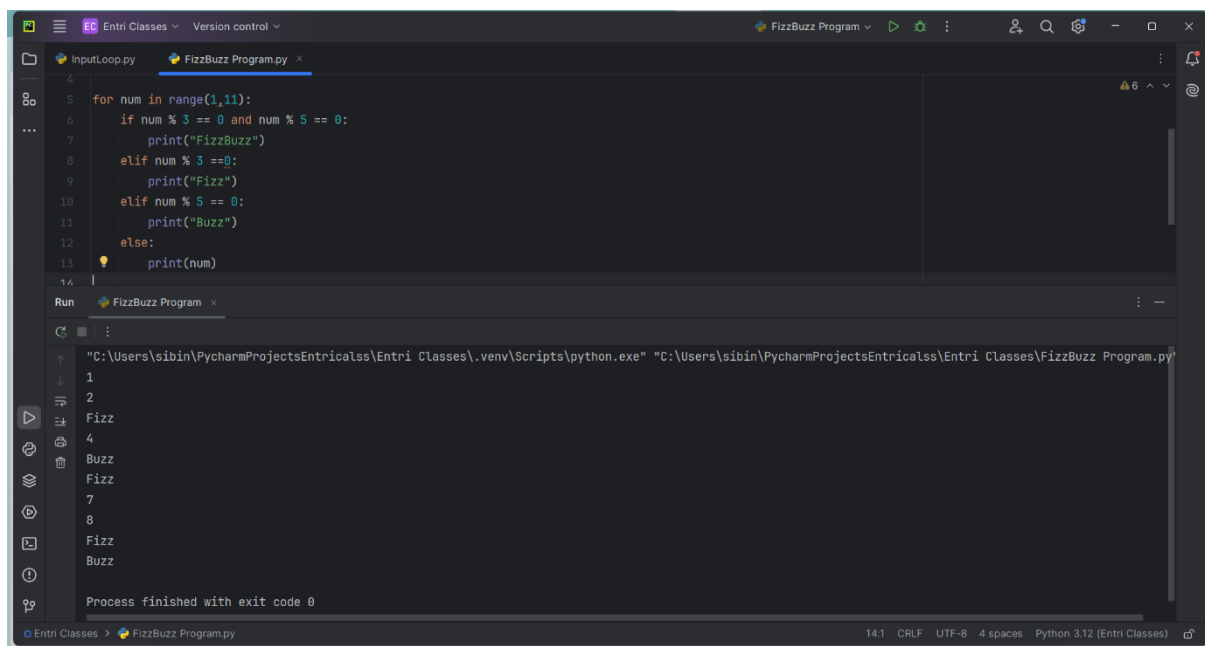
The screenshot shows the PyCharm IDE with a project named 'Entri Classes'. The file explorer on the left lists several Python files, including 'InputLoop.py'. The main editor displays the code for 'InputLoop.py':

```
1 # 8 Write a program to print the inputted value as it is and break the loop if the value is 'done'.
2
3 while True:
4     input_Value = input(":")
5     if input_Value == "done":
6         print("Done")
7         break
8     print(input_Value)
9
10
```

The Run window at the bottom shows the execution output:

```
"C:\Users\sibin\PycharmProjects\EntriClasses\.venv\Scripts\python.exe" "C:\Users\sibin\PycharmProjects\EntriClasses\InputLoop.py"
:hello there
hello there
:finished
finished
:done
Done
Process finished with exit code 0
```

- 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"



The screenshot shows a PyCharm IDE window with a file named 'FizzBuzz Program.py'. The code is as follows:

```
4  
5 for num in range(1,11):  
6     if num % 3 == 0 and num % 5 == 0:  
7         print("FizzBuzz")  
8     elif num % 3 == 0:  
9         print("Fizz")  
10    elif num % 5 == 0:  
11        print("Buzz")  
12    else:  
13        print(num)  
14
```

Below the code editor, the 'Run' tab shows the command executed: `"C:\Users\sibin\PycharmProjects\Entricalss\Entricalss\.venv\Scripts\python.exe" "C:\Users\sibin\PycharmProjects\Entricalss\Entricalss\FizzBuzz Program.py"`. The output is displayed as follows:

```
1  
2  
Fizz  
4  
Buzz  
Fizz  
7  
8  
Fizz  
Buzz
```

The status bar at the bottom indicates 'Process finished with exit code 0' and 'Python 3.12 (Entricalss)'.

- A program to print the following pattern:

5 4 3 2 1

4 3 2 1

3 2 1

2 1

1



