

CONDITIONAL AND LOOPING STATEMENTS

Exercise 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"]
```

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

```
if 1 <= month_id <= 12:
```

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

```
else:
```

```
    print("Invalid input! Please enter a number between 1 and 12")
```

```
C:\Users\nms31\PycharmProjects\Python_D36_ENTR...  
Enter the month number (1-12): 11  
Month number 11 is November  
  
Process finished with exit code 0
```

```
C:\Users\nms31\PycharmProjects\Python_D36_ENTRI\venv\Scr...  
Enter the month number (1-12): 13  
Invalid input! Please enter a number between 1 and 12  
  
Process finished with exit code 0
```

Exercise 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**

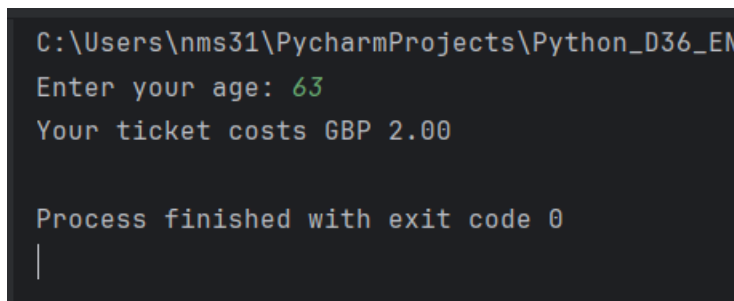
Your ticket costs £2.00

```

age = int(input("Enter your age: "))

if age < 16:
    print("Your ticket costs GBP 3.00")
elif age < 60:
    print("Your ticket costs GBP 6.00")
else:
    print("Your ticket costs GBP 2.00")

```



```

C:\Users\nms31\PycharmProjects\Python_D36_EM
Enter your age: 63
Your ticket costs GBP 2.00

Process finished with exit code 0
|

```

Exercise 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. BMI formula accepts weight in kilograms and height in meters:

BMI= weight(kg)/height²(m²)

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.

```

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

```

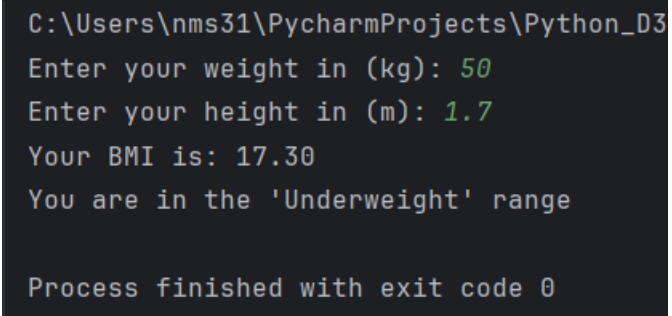
```

bmi = weight / (height**2)

```

```
if bmi < 18.5:
    weight_status = "Underweight"
elif bmi < 24.9:
    weight_status = "Normal"
elif bmi < 29.9:
    weight_status = "Overweight"
else:
    weight_status = "Obese"

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



A screenshot of a terminal window with a dark background. The text is as follows:
C:\Users\nms31\PycharmProjects\Python_D3
Enter your weight in (kg): 50
Enter your height in (m): 1.7
Your BMI is: 17.30
You are in the 'Underweight' range

Process finished with exit code 0

Exercise 4

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

```
a = int(input("Enter first number: "))
b = int(input("Enter second number: "))
c = int(input("Enter third number: "))

if a > b and a > c:
    print("The greatest number amongst the entered values is the first number", a)
elif b > a and b > c:
    print("The greatest number amongst the entered values is the second number", b)
elif c > a and c > b:
    print("The greatest number amongst the entered values is the third number", c)
```

```
C:\Users\nms31\PycharmProjects\Python_D36_ENTRI\.venv\Scripts\python.exe
Enter first number: 4
Enter second number: 7
Enter third number: 5
The greatest number amongst the entered values is the second number 7

Process finished with exit code 0
```

Exercise 5

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

```
num1 = int(input("Enter the number to calculate factorial: "))
```

```
factorial = 1
```

```
if num1 < 0:
```

```
    print("Factorials do not exist for negative numbers")
```

```
elif num1 == 0:
```

```
    print("Factorial of 0 is 1")
```

```
else:
```

```
    for i in range(1,num1+1):
```

```
        factorial *= i
```

```
    print(f"The factorial for {num1} is {factorial}.")
```

```
C:\Users\nms31\PycharmProjects\Python_D36_ENTRI\
Enter the number to calculate factorial: -3
Factorials do not exist for negative numbers

Process finished with exit code 0
```

```
C:\Users\nms31\PycharmProjects\Python_D36_ENTR
Enter the number to calculate factorial: 5
The factorial for 5 is 120.

Process finished with exit code 0
```

Exercise 6

Reverse a number using while loop

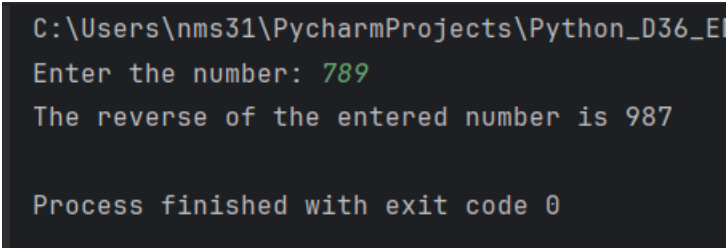
```

num4 = int(input("Enter the number: "))

r = 0

while num4 > 0:
    d = num4 % 10
    r = r * 10 + d
    num4 = num4 // 10
print(f"The reverse of the entered number is {r}")

```



```

C:\Users\nms31\PycharmProjects\Python_D36_E
Enter the number: 789
The reverse of the entered number is 987

Process finished with exit code 0

```

Exercise 7

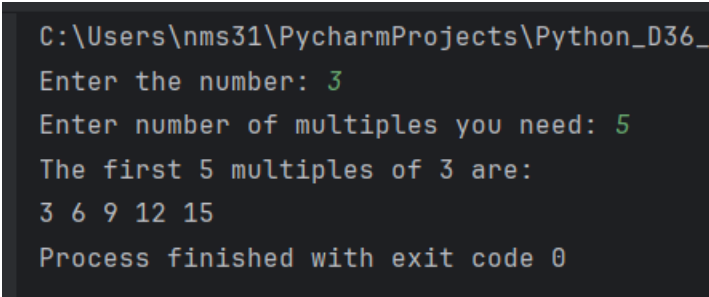
Finding the multiples of a number using loop

```

num2 = int(input("Enter the number: "))
num3 = int(input("Enter number of multiples you need: "))

print(f"The first {num3} multiples of {num2} are: ")
for i in range(1,num3+1):
    print(num2 * i, end=" ")

```



```

C:\Users\nms31\PycharmProjects\Python_D36_
Enter the number: 3
Enter number of multiples you need: 5
The first 5 multiples of 3 are:
3 6 9 12 15

Process finished with exit code 0

```

Exercise 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

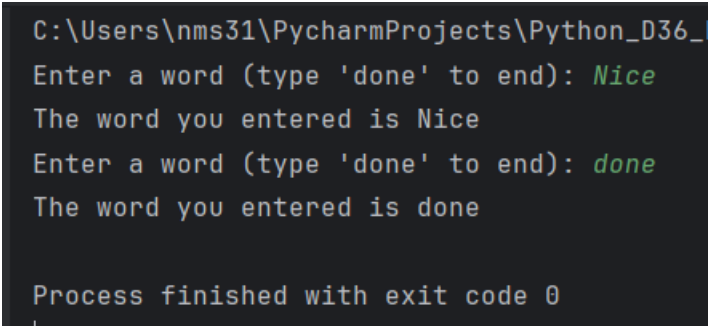
```

:hello there
hello there

```

:finished
finished
:done
Done

```
while True:
    word = input("Enter a word (type 'done' to end): ")
    print(f"The word you entered is {word}")
    if word == 'done' or word == 'Done' or word == 'DONE':
        break
```



```
C:\Users\nms31\PycharmProjects\Python_D36_
Enter a word (type 'done' to end): Nice
The word you entered is Nice
Enter a word (type 'done' to end): done
The word you entered is done

Process finished with exit code 0
```

Exercise 9

Write a program that prints the numbers from 1 to 15. 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(1,16):
    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)
```

```
C:\Users\nms31\PycharmProjects\Pytho
```

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

```
8  
Fizz  
Buzz  
11  
Fizz  
13  
14  
FizzBuzz
```

Exercise 10

Write a program to print the following pattern:

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

```
for i in range(5,0,-1):  
    for j in range(i,0,-1):  
        print(j, end="")  
    print()
```

```
C:\Users\nms31\PycharmProjects\Pytho
```

```
54321  
4321  
321  
21  
1
```

```
Process finished with exit code 0
```