

## **EXPERIMENT NO: 03**

**AIM:-** To execute program related to conditional statements if, elif, nested if, switch statements.

**THEORY:-** Conditional Statement in python perform different computations or actions depending on whether a specific Boolean constraint evaluates to true or false. Conditional statements are handled by many statement in python.

→What is python if statement?

Python if statement is used for decision-making operations. It contains a body of code which runs only when the condition given in the if statement is true. If the condition is false, then the optional else statement runs which contains some code for else condition.

→If statement syntax :-

If expression:

Statement

→What is python if/else statement?

The python if....else statement evaluates test expression and will execute the body of if only when the test condition is true. If the condition is false, the body of else is executed. Indentation is used to separate the blocks.

→If...else statement syntax:

If test expression:

Body of if

Else:

Body of else

→What is python if...elif...else statement?

The elif is short for else if. It allows is to check for multiple expressions. If the condition for if is false, it checks the condition of the next elif block and so on. If all the conditions are false, the body of else is executed. Only one block among the several if...elif...else blocks is executed according to the condition. The if block can have only one else block, but it can have multiple elif blocks.

### → If...elif...else statement syntax :-

If test expression:

    Body of if

Elif test expression:

    Body of elif

Else:

    Body of else

### → What is python Nested if statement?

We can have an if...elif...else statement inside another if...elif...else statements. This is called nesting in computer programming. Any number of these statements can be nested inside one another. Indentation is the only way to figure out the level of nesting. They can get confusing, so they must be avoided unless necessary.

### → Nested if statement syntax:-

If expression 1:

    Statement (s)

If expression 2:

    Statement (s)

elif expression 3:

    Statement (s)

Else:

    Statement (s)

Else:

    Statement (s)

### → What is switch statement in python?

Python doesn't have a switch or case statement. To get around this fact, we use dictionary mapping which is also known as associative arrays, that provide simple one-to-one key-value mapping. Switcher is dictionary data type her. Get() method of dictionary data type returns value of passed argument if it is present in dictionary otherwise second argument will be assigned as default value of passed argument.

**Problem Definition:**

Write a program to accept marks and display the grade as follows:

- Marks  $\geq 90$   $\rightarrow$  Grade A
- Marks  $\geq 75$   $\rightarrow$  Grade B
- Marks  $\geq 50$   $\rightarrow$  Grade C
- Marks  $< 50$   $\rightarrow$  Fail

```
marks = int(input("Enter the marks: "))

if marks >= 90:

    print("Grade A")

elif marks >= 75 :

    print("Grade B")

elif marks >= 50:

    print("Grade C")

else:

    print("Fail")
```

**Write a python script to calculate the BMI of a person**

**Code:-**

```
def BMI (height, weight):

    bmi = weight/(height**2)

    return bmi

height = 1.79832

weight = 70

bmi = BMI(height, weight)

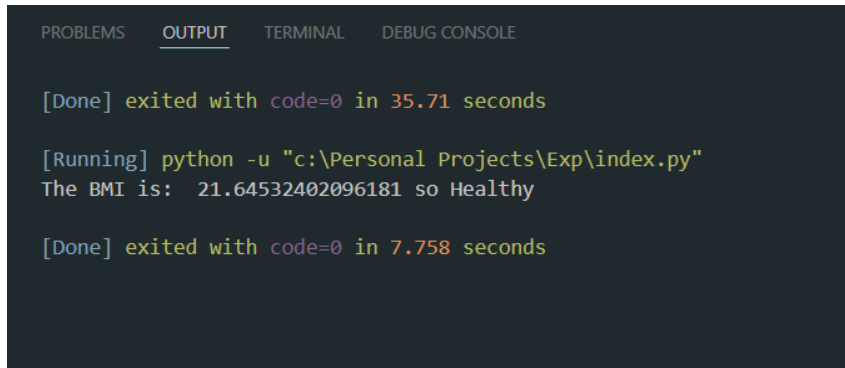
print("The BMI is: ", bmi, "so ", end=")

if (bmi<18.5) :

    print("Underweight")

elif (bmi >= 18.5 and bmi <24.9):
```

```
        print("Healthy")
elif (bmi>= 24.9 and bmi < 30):
    print("Overnight")
elif (bmi >=30):
    print("Suffering from obesity")
```



```
PROBLEMS  OUTPUT  TERMINAL  DEBUG CONSOLE

[Done] exited with code=0 in 35.71 seconds

[Running] python -u "c:\Personal Projects\Exp\index.py"
The BMI is: 21.64532402096181 so Healthy

[Done] exited with code=0 in 7.758 seconds
```

### Problem Definition:

Write a program to calculate the electricity bill based on units consumed:

- First 100 units → ₹1/unit
- Next 100 units → ₹2/unit
- Above 200 units → ₹3/unit

```
units=int(input("Enter the units of electricity used"))
```

```
if(units==100):
```

```
    print("Bill is 100 Rs")
```

```
elif(units>100 and units<200):
```

```
    bill=100+2*(200-units)
```

```
    print("Bill is",bill)
```

```
elif(units==200):
```

```
    print("Bill is Rs.300")
```

```
else:
```

```
bill=300+3*(units-200)
```

```
print("Bill is",bill)
```

**Write a menu driven program o display day based on parameter number while calling. Use Switcher function.**

```
def week(i):  
    switcher={  
        0:'Sunday',  
        1:'Monday',  
        2:'Tuesday',  
        3:'Wednesday',  
        4:'Thursday',  
        5:'Friday',  
        6:'Saturday'  
    }  
    return switcher.get(i,"Invalid day of week")  
  
print(week(7))
```

Python does not have a built-in `switch` statement.  
A **dictionary-based switcher** is commonly used instead.

**Write a program to display the name of the month based on the month number (1–12) using a switcher approach.**

```
month_switcher = {  
    1: "January",  
    2: "February",  
    3: "March",  
    4: "April",  
    5: "May",  
    6: "June",
```

```
7: "July",
8: "August",
9: "September",
10: "October",
11: "November",
12: "December"
}
month_number = int(input("Enter month number (1-12): "))
# Get month name using switcher
month_name = month_switcher.get (month_number, "Invalid month number")
print("Month Name:", month_name)
```

**CONCLUSION:** Hereby we have performed a program related to conditional statements if, elif, nested if, switch statement.

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