Chittagong University of Engineering and Technology (CUET)

Department of Electronics and Telecommunication Engineering

Lab Report

Experiment Name: Python Conditional Statements
Experiment No.: 02
Course Title: Multimedia Communication Sessional
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Objectives:

- Get familiar with the Python conditional statements and different conditional operators.
- Write Programs using Python if else statements

Required Software:

- Jupyter Notebook

Program Code:

1.1 Write a program to prompt the user for hours and rate per hour to compute gross pay. However, the employees who worked above 40 hours were given 1.5 times the hourly rate for individual hours.
Code:

```
hours = int(input("Enter hours: ")) #45
rph = int(input("Enter rate per hour: ")) #10
p = 40 * rph #400
p1 = hours * rph
if hours > 40:
  payment = (hours - 40) * 1.5 * 10
  gross_pay = payment + p
  print("Total: ", gross_pay)
else:
  print("Total: ", p1)
```

Output:

```
Enter hours: 45
Enter rate per hour: 10
Total:  475.0
```

1.2 A company decided to give a bonus of 5% to an employee if his/her year of service is more than 5 years. Ask the user for their salary and year of service and print the net bonus amount.
Code:

```
salary = float(input("Enter your salary: "))
years = int(input("Enter your years of service: "))
bonus = 0
if years > 5:
    bonus = 0.05 * salary
    total_salary = salary + bonus

print(f"The net bonus amount is: {bonus}")
print(f"The net salary amount is: {total_salary}")
```

Output:

```
Enter your salary: 1000
Enter your years of service: 6
The net bonus amount is: 50.0
The net salary amount is: 1050.0
```

1.3 Take values of the length and breadth of a rectangle from the user and check if it is square or not.

Code:

```
length = int(input("enter the length: "))
breadth= int(input("enter the breadth: "))

if length == breadth:
  print("It is a square.")
else:
  print("It is not a square")
```

Output:

```
enter the length: 4
enter the breadth: 4
It is a square.
```

1.4 A program that prompts the user for the height and width of a rectangle and calculates the area, diagonal and perimeter

Code:

```
import math

height = float(input("Enter the height: "))
width = float(input("Enter the width: "))
area = height * width
peri = 2 * (height + width)
diag = math.sqrt(width**2 + height**2)
print(f"area: {area}")
print(f"diagonal: {diag}")
print(f"perimeter: {peri}")
```

Output:

```
Enter the height: 4
Enter the width: 3
area: 12.0
diagonal: 5.0
perimeter: 14.0
```

1.5 A shop will give a discount of 10% if the cost of the purchased quantity is more than 1000. Ask the user for quantity Suppose, one unit will cost 100. Judge and print the total cost for the user.

Code:

```
unit_cost = 100
quantity = int(input("Enter the quantity: "))
total_cost = quantity * unit_cost

if total_cost > 1000:
    total_cost = total_cost * (1 - 0.1)

print(f"The total cost is: {total_cost}")
```

Output:

```
Enter the quantity: 102
The total cost is: 9180.0
```

1.6 A school has the following rules for the grading system:

a. Below 25 - F b. 25 to 45 - E c. 45 to 50 - D d. 50 to 60 - C e. 60 to 80 - B f. Above 80 - A

Code:

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

if marks < 25:
  print("F")
elif marks > 25 and marks <= 45:
  print("E")
elif marks > 45 and marks <= 50:
  print("D")
elif marks > 50 and marks <= 60:
  print("C")
elif marks > 45 and marks <= 50:
  print("B")
else:
  print("A")
```

Output:

```
enter the marks: 50
D
```

1.7 Take input of age of 3 people by the user and determine oldest and youngest among them

Code:

```
age1 = int(input("Enter the age of person 1: "))
age2 = int(input("Enter the age of person 2: "))
age3 = int(input("Enter the age of person 3: "))

if age1 >= age2 and age1 >= age3:
    oldest = age1
elif age2 >= age1 and age2 >= age3:
    oldest = age2
else:
    oldest = age3

if age1 <= age2 and age1 <= age3:
    youngest = age1
elif age2 <= age1 and age2 <= age3:
    youngest = age2
else:
    youngest = age3
print(f"The oldest age is: {oldest}")
print(f"The youngest age is: {youngest}")
```

Output:

```
Enter the age of person 1: 45
Enter the age of person 2: 23
Enter the age of person 3: 89
The oldest age is: 89
The youngest age is: 23
```

1.8 A student will not be allowed to sit in an exam if his/her attendance is less than 75%. Take the following input from the user:
Number of classes held
The number of classes attended
And print the percentage of classes attended. Is the student allowed to sit in an exam or not?

Code:

```
class_korse = int(input("koyta class korso?: "))
class_koyta = int(input("class koyta hoise?: "))
attendence = class_korse / class_koyta
if attendence >= 0.75:
  print("exam dite parbe")
else:
  print("exam dite parbena")

print("tar percentage: ", attendence)
```

Output:

```
koyta class korso?: 4
class koyta hoise?: 5
exam dite parbe
tar percentage:  0.8
```

1.9 Modify the above question to allow a student to sit if he/she has a medical cause. Ask the user if he/she has a medical cause or not (’Y’ or ’N’) and print accordingly

Code:

```
class_korse = int(input("koyta class korso?: "))
class_koyta = int(input("class koyta hoise?: "))
medical = str(input("tomar medical issues ase?: "))
attendence = class_korse / class_koyta
if attendence >= 0.75:
  print("exam dite parbe")
else:
  print("exam dite parbena")
  if medical == "ha":
    print("somssha ase")
  elif medical == "na":
    print("Somossha nai")

print("tar percentage: ", attendence)
```

Output:

```
koyta class korso?: 7
class koyta hoise?: 10
tomar medical issues ase?: ha
exam dite parbena
somssha ase
tar percentage:  0.7
```

2.0 Sort three numbers in ascending and descending order using conditional statements

Code:

```
num1 = int(input("Enter the first number: "))
num2 = int(input("Enter the second number: "))
num3 = int(input("Enter the third number: "))

if num1 <= num2 and num1 <= num3:
    if num2 <= num3:
        asc_order = (num1, num2, num3)
    else:
        asc_order = (num1, num3, num2)
elif num2 <= num1 and num2 <= num3:
    if num1 <= num3:
        asc_order = (num2, num1, num3)
    else:
        asc_order = (num2, num3, num1)
else:
    if num1 <= num2:
        asc_order = (num3, num1, num2)
    else:
        asc_order = (num3, num2, num1)
```

```
if num1 >= num2 and num1 >= num3:
    if num2 >= num3:
        desc_order = (num1, num2, num3)
    else:
        desc_order = (num1, num3, num2)
elif num2 >= num1 and num2 >= num3:
    if num1 >= num3:
        desc_order = (num2, num1, num3)
    else:
        desc_order = (num2, num3, num1)
else:
    if num1 >= num2:
        desc_order = (num3, num1, num2)
    else:
        desc_order = (num3, num2, num1)

print(f"Ascending order: {asc_order}")
print(f"Descending order: {desc_order}")
```

Output:

```
Enter the first number: 22
Enter the second number: 44
Enter the third number: 99
Ascending order: (22, 44, 99)
Descending order: (99, 44, 22)
```

Discussion:

- The Python programming concept of conditional statements has been learnt and implemented by this experiment
- Various problems regarding the if-else conditional statements have been solved after this experiment.