**Name : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ID: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Lab # 5: Implementation of Conditional Statements (C)**

**OBJECTIVES**

In this lab you will learn:

- the use of Conditional Statements

**PYTHON CONDITIONS AND IF STATEMENTS**

Python supports the usual logical conditions from mathematics:

* Equals: a == b
* Not Equals: a != b
* Less than: a < b
* Less than or equal to: a <= b
* Greater than: a > b
* Greater than or equal to: a >= b

**If**

These conditions can be used in several ways, most commonly in "if statements" and loops.

An "if statement" is written by using the if keyword.

**Task 1**

If statement:

a = 33  
b = 200  
**if** b > a:  
 print(**"b is greater than a"**)

In this task 1 we use two variables, a and b, which are used as part of the if statement to test whether b is greater than a.

As a is 33, and b is 200, we know that 200 is greater than 33, and so we print to screen that "b is greater than a".

**INDENTATION**

Python relies on indentation (whitespace at the beginning of a line) to define scope in the code. Other programming languages often use curly-brackets for this purpose.

**Task 2**

If statement, without indentation (will raise an error):

a = 33  
b = 200  
**if** b > a:  
print(**"b is greater than a"**) *# you will get an error*

## Elif

The elif keyword is pythons way of saying "if the previous conditions were not true, then try this condition".

**Task 3**

a = input(**"Enter the value of a="**)  
b = input(**"Enter the Value of b="**)

print(**"a="**,a, **"b="**,b )

**if** b > a:  
 print(**"b is greater than a"**)  
**elif** a == b:  
 print(**"a and b are equal"**)

## Else

The else keyword catches anything which isn't caught by the preceding conditions.

**Task 4**

a = 200  
b = 33  
**if** b > a:  
 print(**"b is greater than a"**)  
**elif** a == b:  
 print(**"a and b are equal"**)  
**else**:  
 print(**"a is greater than b"**)

In this task 5, a is greater than b, so the first condition is not true, also the elif condition is not true, so we go to the else condition and print to screen that "a is greater than b".

**Task 5**

You can also have an else without the elif:

**Example**

a = 200  
b = 33  
**if** b > a:  
 print(**"b is greater than a"**)  
**else**:  
 print(**"b is not greater than a"**)

**Task 6**

## And

The and keyword is a logical operator, and is used to combine conditional statements:

Test if a is greater than b, AND if c is greater than a:

a = 200  
b = 33  
c = 500  
**if** a > b **and** c > a:  
  
 print(**"Both conditions are True"**)

## Task 7

## Or

The or keyword is a logical operator, and is used to combine conditional statements:

Test if a is greater than b, OR if a is greater than c:

a = 200  
b = 33  
c = 500  
**if** a > b **or** a > c:  
 print(**"At least one of the conditions is True"**)

**Task 8**

## Nested If

You can have if statements inside if statements, this is called *nested* if statements.

x = float(input(**"Enter any number"**))  
  
**if** x > 10:  
 print(**"Above ten,"**)  
 **if** x > 20:  
 print(**"and also above 20!"**)  
 **else**:  
 print(**"but not above 20."**)

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**Lab Assignment 1**

Write a program to calculate the electricity bill (accept number of units from user) according to the following criteria :

**Unit**  **Price**

First 100 units no charge

Next 100 units Rs 30 per unit

After 200 units Rs 50 per unit

(For example if input unit is 350 than total bill amount is PKR 10,500)

The display should look like:

A black and white text

Description automatically generated

|  |
| --- |
| bill=0 unit=int(input("Enter number of electric unit: ")) if unit <= 100:  bill=0 elif unit > 100 and unit <= 200:  bill=(unit-100)\*30 else:  bill=3000+(unit-200)\*50 print("Amount to pay :",bill) |

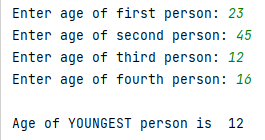
A screenshot of a computer program

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**Lab Assignment 2**

Write a program to ask from user the age of four different people. The program should return the age of the **youngest** one.

The output is given as a sample :



|  |
| --- |
| age1=int(input ("Enter age of first person: ")) age2=int(input("Enter age of second person: ")) age3=int(input ("Enter age of third person: ")) age4=int(input("Enter age of fourth person: ")) if age1 < age2 and age1 < age3 and age1 < age4:  print ("\nAge of YOUNGEST person is ",age1) elif age2 < age1 and age2 < age3 and age2 < age4:  print ("\nAge of YOUNGEST person is ",age2) elif age3 < age1 and age3 < age2 and age3 < age4:  print ("\nAge of YOUNGEST person is ",age3) elif age4 < age1 and age4 < age2 and age4 < age3:  print("\nAge of YOUNGEST person is: ", age4) |

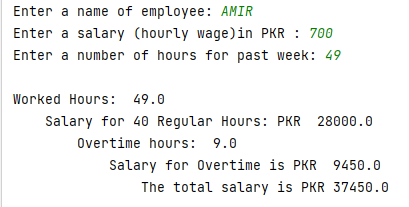
A screenshot of a computer code

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**Lab Assignment 3**

Write a program that:

1. Reads in the **name** of an employee.
2. Reads in the **hourly wage** of that employee in PKR.
3. Reads in the **number of hours** the employee worked for last week. (Be sure to accept fractional hours. An overtime work, i.e., over 40 hours per week, is paid at 150 percent of the regular wage.)
4. Displays the following details:



|  |
| --- |
| name = input("Enter a name of employee: ") salary = float(input("Enter a salary (hourly wage)in PKR : ")) hours = float(input("Enter a number of hours for past week: ")) if hours > 40:  pay = 40 \* salary  payOvertime = (hours - 40) \* salary \* 1.5  overtime = hours - 40  regular = 40 else:  pay = hours \* salary  payOvertime = 0  overtime = 0  regular = hours print("\nWorked Hours: ",hours) print("\tSalary for 40 Regular Hours: PKR ",pay) print("\t\tOvertime hours: ",overtime) print("\t\t\tSalary for Overtime is PKR ",payOvertime) print("\t\t\t\tThe total salary is PKR " + str(payOvertime + pay)) |

A screenshot of a computer program

Description automatically generated