**Batch: G3 Roll No.: 16010421063**

**Experiment / assignment / tutorial No. 2**

**Grade: AA / AB / BB / BC / CC / CD /DD**

**Signature of the Staff In-charge with date**

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| --- |
| **TITLE:** Write a program to accept 3 numbers from the user and find the largest of the 3 numbers using                    If - else if-else                    Ternary operator |

**AIM:** Write a program to accept 3 numbers from the user and find the largest of the 3 numbers using

                  If - else if-else

                  Ternary operator

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**Expected OUTCOME of Experiment:**

**CO2: Apply basic concepts of C programming for problem solving**

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**Books/ Journals/ Websites referred:**

1. Programming in C, second edition, Pradeep Dey and Manas Ghosh, Oxford University Press.
2. Programming in ANSI C, fifth edition, E Balagurusamy, Tata McGraw Hill.
3. Introduction to programming and problem solving , G. Michael Schneider ,Wiley India edition.
4. [**http://cse.iitkgp.ac.in/~rkumar/pds-vlab/**](http://cse.iitkgp.ac.in/~rkumar/pds-vlab/)

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**Problem Definition:**

Ask user to input three numbers. Compare three numbers to find the largest of them using

1. Nested if else statement
2. Using ternary operator

**Flowchart:**

START

INPUT num1,num2,num3

DISPLAY num1

YES

YES

num1>num3

num1>num2

NO

DISPLAY num2

YES

YES

num2>num3

num2>num1

NO

DISPLAY num3

STOP

**Implementation details:**

**Using if-else:**

#include<stdio.h>

//Code by Arya Nair

int main()

{

float num1,num2,num3,max;

printf("Enter 3 numbers: ");

//Getting values from the user

scanf("%f%f%f",&num1,&num2,&num3);

//conditional operators to find the largest number

if (num1>num2 && num1>num3)

{

max=num1;

}

else if(num2>num1 && num2>num3)

{

max=num2;

}

else

{

max=num3;

}

printf("%f",max);

}

**Using ternary operator:**

#include<stdio.h>

//Code by Arya Nair

int main()

{

float num1,num2,num3,max;

printf("Enter 3 numbers: ");

//Getting values from the user

scanf("%f%f%f",&num1,&num2,&num3);

//Nested ternary operator

max = (num1 > num2 && num1 > num3) ? num1 : (num2 > num1 && num2 > num3) ? num2 : num3;

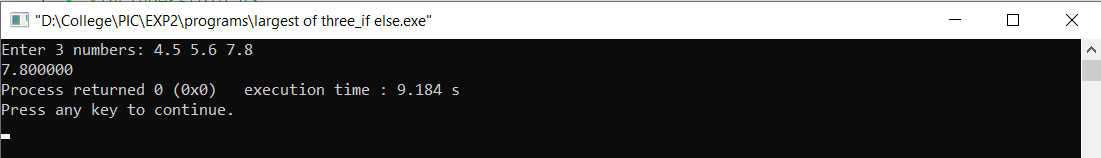
//Giving user the largest number

printf("Largest number is: %f",max);

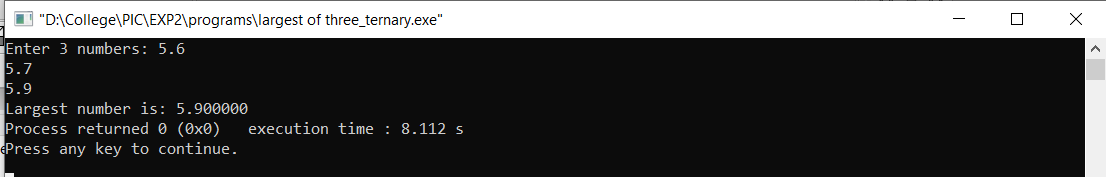
}

**Output(s):**

**Using if-else:**



**Using ternary:**

****

**Conclusion:**

This program used if-else statements and ternary operator to give us our desired output. This helped me understand the various use cases of if-else statements.

**Post Lab Descriptive Questions**

1. **Explain bitwise operators with examples**

**Ans-**

Bitwise operators are characters that represent actions to be performed on single bits. A bitwise operation operates on two-bit patterns of equal lengths by positionally matching their individual bits. The most commonly used Bitwise operators are And(&&) and Or(||)

Examples-

|  |  |
| --- | --- |
| & | Bitwise And |
| | | Bitwise Or |
| ^ | Bitwise EXOR |
| << | Left shift |
| >> | Right shift |
| - | Complement |

1. **Write a code snippet to perform left shifting of bits by some positions**

**Ans-**

#include<stdio.h>

int main()

{

int num,iter;

printf("Enter number you would like to left shift: ");

scanf("%d",&num);

printf("How many times do you want to shift: ");

scanf("%d",&iter);

printf("%d",num<<iter);

return 0;

}

1. **Write associative rules and precedence table of various operators.**

**Ans-**

|  |  |  |
| --- | --- | --- |
| **ASSOCIATIVITY** | **OPERATOR** | **DESCRIPTION** |
| **left to right** | ( )  [ ]  .  ->  + + - - | Parentheses/Function call  Brackets  Dot  Arrow Operator  Postfix Increment/Decrement |
| **right to left** | + + - -  + -  ! ~d  (type)  \*  &  size of | Prefix Increment/Decrement  Unary plus and minus  not operator and bitwise complement  type cast  dereference operator  Address of operator  Determine size of bytes |
| **left to right** | + -  \* / % | Addition and Subtraction  Multiplication, Division and Modulus |
| **left to right** | << >>  < <= > >=  = = ! =  &  ^  |  &&  | | | Bitwise left shift and right shift  Relational less than/less than equal to  Relational greater than/greater than equal to  Relational equal to and not equal to  Bitwise And Bitwise exclusive Or  Bitwise inclusive Or  Logical Or  Logical Or |
| **right to left** | ? : | Ternary Operator |
| **right to left** | =  += -=  \*= /=  %= &=  ^= |=  <<= >>= | Assignment Operator  Addition/Subtraction Assignment  Multiplication/Division Assignment  Modulus/Bitwise And Assignment  Bitwise Inclusive/Exclusive Or Assignment  Bitwise Shift Left/Right Assignment |
| **left to right** | , | Comma Operator |

1. **What are different storage class specifiers in C?**

**Ans-**

The four storage classes in C are:

* Auto is used for a local variable declared in the scope.
* Register is used to store the variable in CPU registers rather memory location for quick access.
* Static is used for both global and local variables. Each one has its use case within a C program.
* Extern is used for data sharing between C project files.

**Date: \_\_\_\_\_\_\_\_\_\_\_\_\_ Signature of faculty in-charge**