K. J. Somaiya College of Engineering, Mumbai-77

(A Constituent College of Somaiya Vidyavihar University)

Batch:C2-2 Roll No.: 16010122109

Experiment / assignment / tutorial No. 2

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

Signature of the Staff In-charge with date

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

Expected OUTCOME of Experiment:

Books/ Journals/ Websites referred:

1. Programming in ANSI C, E. Balagurusamy, 7 th Edition, 2016, McGraw-Hill Education, India.
2. Structured Programming Approach, Pradeep Dey and Manas Ghosh, 1 st Edition, 2016, Oxford University Press, India.
3. Let Us C, Yashwant Kanetkar, 15th Edition, 2016, BPB Publications, India.

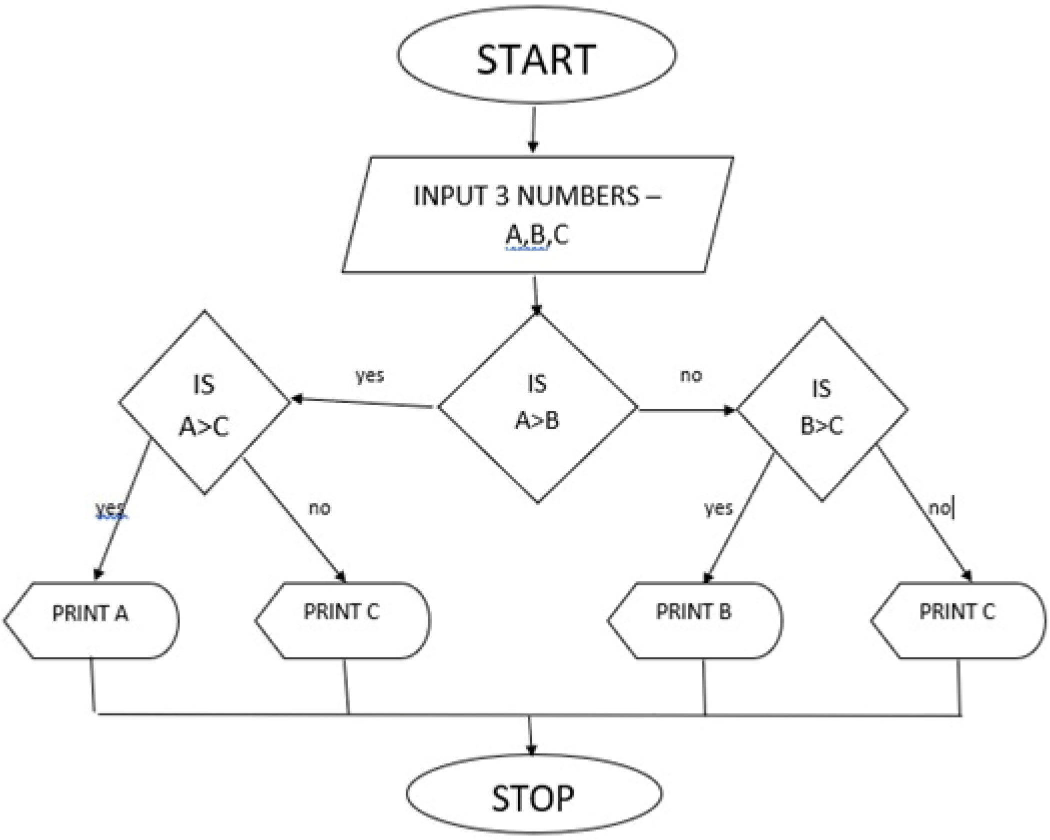
Problem Definition:

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

Algorithm:



1. Start
2. Declare variable a for number 1, b for number 2, c for number 3
3. Print statement user to input 3 numbers
4. Take in 3 numbers from user as values for a, b, c
5. Check if a > b if true go to step 6 else goto step 9
6. Check if b > c if true go to step 7 else goto step 8
7. Print “A is the greatest number”
8. Print “B is the greatest number”
9. Check if b > c if true go step 10 else go to step 11
10. Print “B is the greatest number”
11. Print “C is the greatest number”
12. Stop

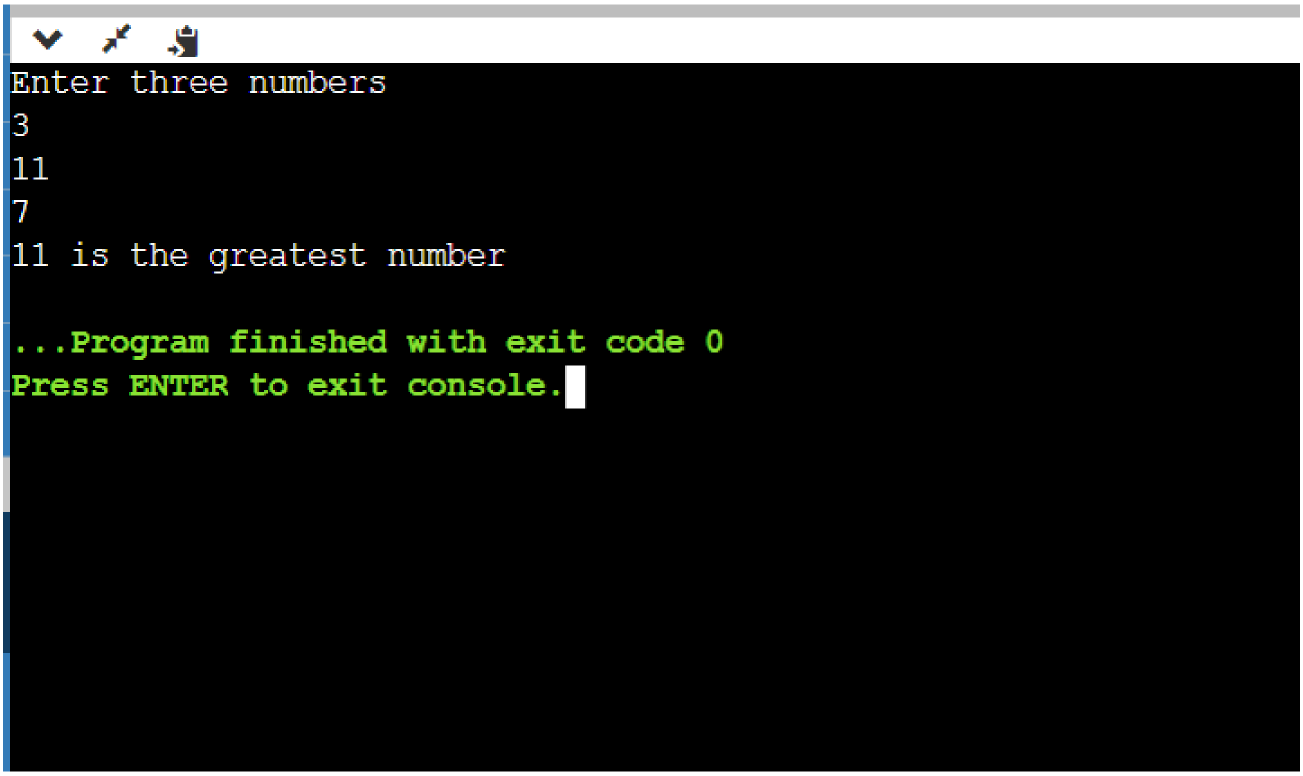
Implementation details:

```
#include <stdio.h>
int main(void)
{
   int a, b, c;
   printf("Enter three numbers\n");
   scanf("%d", &a);
   scanf("%d", &b);
   scanf("%d", &c);

   if (a > b)
   {
      if (a > c)
      {
         printf("%d is the greatest number\n", a);
      }
      else
      {
         printf("%d is the greatest number", c);
      }
   }
   else
   {
      if (b > c)
      {
         printf("%d is the greatest number", b);
      }
      else
      {
         printf("%d is the greatest number", c);
      }

   }
}
```

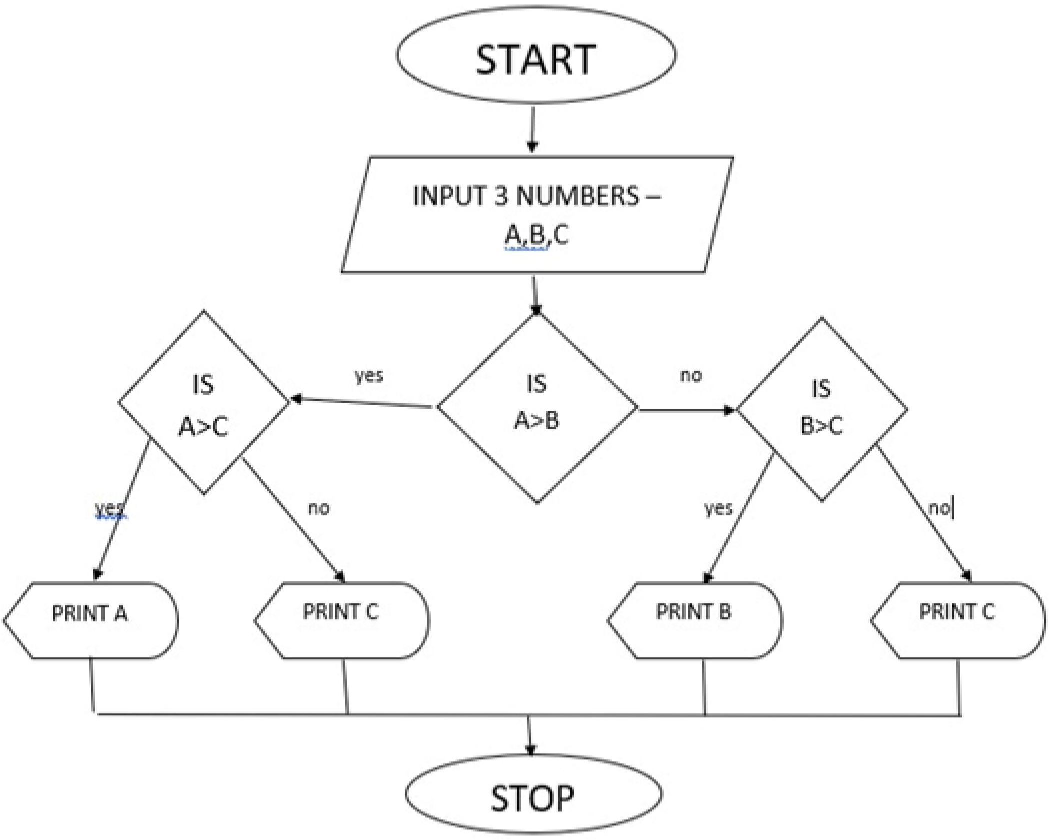
Output(s):



```
Enter three numbers
3
11
7
11 is the greatest number

...Program finished with exit code 0
Press ENTER to exit console.
```

2-Using ternary operator



1. Start
2. Declare variable a for number 1, b for number 2, c for number 3
3. Print statement user to input 3 numbers
4. Take in 3 numbers from user as values for a, b, c
5. Check if a > b if true go to step 6 else goto step 9
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9. Check if b > c if true go step 10 else go to step 11
10. Print "B is the greatest number"
11. Print "C is the greatest number"
12. Stop

Implementation details:

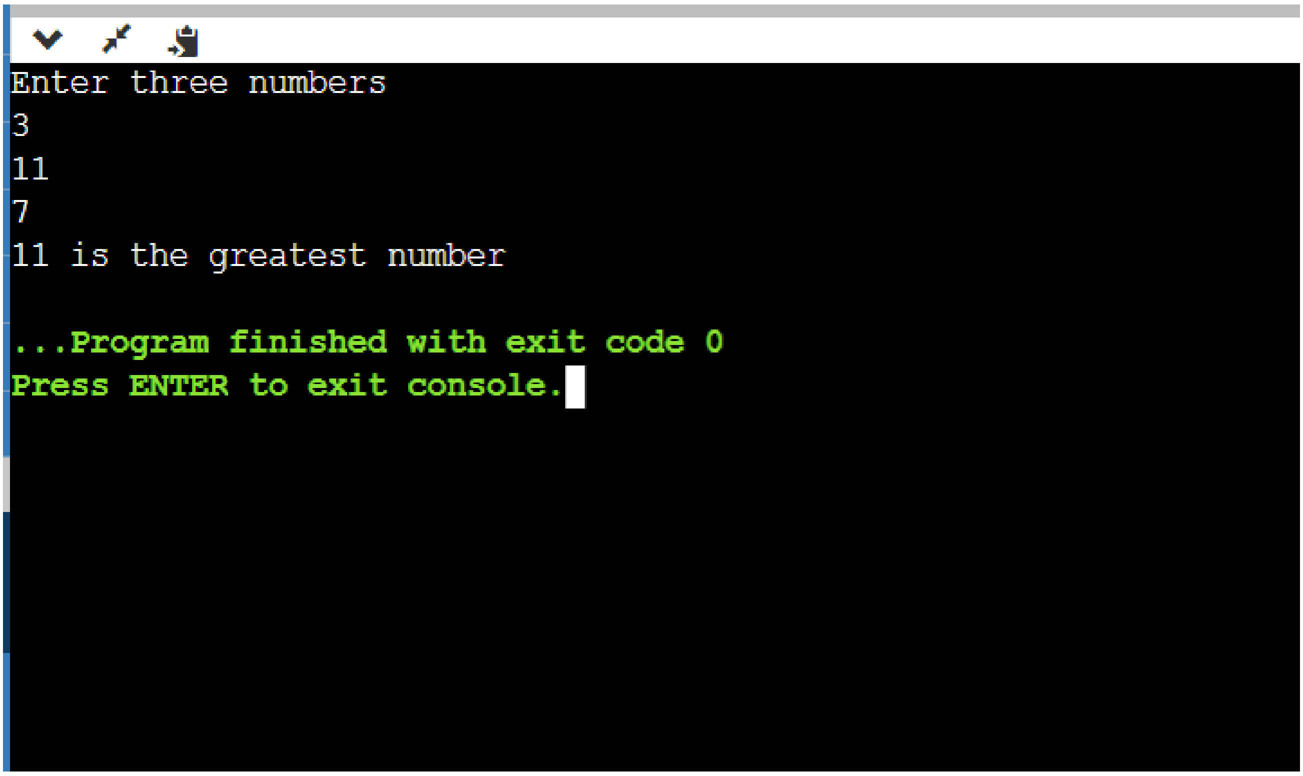
```
 #include <stdio.h>
int main(void)
{
   int a, b, c;
```

```
    printf("Enter three numbers\n");
    scanf("%d", &a);
    scanf("%d", &b);
    scanf("%d", &c);

    (a > b)? ((a > c)? printf("%d is the greatest number\n", a) : printf("%d is the greatest
number\n", c)):
    ((b > c)? printf("%d is the greatest number\n", b) : printf("%d is the greatest
number\n", c));


}
```

Output(s):



```
Enter three numbers
3
11
7
11 is the greatest number

...Program finished with exit code 0
Press ENTER to exit console.
```

Conclusion:

Thus, we learnt how to use if-else-if and ternary operator.

Post Lab Descriptive Questions

1. **Explain bitwise operators with examples**
2. **Write associative rules and precedence table of various operators.**

1]Bitwise operators:

The Bitwise Operator in C performs its operation on the individual bits of its operand, where operands are values or expressions on which an operator operates. We can further subcategorize bitwise operators into three subtypes based on their working principles, logical (Bitwise AND, OR, and XOR), Shift (Right Shift and left shift), and Complement (Bitwise NOT).
The result is also always a bit .
Eg. &, |, ~, ^ , <<, >>

X	**y**	**x & y**	**x | y**	**x ^ y**
0	0	0	0	0
0	1	0	1	1
1	0	0	1	1
1	1	1	1	0

2] **Associative rules and precedence table of various operators :**

Operator	**Description of Operator**	**Associativity**
.	Direct member selection	Left to right
->	Indirect member selection	Left to right
[]	Array element reference	Left to right
()	Functional call	Left to right
~	Bitwise(1's) complement	Right to left
!	Logical negation	Right to left
–	Unary minus	Right to left
+	Unary plus	Right to left
—	Decrement	Right to left
++	Increment	Right to left
*	Pointer reference	Right to left
&	Dereference (Address)	Right to left

(type)	Typecast (conversion)	Right to left
sizeof	Returns the size of an object	Right to left
%	Remainder	Left to right
/	Divide	Left to right
*	Multiply	Left to right
–	Binary minus (subtraction)	Left to right
+	Binary plus (Addition)	Left to right
>>	Right shift	Left to right
<<	Left shift	Left to right
>	Greater than	Left to right
<	Less than	Left to right
>=	Greater than or equal	Left to right
<=	Less than or equal	Left to right
==	Equal to	Left to right
!=	Not equal to	Left to right
^	Bitwise exclusive OR	Left to right
&	Bitwise AND	Left to right
||	Logical OR	Left to right
|	Bitwise OR	Left to right
?:	Conditional Operator	Right to left
&&	Logical AND	Left to right
,	Separator of expressions	Left to right
=	Simple assignment	Right to left
/=	Assign quotient	Right to left
*=	Assign product	Right to left
%=	Assign remainder	Right to left
-=	Assign difference	Right to left
+=	Assign sum	Right to left
|=	Assign bitwise OR	Right to left
^=	Assign bitwise XOR	Right to left
&=	Assign bitwise AND	Right to left
>>=	Assign right shift	Right to left
<<=	Assign left shift	Right to left

Date: _____________ **Signature of faculty in-charge**