

CL1002
INTRODUCTION TO
COMPUTING

LAB 06

**Nested Decision Structure & Ternary
Operators**

NATIONAL UNIVERSITY OF COMPUTER AND EMERGING SCIENCES

Nested If-else Statement

Placing the block of if else statement inside an existing if or else block statement is called nested If else statement. Each block of nested if else, logically perform same as simple if else statements. Whenever a user wants to check more than one condition at a time, the appropriate way is to use nested if-else statements. Following is the structure of nested if else statement.

```

IF (logical-expression) THEN
    statements
    IF (logical-expression) THEN
        statements
    ELSE
        statements
    END IF
    statements
ELSE
    statements
    IF (logical-expression) THEN
        statements
    END IF
    statements
END IF
    
```

Example Nested If-else statement

Problem

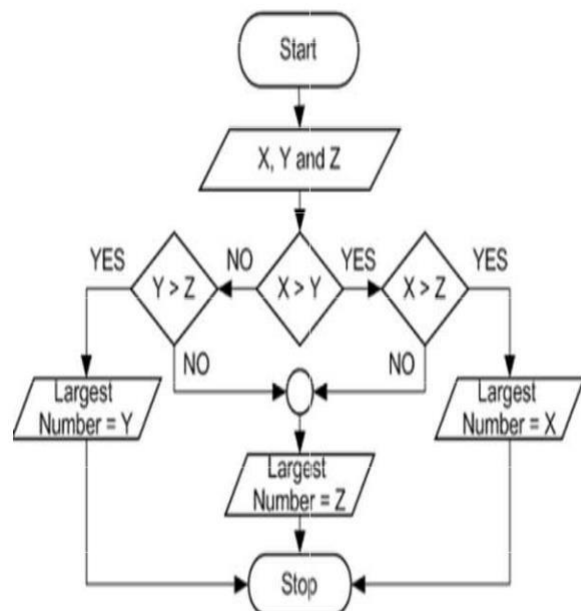
From the given three values, find the largest value.

Algorithm

```

Step 1: Input X,Y,Z
Step 2: if(X>Y) then
    If(X>Z) then
        Max= X    [X>Y, X>Z]
    Else
        Max= Z    [Z>X>Y]
    Endif
Else
    If(Y>Z) then
        Max = Y    [Y>X, Y>Z]
    Else
        Max = Z    [Z>Y>X]
    Endif
Endif
Step 3: Print "The largest number is ",Max
    
```

Flowchart



C-Implementation

```
#include<stdio.h>
main(){
    int x,y,z;

    printf("Enter value of X");
    scanf("%d",&x);
    printf("Enter value of Y");
    scanf("%d",&y);
    printf("Enter value of Z");
    scanf("%d",&z);
    if(x>y){
        if(x>z){
            printf("The largest value is of x = %d",x);
        }
        else{
            printf("The largest value is of z = %d", z);
        }
    }
    else{
        if(y>z){
            printf("The largest value is of y = %d",y);
        }
        else{
            printf("The largest value is of z = %d",z);
        }
    }
}
```

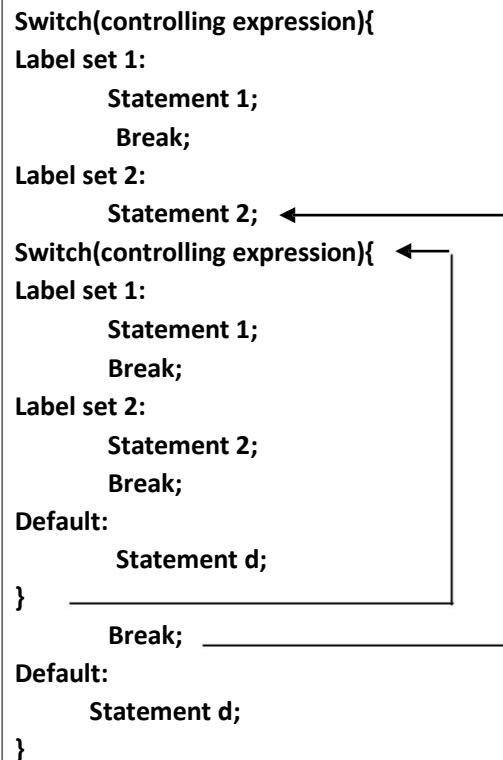
Output

```
Enter value of X67
Enter value of Y45
Enter value of Z89
The largest value is of z =89
=====
```

Nested Switch-Case Statement

Placing the simple switch case statements inside an existing case statement is called nested switch-case statement. Each block of nested switch case statement, logically performs the same as simple switch case statement. Following is the syntax of nested switch case statement.

```
Switch(controlling expression){  
  Label set 1:  
    Statement 1;  
    Break;  
  Label set 2:  
    Statement 2; ←  
  Switch(controlling expression){ ←  
    Label set 1:  
      Statement 1;  
      Break;  
    Label set 2:  
      Statement 2;  
      Break;  
    Default:  
      Statement d;  
  }  
  Break; ←  
  Default:  
    Statement d;  
}
```



Example Nested switch-case statement

Problem

Ayesha is interested in knowing the names of different countries. She wants a list of countries by just giving a starting and ending letter.

C-Implementation

```
#include <stdio.h>  
main()  
{  
  char start,e;  
  printf("Please say starting letter of country");  
  scanf("%c",&start);  
  switch(start)
```

```
{
case 'A':
case 'a':
    printf("Please say ending letter\n");
    scanf("\n%c",&e);
    switch(e)
    {
        case 'A':
        case 'a':
            printf("\n Alasca \n Albania \n Algeria");
            break;
        default:
            printf("\n No such country");
    }
    break;
case 'B':
case 'b':
    printf("Please say ending letter\n");
    scanf("\n%c",&e);
    switch(e)
    {
        case 'A':
        case 'a':
            printf("\n Bulgeria \n Bolivia \n Botswana");
            break;
        default:
            printf(" No such country");
    }
}
```

```

    }
    break;
default:
    printf("Please type correct letter");
}
}

```

Output

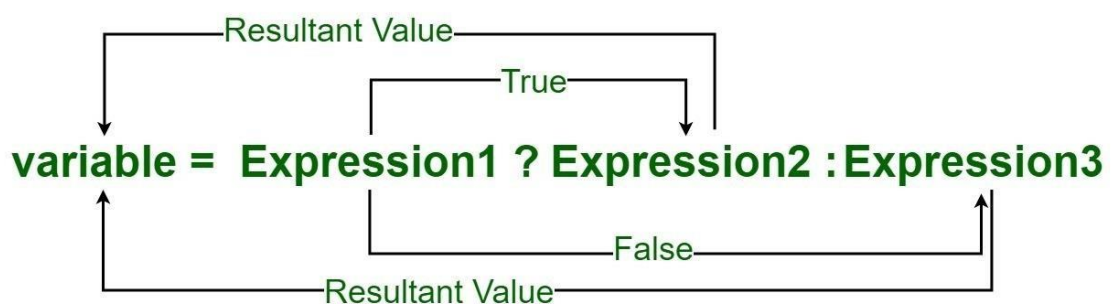
```

C:\Users\hamza.ahmed.KHIFAST\Desktop\Untitled1.exe
Please say starting letter of countrya
Please say ending letter
a
Alasca
Albania
Algeria
-----
Process exited after 1.783 seconds with return value 0
Press any key to continue . . .

```

Ternary Operator (?:) in C

Conditional or Ternary Operator (?:) in C

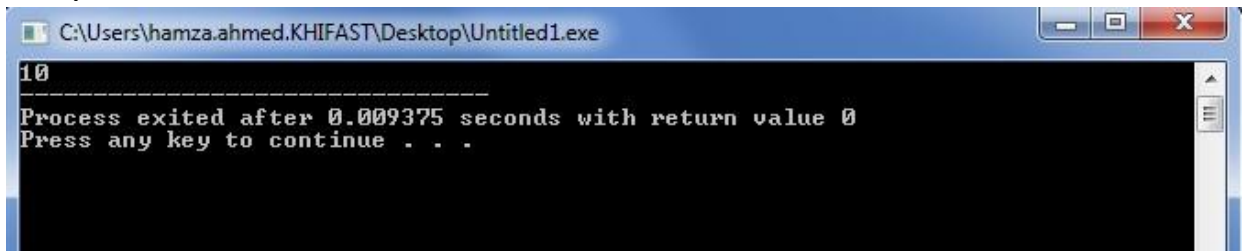


```

[*] Untitled1
1  #include<stdio.h>
2
3  int main()
4  {
5      int a = 10, b = 20, c;
6      c = (a < b) ? a : b;
7      printf("%d", c);
8  }

```

Output



```

C:\Users\hamza.ahmed.KHIFAST\Desktop\Untitled1.exe
10
-----
Process exited after 0.009375 seconds with return value 0
Press any key to continue . . .

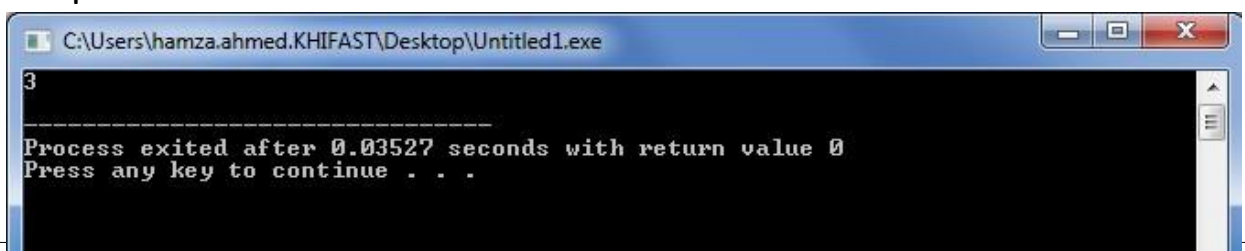
```

```

[*] Untitled1
1  #include<stdio.h>
2
3  int main()
4  {
5      int a = 1, b = 2, ans;
6
7      //Nested Ternary operator
8
9      ans = (a == 1 ? (b == 2 ? 3 : 5) : 0);
10     printf ("%d\n", ans);
11 }

```

Output



```

C:\Users\hamza.ahmed.KHIFAST\Desktop\Untitled1.exe
3
-----
Process exited after 0.03527 seconds with return value 0
Press any key to continue . . .

```