CL-1002 Programming Fundamentals

LAB – 06

Nested Decision Structure & Ternary Operators

NATIONAL UNIVERSITY OF COMPUTER AND EMERGING SCIENCES
Fall 2021

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.

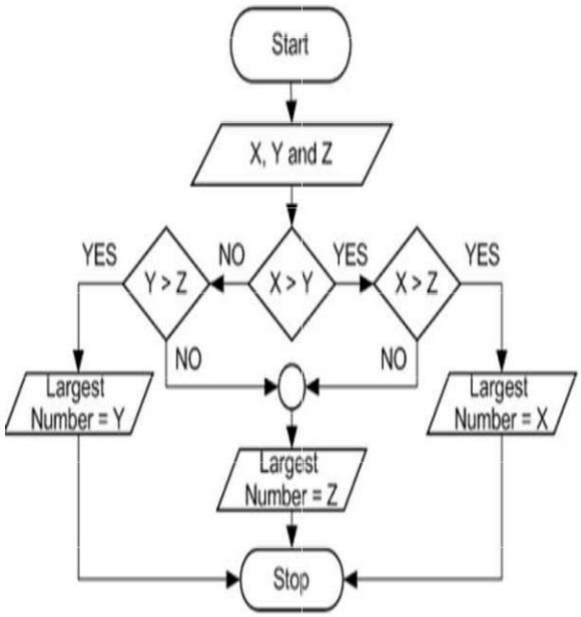
Algorithm	Flowchart

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



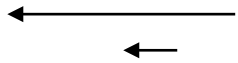
C-Implementation

```
#include<stdio.h>
main(){
	intx,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);
		}
	}
}
```

Nested Switch-Case Statement

Placing the simple switch case statements inside an existing case statements 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

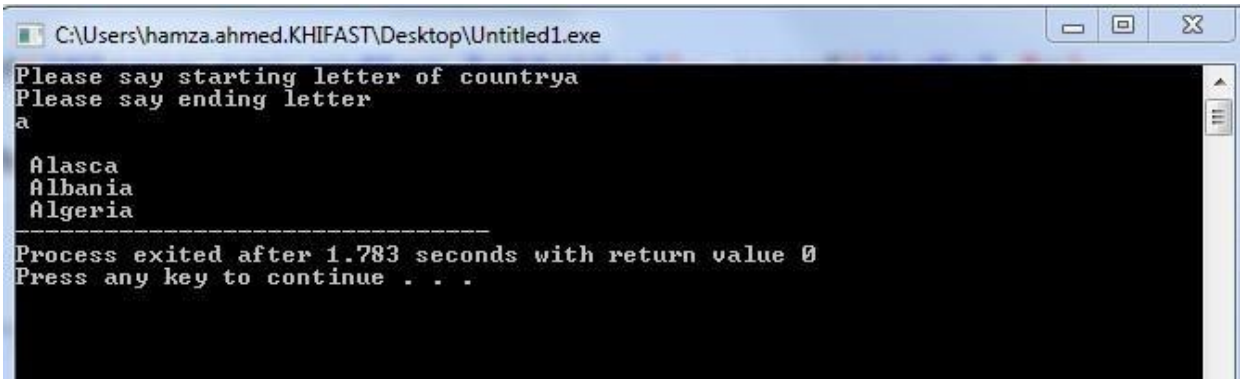
Ayesha is interested in knowing the names of different countries. She wants a list of countries by just giving a starting and ending letter.

C-Implementation

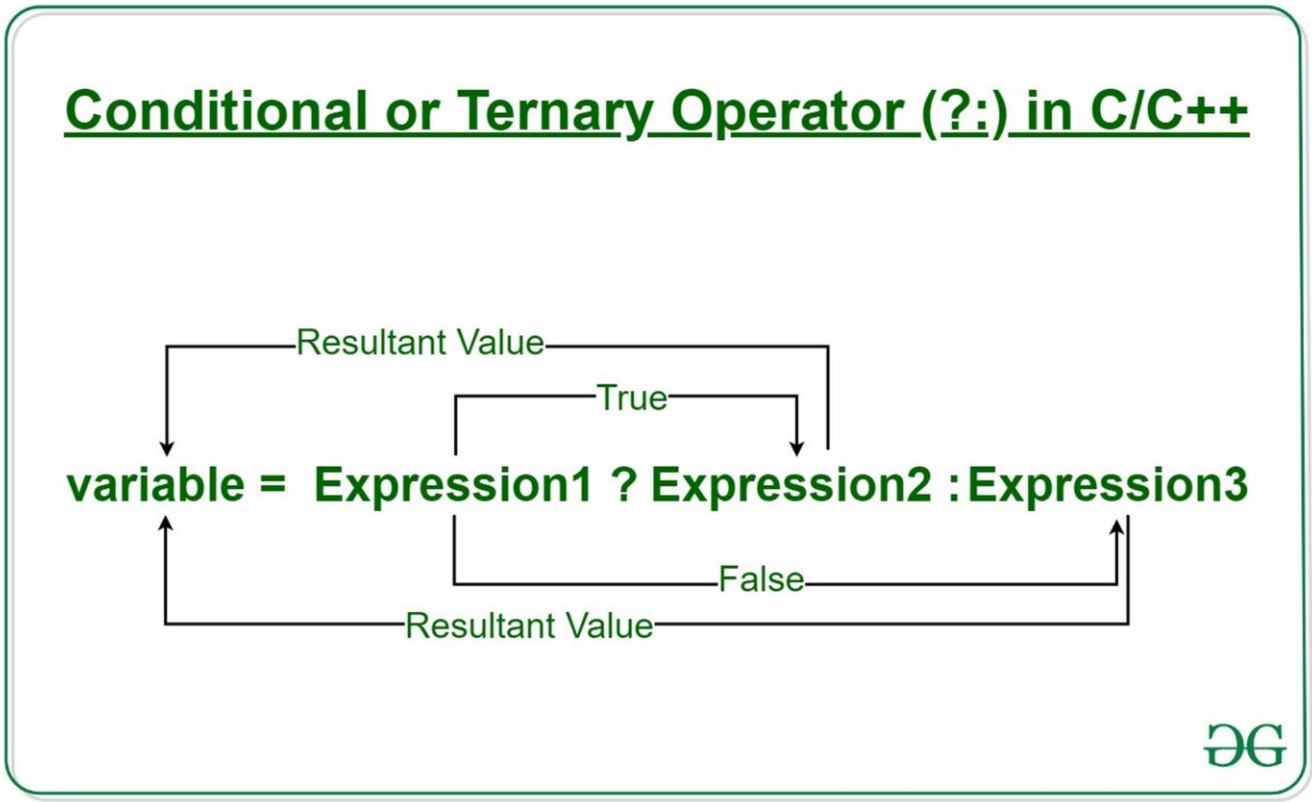
```
#include <stdio.h>
main()
{

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");
    }
}
```



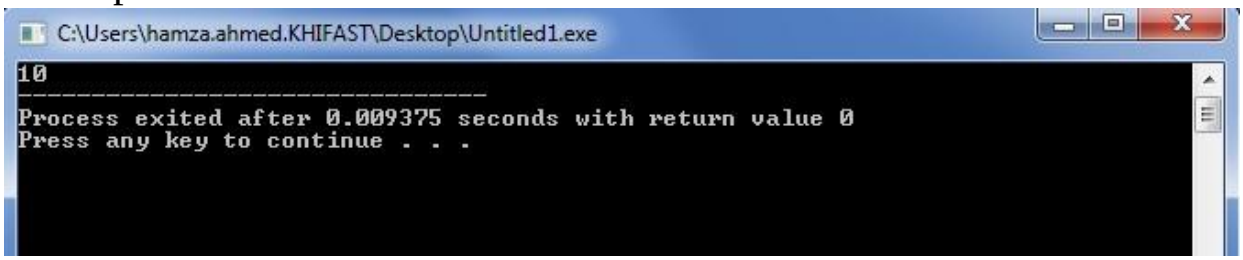
Ternary Operator (?:) in



[*] Untitled1

```c
#include<stdio.h>

int main()
{
    int a = 10, b = 20, c;
    c = (a < b) ? a : b;
    printf("%d", c);
}
```

Output



[*] Untitled1

```c
#include<stdio.h>

int main()
{
    int a = 1, b = 2, ans;

    //Nested Ternary operator

    ans = (a == 1 ? (b == 2 ? 3 : 5) : 0);
    printf ("%d\n", ans);
}
```

Output