SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE NAME : 23CST101 C PROGRAMMING AND DATA STRUCTURES

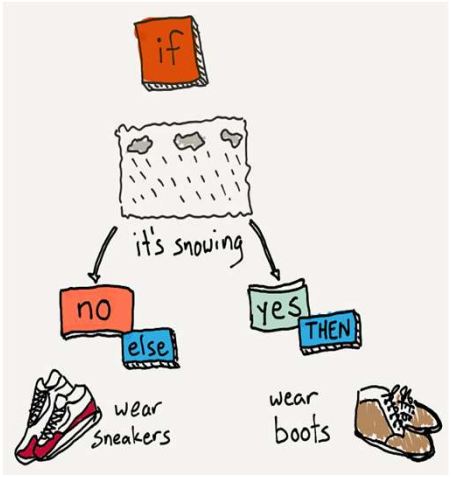
I YEAR /II SEMESTER

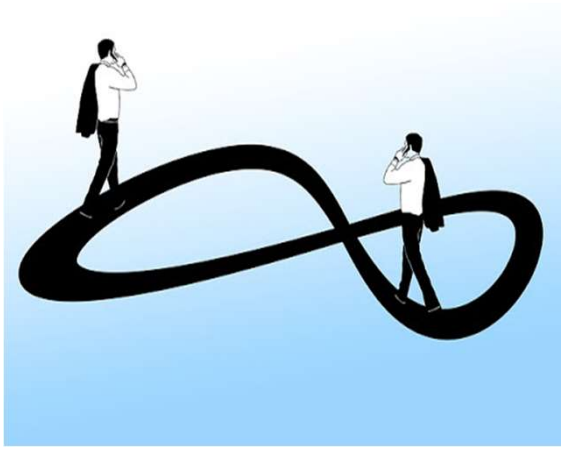
Unit 1- C PROGRAMMING FUNDAMENTALS- A REVIEW

Topic 6: Decision making statements-switch statements

Brain Storming

1. How Decision making and Iterative statements are executed in C?





Decision Making

•Decision making structures require that the programmer specifies one or more conditions to be evaluated or tested by the program.

•Decision making is about deciding the order of execution of statements based on certain conditions or repeat a group of statements until certain specified conditions are met.

Conti...

- if statement
- switch statement
- conditional operator statement (? : operator)
- goto statement

Decision making with if statement

The if statement may be implemented in different forms depending on the complexity of conditions to be tested. The different forms are,

- ❖Simple if statement
- ❖if....else statement
- ❖Nested if....else statement
- ❖Using else if statement

Simple if statement

•If the *expression* returns true, then the **statement-inside** will be executed, otherwise **statement-inside** is skipped and only the **statement-outside** is execut

```
#include <stdio.h>
void main( )
{
int x, y;
x = 15; y = 13;
if (x > y )
{
printf("x is greater than y");
}
}
```

OUTPUT: x is greater than y

if...else statement

If the *expression* is true, the **statement-block1** is executed, else **statement-block1** is skipped and **statement-block2** is

```
#include <stdio.h>
 void main( )
{
int x, y; x = 15; y = 18;
if (x > y )
{
printf("x is greater than
y");
}
else
{
printf("y is greater than x");
}
}
```

OUTPUT: y is greater than x

Nested if....else statement

•if *expression* is false then **statement-block3** will be executed, otherwise the execution continues and enters inside the first if to perform the check for the next if block, where if *expression 1* is true the **statement-block1** is executed otherwise **statement-block2** is executed.

Example

```
if( expression )
{
if( expression1 )
{
statement block1;
}
else
{
statement block2;
}
}
else
{
statement block3;
}
```

else if ladder

•The expression is tested from the top(of the ladder) downwards. As soon as a **true** condition is found, the statement associated with it is executed.

```
if(expression1)
{
statement block1;
}
else if(expression2)
{
statement block2;
}
```

```
else if(expression3 )
{
statement block3;
}
else default statement;
```

Switch statement in C

- Switch statement is a control statement that allows us to choose only one choice among the many given choices.
- The expression in switch evaluates to return an integral value, which is then compared to the values present in different cases.
- It executes that block of code which matches the case value.
- If there is no match, then **default** block is executed(if present).

Conti...

```
switch(expression)
{
        case value-1:
        block-1;
        break;
        case value-2:
        block-2;
        break;
        case value-3:
        block-3;
        break;
case value-4:
        block-4;
        break;
        default:
        default-block;
        break;
}
```

Rules for using switch statement

- The expression (after switch keyword) must yield an **integer** value i.e the expression should be an integer or a variable or an expression that evaluates to an integer.
- The case **label** values must be unique.
- The case label must end with a colon(:)
- The next line, after the **case** statement, can be any valid C statement.

Example

```c
#include<stdio.h>
void main( )
{
    int a, b, c, choice;
    while(choice != 3)
    {
        /* Printing the available options */
        printf("\n 1. Press 1 for addition");
        printf("\n 2. Press 2 for subtraction");
        printf("\n Enter your choice");
        /* Taking users input */
        scanf("%d", &choice);

        switch(choice)
        {
            case 1:
                printf("Enter 2 numbers");
                scanf("%d%d", &a, &b);
                c = a + b;
                printf("%d", c);
                break;
            case 2:
                printf("Enter 2 numbers");
                scanf("%d%d", &a, &b);
                c = a - b;
                printf("%d", c);
                break;
            default:
                printf("you have passed a wrong key");
                printf("\n press any key to continue");
        }
    }
}
```

Assessment 1

1. Write about Decision making Statements?

Ans : _____

2. Write about Looping statements?

Ans : _____

References

TEXT BOOKS

1. Brian W. Kernighan and Dennis M. Ritchie, “The C Programming Language”, 2nd Edition, Pearson Education, 1988.

REFERENCES

1. Balagursamy “Programming In Ansi C “TATA Mc Graw Hill, First Edition,”2019.
2. Thomas H. Cormen, Charles E. Leiserson, Ronald L.Rivest, Clifford Stein, “Introduction to Algorithms", Second Edition, Mcgraw Hill, 2002.
3. Ashok.N.Kamthane,“ Computer Programming”, Pearson Education (India) (2010). (UNIT –II, III IV, V)

Thank You