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Test Series

Introduction to 'C' Language - Module 2

Conditional Statements and Loops in C

Switch - Case in C

The switch statement in C is a control structure that allows you to execute one block of code from multiple options based on the value of an expression. It's similar to using multiple if-else statements but is more efficient and easier to read when dealing with multiple conditions based on a single variable.

Syntax of `switch` Statement:

```
c Copy code  
  
switch (expression) {  
    case value1:  
        // Code to be executed if expression equals value1  
        break;  
    case value2:  
        // Code to be executed if expression equals value2  
        break;  
    ...  
    default:  
        // Code to be executed if expression doesn't match any case  
}  

```

How It Works:

- 1. Expression Evaluation:** The expression inside the switch statement is evaluated once.
- 2. Case Matching:** The value of the expression is compared with the values specified in each case.
- 3. Execution:** If a match is found, the code block associated with that case is executed.
- 4. Break Statement:** The break statement prevents the execution from falling through to the next case. Without break, C will continue to execute the subsequent cases even if a match has already been found.
- 5. Default Case:** The default case is optional and runs if no matching case is found.

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Rules for switch statement in C language

- 1) The switch expression must be of an integer or character type.
- 2) The case value must be an integer or character constant.
- 3) The case value can be used only inside the switch statement.
- 4) The break statement in switch case is not must. It is optional. If there is no break statement found in the case, all the cases will be executed present after the matched case. It is known as fall through the state of C switch statement.

Important Keywords of the Switch Statement:

- **Break:** To stop the execution of the case block this keyword is used and it also uses to terminate the switch block.
- **Default:** If there is no case match in the switch statement then this keyword is used to execute a particular set of statements.

Solved Example

Write a code using switch case statements which print three different greeting messages based on the value of a "ch" variable ("m", "a" or "e" for morning, afternoon or evening).

Solution:



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Program Code:

```
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#include <stdio.h>

int main() {
    char ch = 'm';

    switch (ch) {
        case 'm':
            printf("Good Morning!\n");
            break;
        case 'a':
            printf("Good Afternoon!\n");
            break;
        case 'e':
            printf("Good Evening!\n");
            break;
    }

    return 0;
}
```

Assignment

Ques 1: Write a C program that takes a character input from the user ('A', 'B', 'C', or 'D'). Using a switch statement, print the corresponding grade description:

- 'A' for "Excellent"
- 'B' for "Good"
- 'C' for "Average"
- 'D' for "Poor"
- For any other character, print "Invalid Grade".

Ques 2: Create a C program that reads an integer between 1 and 12 from the user and uses a switch statement to print the name of the corresponding month (e.g., 1 for January, 2 for February, etc.). If the user enters a number outside this range, print "Invalid Month".

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Ques 3: Write a C program that takes a day of the week as input (1 for Monday, 2 for Tuesday, etc.) and prints the corresponding day name using a switch statement. If the user enters a number outside the range 1-7, print "Invalid Day".

Ques 4: Implement a C program that takes an arithmetic operator ('+', '-', '*', '/') and two operands as input from the user. Use a switch statement to perform the corresponding arithmetic operation and print the result. If an invalid operator is entered, print "Invalid Operator".

Ques 5: Develop a C program that prompts the user to enter a number between 1 and 4, representing different modes of transportation:

- 1 for "Car"
- 2 for "Bus"
- 3 for "Train"
- 4 for "Airplane"

Use a switch statement to print the name of the chosen mode of transportation. If the user enters a number outside this range, print "Invalid Choice".

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