

In C programming, the while and do-while loops are used to execute a block of code repeatedly as long as a specified condition is true.

While loop:

- In a while loop, the condition is checked before each iteration.
- If the condition is true, the code block inside the loop is executed.
- If the condition becomes false, the loop is exited, and the program continues with the next statement after the loop.

Basic syntax of a while loop in C:



```
while (condition) {  
    // code to be executed  
}
```

- The condition is a Boolean expression that determines whether the loop should continue or not.
- If the condition is initially false, the code inside the loop will never be executed.

Example:



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

```
int count = 0;
while (count < 5) {
    printf("Count: %d\n", count);
    count++;
}

return 0;
}
```

Output:

Output 

```
Count: 0
Count: 1
Count: 2
Count: 3
Count: 4
```

Practice Problems On While Loop In C:

Problem 1: Sum of Natural Numbers

Write a program that calculates the sum of the first n natural numbers using a while loop. The value of n is provided by the user.

 

```
#include <stdio.h>

int main() {
    int n, sum = 0, i = 1;

    printf("Enter the value of n: ");
    scanf("%d", &n);

    while (i <= n) {
        sum += i;
        i++;
    }

    printf("Sum of the first %d natural numbers is %d\n", n, sum);

    return 0;
}
```

Explanation:

- The program takes input from the user for the value of n.
- Then, it initializes two variables sum and i to 0 and 1 respectively.
- The while loop continues until i is less than or equal to n.
- In each iteration, i is added to the sum, and i is incremented by 1.
- Finally, the sum is printed.

Output:

Output 

```
Enter the value of n: 5
```

```
Sum of the first 5 natural numbers is 15
```

Problem 2: Factorial Calculation

Write a program to calculate the factorial of a given number using a while loop. The value of the number is provided by the user.



```
#include <stdio.h>

int main() {
    int n, fact = 1, i = 1;

    printf("Enter a positive integer: ");
    scanf("%d", &n);

    while (i <= n) {
        fact *= i;
        i++;
    }

    printf("Factorial of %d is %d\n", n, fact);

    return 0;
}
```

Explanation:

- The program takes input from the user for a positive integer n.
- It initializes two variables fact and i to 1.
- The while loop continues until i is less than or equal to n.
- In each iteration, i is multiplied with fact, and i is incremented by 1.
- Finally, the factorial is printed.

Output:

Output 

```
Enter a positive integer: 5
Factorial of 5 is 120
```

Related posts:

1. C prgoram to convert inch to feet
2. C program to convert KM to CM
3. C program to convert meter to centimeter
4. C program to calculate remainder, difference, division, product
5. C program to use printf() without semicolon " ; "
6. C program to swap two numbers using 2 variables
7. C program to find nth term using Arithmetic progrssion
8. C program to find sum of first n even positive numbers
9. C program to calculate sum of first n even numbers
10. C program to find nth odd number
11. C program to find sum of first n odd positive numbers

12. C program to calculate perimeter and area of a rectangle
13. C program to calculate perimeter and area of a square
14. C program to calculate Perimeter and Area of Circle
15. Function in C Programming
16. C Programming Q & A
17. Main function in C Programming Q and A
18. Void main in C Programming
19. Variables Q and A in C Programming
20. Write a C Program to find the percentage of marks ?
21. Write a c program to find age of a person ?
22. Write a c program to get table of a number
23. What is Break statement in C Programming ?
24. Write a c program to generate all combinations of 1, 2 and 3 using for loop.
25. Write a C program to print all the prime numbers between 1 to 50.
26. Write a C program to get factorial of a number ?
27. What is user defined function in C programming ?
28. Difference between C and C++ Programming ?
29. Difference between C, C++ and Java Programming
30. C program addition of numbers using pointer
31. C Syntax
32. Comments in C
33. Variables in C
34. Data types in C
35. Format specifiers in C
36. Type Conversion in C
37. Constants in C
38. Operators in C

39. Pre and Post Increment Practice Problems
40. Pre and Post Increment
41. Array in C
42. C Introduction
43. C Get Started
44. C Pointers
45. C History
46. C Program Compiling and running
47. C Do While Loop
48. C For loop
49. break and continue statement
50. Control Statements in C
51. C if-else ladder
52. C if statements
53. C 2-Dimensional array
54. C String library functions
55. C Functions
56. C Functions Categories
57. C Actual Arguments
58. Write a program that prints the message "Hello, World!"
59. Write a program that asks the user to enter two numbers, and then prints the sum of those two numbers.
60. Write a program that asks the user to enter a number and then determines whether the number is even or odd.
61. Write a program that swaps the values of two variables.
62. Write a program that asks the user to enter a number and then calculates and prints its factorial.

63. Write a program that asks the user to enter a number N and then prints the first N numbers in the Fibonacci sequence
64. Write a program that swaps the values of two variables without using a temporary variable
65. Converts a number into integer, float, and string
66. Program to find the length of the string
67. Program to convert string to uppercase or lowercase
68. Program to prints the numbers from 1 to 10.
69. What is identifier expected error
70. Difference between static and non static methods in Java
71. C String Input
72. C Character input
73. C Programming Variables MCQ
74. Object & Classes
75. C Programming find the output MCQs