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| **Ex. No. :3** | **For, While and Do…while Loop** |

**For Loop**

**Program 1**

// Print numbers from 1 to 10

#include <stdio.h>

int main()

{

int i;

for (i = 1; i < 11; ++i)

{

printf("%d ", i);

}

return 0;

}

**Program 2**

// Program to calculate the sum of first n natural numbers

// Positive integers 1,2,3...n are known as natural numbers

#include <stdio.h>

int main()

{

int num, count, sum = 0;

printf("Enter a positive integer: ");

scanf("%d", &num);

// for loop terminates when num is less than count

for(count = 1; count <= num; ++count)

{

sum += count;

}

printf("Sum = %d", sum);

return 0;

}

**While Loop**

**Program**

// Print numbers from 1 to 5

#include <stdio.h>

int main()

{

int i = 1;

while (i <= 5)

{

printf("%d\n", i);

++i;

}

return 0;

}

**Do-while Loop**

**Program**

// Program to add numbers until the user enters zero

#include <stdio.h>

int main()

{

double number, sum = 0;

// the body of the loop is executed at least once

do

{

printf("Enter a number: ");

scanf("%lf", &number);

sum += number;

}

while(number != 0.0);

printf("Sum = %.2lf",sum);

return 0;

}

|  |  |
| --- | --- |
| **Ex. No. :4** | **Arrays** |

**Program**

// Program to take 5 values from the user and store them in an array

// Print the elements stored in the array

#include <stdio.h>

int main()

{

int values[5];

printf("Enter 5 integers: ");

// taking input and storing it in an array

for(int i = 0; i < 5; ++i) {

scanf("%d", &values[i]);

}

printf("Displaying integers: ");

// printing elements of an array

for(int i = 0; i < 5; ++i) {

printf("%d\n", values[i]);

}

return 0;

}

**Program 2**

// Program to find the average of n numbers using arrays

#include <stdio.h>

int main()

{

int marks[10], i, n, sum = 0;

double average;

printf("Enter number of elements: ");

scanf("%d", &n);

for(i=0; i < n; ++i) {

printf("Enter number%d: ",i+1);

scanf("%d", &marks[i]);

// adding integers entered by the user to the sum variable

sum += marks[i];

}

// explicitly convert sum to double

// then calculate average

average = (double) sum / n;

printf("Average = %.2lf", average);

return 0;

}