

Day : Loops and Iterations (5-8-2025)

1. Write a program to print numbers from 1 to 100.

IPO

Input: No input is required.

Process: Use a loop to print numbers starting from 1 up to 100.

Output: The numbers from 1 to 100 displayed sequentially.

Program

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
    int i;
```

```
    for (i = 1; i <= 100; i++)
```

```
    {
```

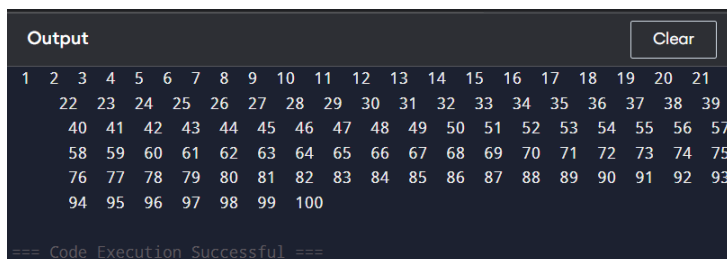
```
        printf("%d", i);
```

```
    }
```

```
    return 0;
```

```
}
```

Output



The screenshot shows a dark-themed output window with a 'Clear' button in the top right corner. The output displays the numbers 1 through 100 in a grid-like format, with 21 numbers per row. The numbers are arranged in 5 rows: the first row contains 21 numbers (1-21), the second row contains 20 numbers (22-41), the third row contains 20 numbers (42-61), the fourth row contains 20 numbers (62-81), and the fifth row contains 20 numbers (82-100). At the bottom of the window, the text '=== Code Execution Successful ===' is displayed.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	
62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	
82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100		

=== Code Execution Successful ===

2. Write a program to print even numbers from 1 to 50.

IPO

Input: No input is required.

Process: Loop through numbers from 1 to 50 and check if each is divisible by 2; print only even ones.

Output: Even numbers between 1 and 50.

Program

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
    int i;
```

```
    for (i = 1; i <= 50; i++)
```

```
    {
```

```
        if (i % 2 == 0)
```

```
        {
```

```
            printf("%d", i);
```

```
        }
```

```
    }
```

```
    return 0;
```

```
}
```

Output

Output																				Clear
2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	
			42	44	46	48	50													

3. Write a program to find the factorial of a number.

IPO

Input: The user enters a positive integer.

Process: Multiply the numbers from 1 to the entered number to get the factorial.

Output: The factorial value of the entered number.

Program

```
#include <stdio.h>

void main()
{
    int n, i, fact = 1;
    scanf("%d", &n);
    for(i = 1; i <= n; i++)
    {
        fact = fact * i;
    }
    printf("%d", fact);
}
```

Output



4. Write a program to calculate the sum of digits of a number.

IPO

Input: The user enters an integer.

Process: Extract each digit of the number and add them together.

Output: The sum of all digits in the number.

Program

```
#include <stdio.h>

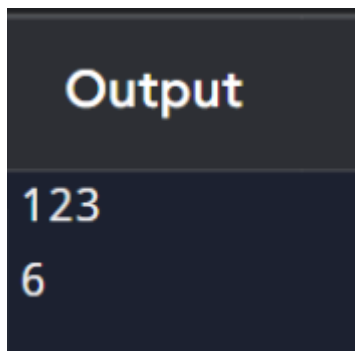
void main()
{
```

```

int i, sum = 0, r, n;
scanf("%d", &n);
while(n > 0)
{
    r = n % 10;
    sum = sum + r;
    n = n / 10;
}
printf("%d", sum);
}

```

Output



5. Write a program to reverse a number.

IPO

Input: The user enters a number.

Process: Reverse the digits of the entered number.

Output: The reversed number.

Program

```

#include <stdio.h>

void main()
{
    int n, r, rev = 0;
    scanf("%d", &n);
    while(n > 0)
    {

```

```

    r = n % 10;

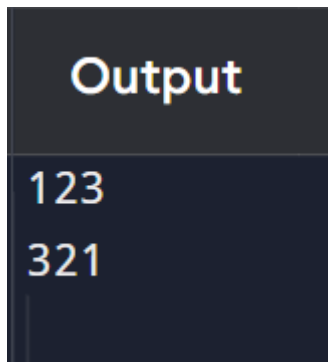
    rev = rev * 10 + r;

    n = n / 10;
}

printf("%d", rev);

```

output



6. Write a program to check whether a number is a palindrome.

IPO

Input: The user enters a number.

Process: Reverse the number and compare it with the original to check if they are the same.

Output: A message stating whether the number is a palindrome or not.

Program

```

#include <stdio.h>

void main()
{
    int n, r, rev = 0, sum = 0, c = 100, on;

    scanf("%d", &on);

    n = on;

    while(n > 0)
    {
        r = n % 10;

        rev = rev + r * c;

        n = n / 10;

        c = c / 10;
    }
}

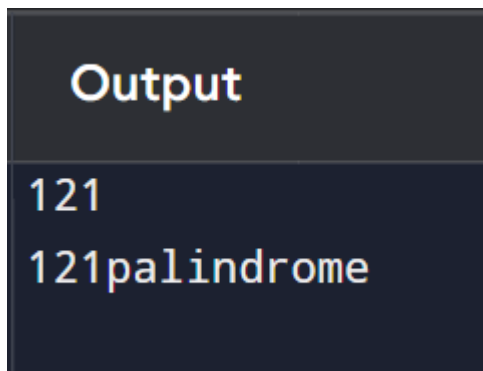
```

```

    }
    printf("%d", rev);
    if(rev == on)
        printf("palindrome");
    else
        printf("not a palindrome");
}

```

Output



7. Write a program to print multiplication table of a number.

IPO

Input: The user enters a number.

Process: Multiply the number by values from 1 to 10 and display results.

Output: The multiplication table for the entered number.

Program

```

#include <stdio.h>

void main()
{
    int n, i;
    scanf("%d", &n);
    for(i = 1; i <= n; i++)
    {
        printf("%d * %d = %d\n", n, i, n * i);
    }
}

```

```
}
```

Output

```
Output
10
10 * 1 = 10
10 * 2 = 20
10 * 3 = 30
10 * 4 = 40
10 * 5 = 50
10 * 6 = 60
10 * 7 = 70
10 * 8 = 80
10 * 9 = 90
10 * 10 = 100
```

8. Write a program to count the number of digits in a number.

IPO

Input: The user enters a number.

Process: Divide the number by 10 repeatedly and count how many times this is done until it becomes zero.

Output: The total number of digits in the number.

Program

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```

int num, count = 0;

printf("Enter a number: ");
scanf("%d", &num);

// If number is 0, it has 1 digit
if (num == 0)
{
    count = 1;
}
else
{
    // Make number positive if it's negative
    if (num < 0)
    {
        num = -num;
    }

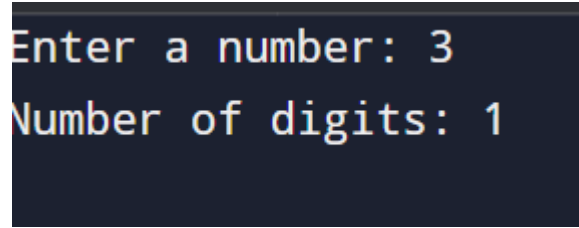
    while (num > 0)
    {
        num = num / 10; // remove last digit
        count++;        // increase digit count
    }
}

printf("Number of digits: %d\n", count);

return 0;
}

```

Output



```
Enter a number: 3
Number of digits: 1
```

9. Write a program to print the Fibonacci series up to n terms.

IPO

Input: The user enters the number of terms (n).

Process: Calculate and display the first n terms of the Fibonacci sequence.

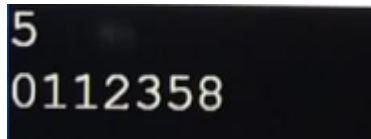
Output: The Fibonacci series up to n terms.

Program

```
#include <stdio.h>

void main()
{
    int f = 0, s = 1, t, i, n;
    scanf("%d", &n);
    printf("%d %d", f, s);
    for(i = 1; i < n; i++)
    {
        t = f + s;
        f = s;
        s = t;
        printf("%d", t);
    }
}
```

Output



5
0112358

10. Write a program to calculate the sum of the first n natural numbers.

IPO

Input: The user enters a positive integer n.

Process: Add numbers from 1 to n.

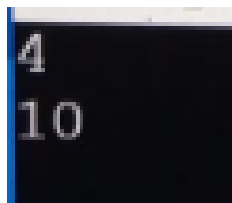
Output: The sum of the first n natural numbers.

Program

```
#include <stdio.h>

void main()
{
    int n, sum = 0, i;
    scanf("%d", &n);
    for(i = 1; i <= n; i++)
    {
        sum = sum + i;
    }
    printf("%d", sum);
}
```

Output



4
10