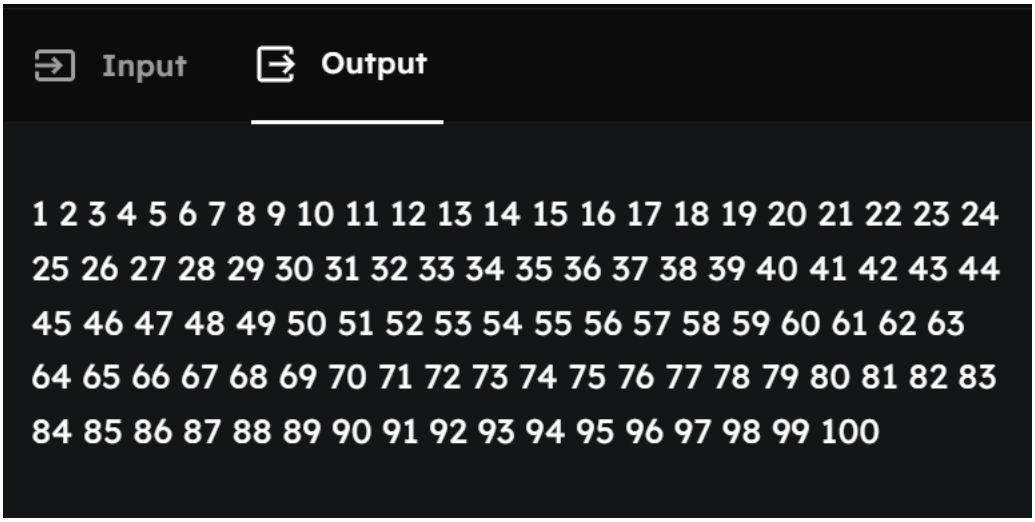
Day : Loops and Iterations (5-8-2025)

1. Write a program to print numbers from 1 to 100.
   Input: start = 1, end = 100
   Process: for i from start to end, do it with i.
   Output: print i

```
#include <stdio.h>

int main() {
    int start = 1;
    int end = 100;


    for (int i = start; i <= end; i++)
 {
        printf("%d", i);
    }
    return 0;
}
```



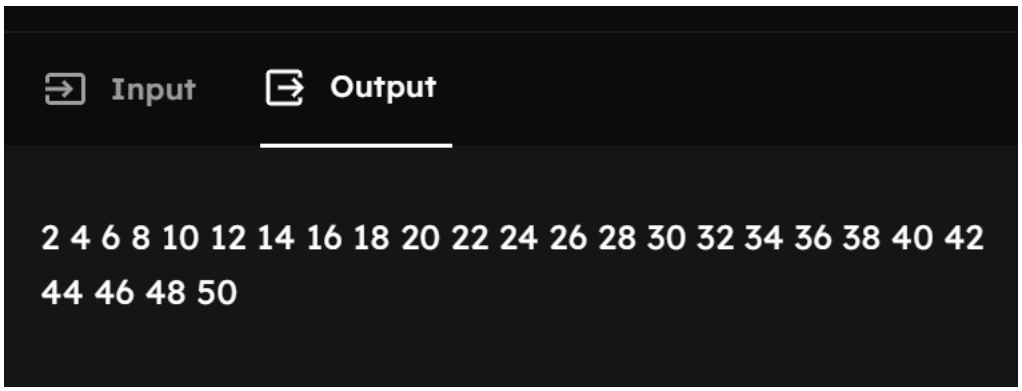
2.Write a program to print even numbers from 1 to 50.

Input: start = 1, end = 50

Process: iterate i from start to end, check if i is even

Output: print i when i is even

```
#include <stdio.h>

int main() {
    int start = 1;
    int end = 50;

    // Process & Output:
    for (int i = start; i <= end; i++)
{
        if (i % 2 == 0) {
            printf("%d", i);
        }
    }

    return 0;
}
```



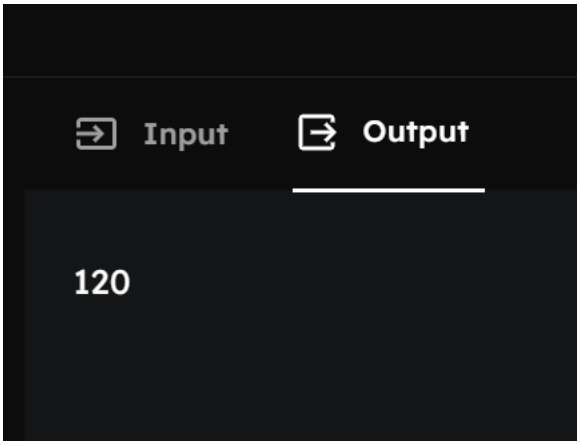
3.Write a program to find the factorial of a number.

Input: Read an integer `n` from the user

Process: Compute the product of all integers from 1 to `n`

Output: Display the calculated factorial value

```
#include <stdio.h>

int main() {
    int n, fact = 1;
    scanf("%d", &n);
    for (int i = 1; i <= n; i++)
        fact = fact*i;
    printf("%d\n", fact);
    return 0;
}
```



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

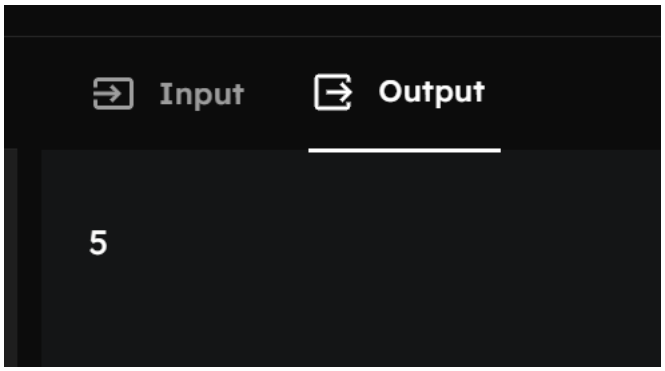
Input: read integer n

Process: while n != 0, sum += (n % 10); n /= 10

Output: print sum

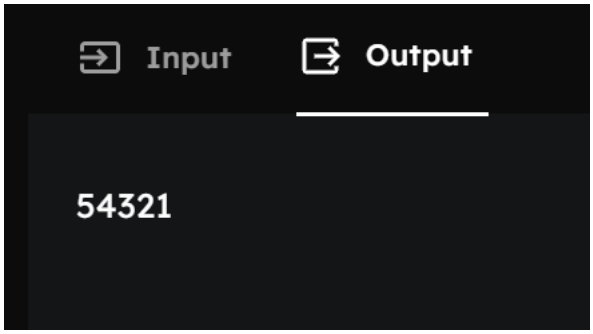
```
#include <stdio.h>

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

    scanf("%d", &n);

    while (n != 0) {
```

```
        sum += n % 10;
        n /= 10;
    }

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

    return 0;
}
```



5. Write a program to reverse a number.

```
#include <stdio.h>

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

    for ( n != 0; n /= 10;n++)
        rev = rev * 10 + n % 10;

    printf("%d\n", rev);
    return 0;
}
```



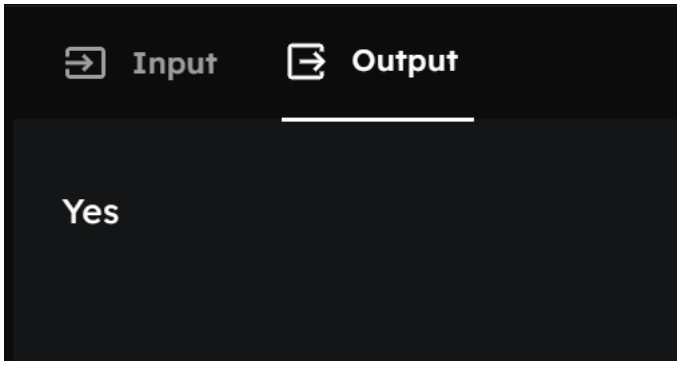
6. Write a program to check whether a number is a palindrome.

Input: read integer n where n= 212

Process: reverse the number using a for loop, compare with the original

Output: print whether it is a palindrome

```
#include <stdio.h>
int main() {
    int n, reversed = 0, remainder, original;
  scanf("%d", &n);
    original = n;
    for (; n != 0; n /= 10) {
        remainder = n % 10;
        reversed = reversed * 10 + remainder;
    }
    if (original == reversed)
   printf("Yes\n");
    else
        printf("No\n");
  return 0;
}
```



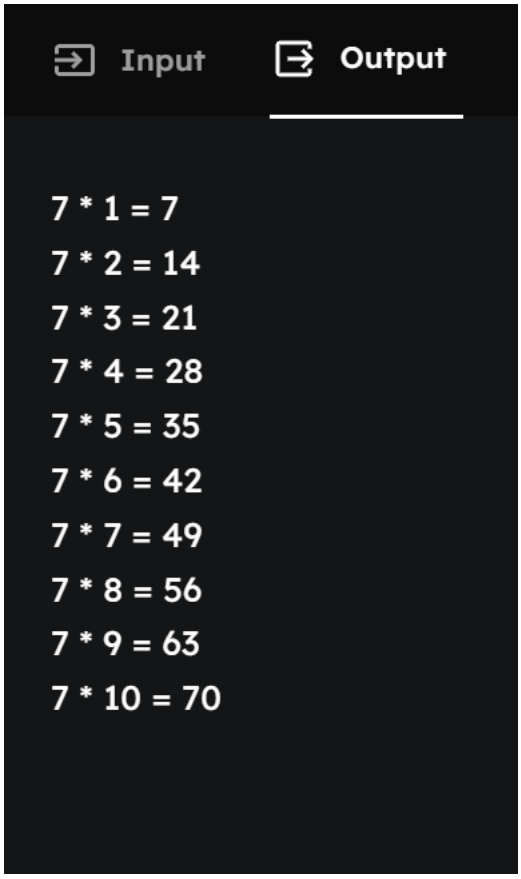
7. Write a program to print multiplication table of a number.

Input: read integer n

Process: multiply n by numbers 1 to 10

Output: print the multiplication table

```
#include <stdio.h>

int main() {
    int n;
    scanf("%d", &n);
    for (int i = 1; i <= 10; i++) {
        printf("%d * %d = %d\n", n, i, n * i);
    }

    return 0;
}
```



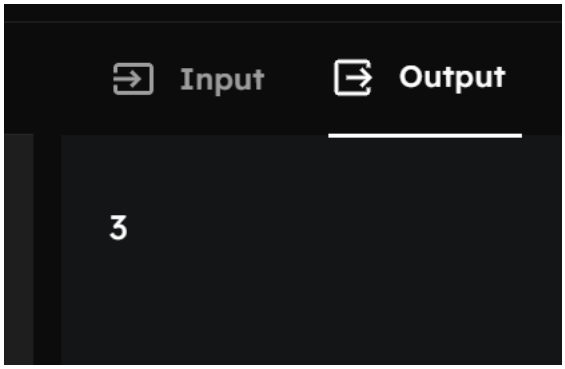
8. Write a program to count the number of digits in a number.

Input: read integer n as a three digit number say 777

Process: divide n by 10 until n becomes 0, increment count each time

Output: print count.

```
#include <stdio.h>
int main() {
    int n, count = 0;
 scanf("%d", &n);
    for (; n != 0; n /= 10) {
        count++;
  }
    printf("%d\n", count);
    return 0;
}
```



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

Input: read integer n=10

Process: generate Fibonacci numbers up to n terms

Output: print the Fibonacci series

```
int main() {
    int n=10, t1 = 0, t2 = 1, nextTerm;

      printf("Fibonacci Series: ");
    for (int i = 1; i <= n; ++i) {
        if (i == 1) {
            printf("%d, ", t1);
            continue;
        }
        if (i == 2) {
            printf("%d, ", t2);
            continue;
        }
        nextTerm = t1 + t2;
        t1 = t2;
        t2 = nextTerm;
        printf("%d", nextTerm);
```

```
        if (i != n) {
            printf(", ");
        }
    }
    printf("\n");

    return 0;
}
```