1- Write a program to count the occurrences of a number in a given set of numbers.

اكتب برنامجاً لحساب تكرارات رقم ما في مجموعة أرقام معينة.

Input

```
Enter the number of elements: 4
Enter the number to search: 5
Enter number 1: 2
Enter number 2: 5
Enter number 3: 3
Enter number 4: 4
```

Output

```
Count: 1
```

Solution

```c
// www.gammal.tech

#include <stdio.h>

int main() {
    int nums, search, i, currentNum, count = 0;

    printf("Enter the number of elements: ");
    scanf("%d", &nums);

    printf("Enter the number to search: ");
    scanf("%d", &search);

    for (i = 0; i < nums; i++) {
        printf("Enter number %d: ", i + 1);
        scanf("%d", &currentNum);
        count += (search == currentNum);
    }

    printf("Count: %d\n", count);

    return 0;
}
```

2- Write a program to check if a number exists in a given set of numbers.

اكتب برنامجًا للتحقق من وجود رقم في مجموعة معينة من الأرقام.

Input

```
Enter the number of elements: 3
Enter the number to search: 2
Enter number 1: 1
Enter number 2: 3
Enter number 3: 2
```

Output

```
Number found!
```

Solution

```c
// www.gammal.tech

#include <stdio.h>

int main() {
    int nums, search, i, currentNum, found = 0;

    printf("Enter the number of elements: ");
    scanf("%d", &nums);

    printf("Enter the number to search: ");
    scanf("%d", &search);

    for (i = 0; i < nums; i++) {
        printf("Enter number %d: ", i + 1);
        scanf("%d", &currentNum);
        if (search == currentNum) {
            found = 1;
            break;
        }
    }

    if (found) {
        printf("Number found!\n");
    } else {
        printf("Number not found.\n");
    }

    return 0;
}
```

3- Write a program to search for a number in an array and display its index.

اكتب برنامجًا للبحث عن رقم في array وعرض فهرسه.

Input

```
Enter the number of elements: 5
Enter the number to search: 3
Enter number 1: 12
Enter number 2: 2
Enter number 3: 3
```

Output

```
Number found at index: 2
```

Solution

```c
// www.gammal.tech

#include <stdio.h>

int main() {
    int nums, search, i, currentNum;

    printf("Enter the number of elements: ");
    scanf("%d", &nums);

    printf("Enter the number to search: ");
    scanf("%d", &search);

    for (i = 0; i < nums; i++) {
        printf("Enter number %d: ", i + 1);
        scanf("%d", &currentNum);
        if (search == currentNum) {
            printf("Number found at index: %d\n", i);
            return 0;
        }
    }

    printf("Number not found.\n");

    return 0;
}
```

4- Write a program to find the sum of positive numbers in an array.

اكتب برنامج لايجاد مجموع الأعداد الموجبة في array.

Input

```
Enter the number of elements: 4
Enter number 1: -5
Enter number 2: 6
Enter number 3: 1
Enter number 4: -9
```

Output

```
Sum of positive numbers: 7
```

Solution

```c
// www.gammal.tech

#include <stdio.h>

int main() {
    int nums, i, currentNum, sum = 0;

    printf("Enter the number of elements: ");
    scanf("%d", &nums);

    for (i = 0; i < nums; i++) {
        printf("Enter number %d: ", i + 1);
        scanf("%d", &currentNum);
        if (currentNum > 0) {
            sum += currentNum;
        }
    }

    printf("Sum of positive numbers: %d\n", sum);

    return 0;
}
```

5- Write a program to count the number of negative numbers in an array.

أكتب برنامج لحساب عدد الأعداد السالبة في المصفوفة

Input

```
Enter the number of elements: 4
Enter number 1: -5
Enter number 2: -6
Enter number 3: 1
Enter number 4: 2
```

Output

```
Number of negative numbers: 2
```

Solution

```c
// www.gammal.tech

#include <stdio.h>

int main() {
    int nums, i, currentNum, count = 0;

    printf("Enter the number of elements: ");
    scanf("%d", &nums);

    for (i = 0; i < nums; i++) {
        printf("Enter number %d: ", i + 1);
        scanf("%d", &currentNum);
        if (currentNum < 0) {
            count++;
        }
    }

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

    return 0;
}
```

6- Write a program to calculate the product of even numbers in an array.

اكتب برنامجًا لحساب حاصل ضرب الأعداد الزوجية في array.

Input

```
Enter the number of elements: 4
Enter number 1: 12
Enter number 2: 2
Enter number 3: 3
Enter number 4: 5
```

Output

```
Product of even numbers: 24
```

Solution

```c
// www.gammal.tech

#include <stdio.h>

int main() {
    int nums, i, currentNum;
    long long product = 1;

    printf("Enter the number of elements: ");
    scanf("%d", &nums);

    for (i = 0; i < nums; i++) {
        printf("Enter number %d: ", i + 1);
        scanf("%d", &currentNum);
        if (currentNum % 2 == 0) {
            product *= currentNum;
        }
    }

    printf("Product of even numbers: %lld\n", product);

    return 0;
}
```

7- Write a program to calculate the square of each number in an array.

اكتب برنامجًا لحساب مربع كل رقم في مصفوفة.

Input & Output

```
Enter the number of elements: 3
Enter number 1: 1
Square of 1: 1
Enter number 2: 2
Square of 2: 4
Enter number 3: 3
Square of 3: 9
```

Solution

```c
// www.gammal.tech

#include <stdio.h>

int main() {
    int nums, i, currentNum;

    printf("Enter the number of elements: ");
    scanf("%d", &nums);

    for (i = 0; i < nums; i++) {
        printf("Enter number %d: ", i + 1);
        scanf("%d", &currentNum);
        printf("Square of %d: %d\n", currentNum, currentNum * currentNum);
    }

    return 0;
}
```

8- Write a program to reverse the order of numbers in an array.

اكتب برنامجًا لعكس ترتيب الأرقام في array.

Input

```
Enter the number of elements: 3
Enter number 1: 1
Enter number 2: 2
Enter number 3: 3
```

Output

```
Reversed numbers:
3
2
1
```

Solution

```c
// www.gammal.tech

#include <stdio.h>

int main() {
    int nums, i;

    printf("Enter the number of elements: ");
    scanf("%d", &nums);

    int arr[nums];

    for (i = 0; i < nums; i++) {
        printf("Enter number %d: ", i + 1);
        scanf("%d", &arr[i]);
    }

    printf("Reversed numbers:\n");
    for (i = nums - 1; i >= 0; i--) {
        printf("%d\n", arr[i]);
    }

    return 0;
}
```

9- Write a program to display the multiplication table of a given number.

اكتب برنامجاً لعرض جدول الضرب لعدد معين.

Input

```
Enter a number: 3
```

Output

```
Multiplication table of 3:
3 x 1 = 3
3 x 2 = 6
3 x 3 = 9
3 x 4 = 12
3 x 5 = 15
3 x 6 = 18
3 x 7 = 21
3 x 8 = 24
3 x 9 = 27
3 x 10 = 30
```

Solution

```c
// www.gammal.tech

#include <stdio.h>

int main() {
    int num, i;

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

    printf("Multiplication table of %d:\n", num);
    for (i = 1; i <= 10; ++i) {
        printf("%d x %d = %d\n", num, i, num * i);
    }

    return 0;
}
```

10- Write a program to count and display odd numbers in an array.

أكتب برنامج لحساب وعرض الأعداد الفردية في array.

Input & Output

```
Enter the number of elements: 4
Odd numbers:
Enter number 1: 1
1
Enter number 2: 2
Enter number 3: 3
3
Enter number 4: 5
5
Number of odd numbers: 3
```

Solution

```c
// www.gammal.tech

#include <stdio.h>

int main() {
    int nums, i, currentNum, count = 0;

    printf("Enter the number of elements: ");
    scanf("%d", &nums);

    printf("Odd numbers:\n");
    for (i = 0; i < nums; i++) {
        printf("Enter number %d: ", i + 1);
        scanf("%d", &currentNum);
        if (currentNum % 2 != 0) {
            count++;
            printf("%d\n", currentNum);
        }
    }

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

    return 0;
}
```