ASSIGNMENT 7

Program:

Write a menu driven C program in C to perform the following operations using an array of integers:

a. ***Accept***
b. ***Display***
c. ***Sum of all number***
d. ***find maximum and minimum of a number.***
e. ***search a given number***

Algorithm:

1. Enter the size of the array and input the numbers for the array.
2. Print the menu displaying the options.
3. Accept the menu number from the user.

4. Use a switch case for defining the different cases.

Case 1: Displaying the array.

Use a for loop condition and print the array by separately obtaining the elements of the array.

Case 2: Displaying the sum of all the numbers in the array.

Declare the variable sum=0 first. Using a for loop extract the elements from the array and add it one by one to sum.

Case 3: Searching for a particular number in the array.

Input a number from the user and check each extracted element from the array whether it is equal to the input number.

If the number is equal to the input number print that the number is found at its respective index else print that the number is not found.

Case 4: Finding the maximum and minimum value in the array.

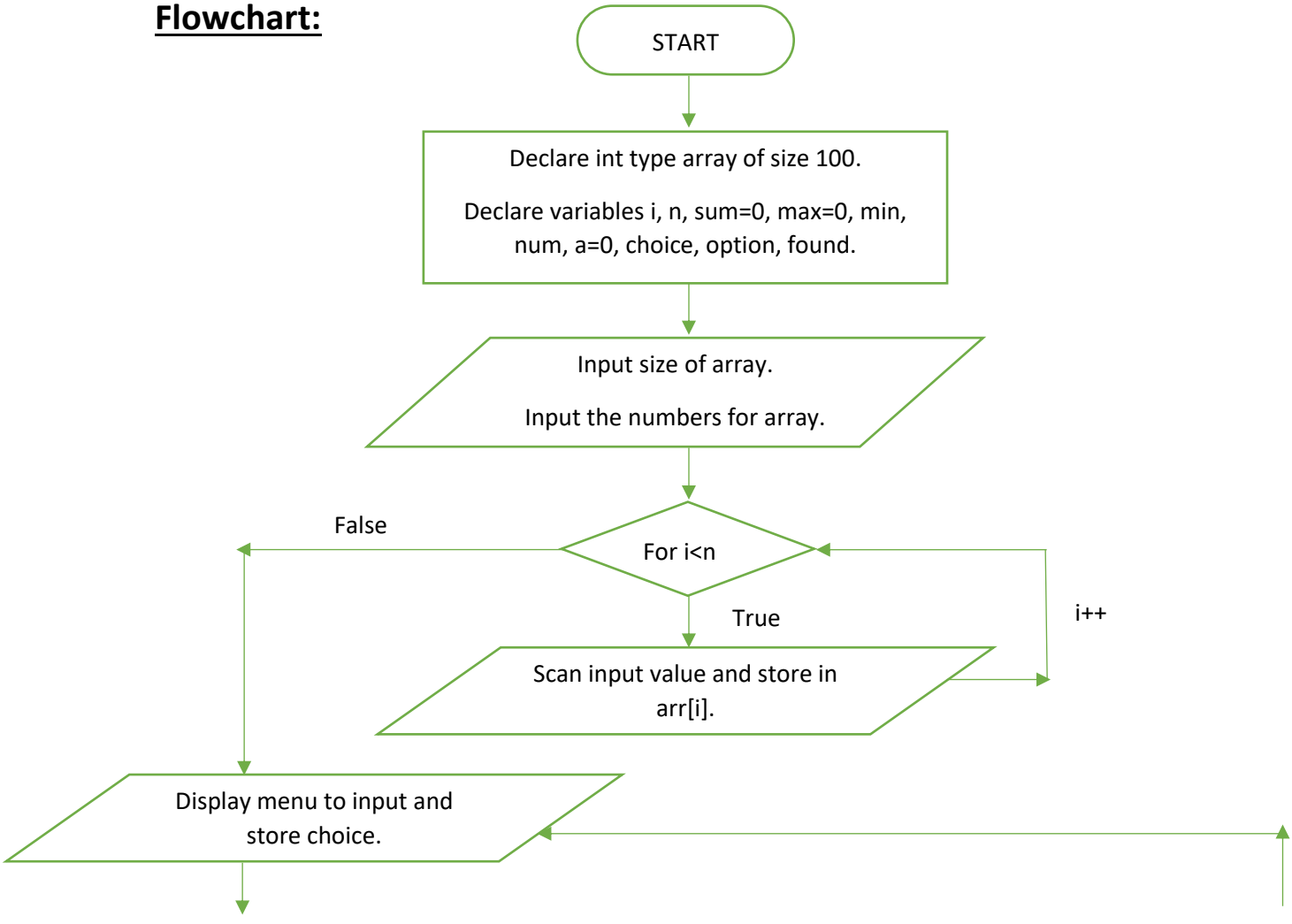
Declare 2 variables max and min.

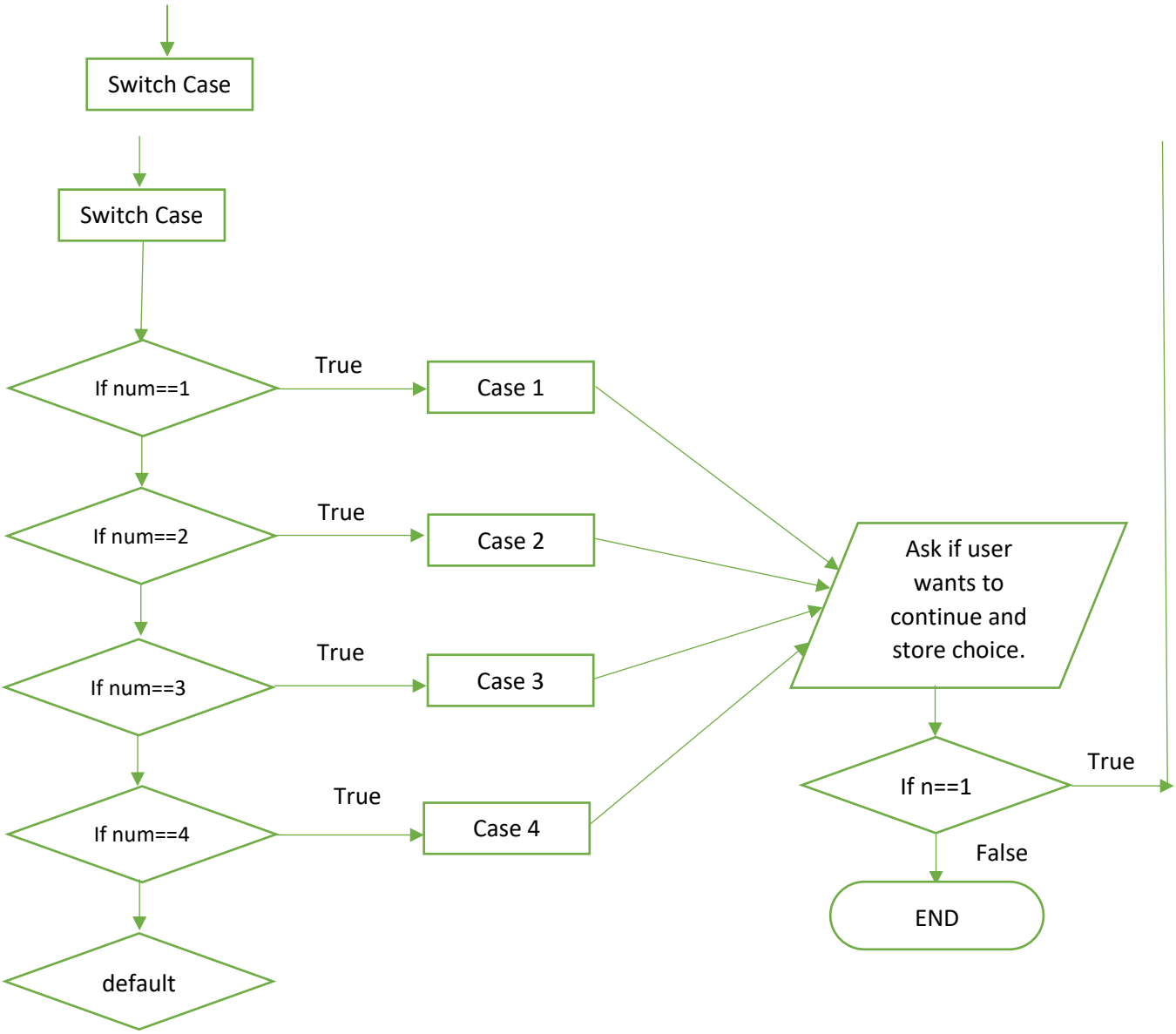
Make max equal to the first element in the array. Then using a for loop check if there are any elements greater then max.

If this is true then assign that value to max and print max at the end of the iteration. Similarly, do it for min.

5. In order to the keep the program running till the user wishes to use a goto function which returns to the menu if user wishes to continue with the program.

Flowchart:





Code:

```
#include <stdio.h>

int main()

{

   int numbers[100], i, n, sum=0, max=0, min, num, a=0, choice,
option;
```

```
  printf("Enter number of terms : ");
  scanf("%d", &n);
  printf("Enter the numbers : ");
  for(i=0; i<n; i++)
  {
     scanf("%d", &numbers[i]);
  }

  read:
  printf("Type '1' to display the input numbers \n");
  printf("Type '2' for getting the sum of numbers \n");
  printf("Type '3' to find the maximum and minimum number \n");
  printf("Type '4' for searching the number \n");

  printf("Enter the choice : ");
  scanf("%d", &choice);


switch(choice)
  {
     {
        case 1:
        printf("The input numbers are : \n");
        for(i=0; i<n; i++)
```

```
    {
        printf("arr[%d] = %d\n", i, numbers[i]);
    }
    printf("\npress 1 to continue and 0 to not continue : ");
    scanf("%d", &option);
    if(option == 1)
    {
        goto read;
    }
    else
    {
        printf("PROGRAM ENDED");
        break;
    }
}




{
    case 2:
    for(i=0; i<n; i++)
    {
        sum = sum + numbers[i];
    }
```

```
    printf("\nThe sum is %d", sum);

    printf("\npress 1 to continue and 0 to not continue : ");
    scanf("%d", &option);
    if(option == 1)
    {
       goto read;
    }
    else
    {
       printf("PROGRAM ENDED");
       break;
    }
}




{
    case 3:
    for(i=0; i<n; i++)
    {
       if(numbers[i] > max)
       {
```

```
        max = numbers[i];
    }
}
printf("\nThe maximum number is : %d", max);

min = numbers[0];
for(i=0; i<n; i++)
{
    if(numbers[i] < min)
    {
        min = numbers[i];
    }
}
printf("\nThe minimum number is : %d", min);

printf("\npress 1 to continue and 0 to not continue : ");
scanf("%d", &option);
if(option == 1)
{
    goto read;
}
else
{
    printf("PROGRAM ENDED");
```

```
        break;
    }
}

{
    case 4:
    printf("\nEnter the number you want to find : ");
    scanf("%d", &num);
    for(i=0; i<n; i++)
    {
        if(numbers[i] == num)
        {
            a=1;
            printf("The number is found at %d position\n", i);
        }
    }
    if (a != 1)
    {
        printf("The number is not there");
    }

    printf("\npress 1 to continue and 0 to not continue : ");
    scanf("%d", &option);
    if(option == 1)
```

```
        {
            goto read;
        }
        else
        {
            printf("PROGRAM ENDED");
            break;
        }
      }

        default:
        {
            printf("Input is invalid");
        }
   }
   return 0;
}
```

Output:

Enter number of terms : 5

Enter the numbers : 65 45 25 85 35

Type '1' to display the input numbers

Type '2' for getting the sum of numbers

Type '3' to find the maximum and minimum number

Type '4' for searching the number

Enter the choice : 1

The input numbers are :

arr[0] = 65

arr[1] = 45

arr[2] = 25

arr[3] = 85

arr[4] = 35

press 1 to continue and 0 to not continue : 1

Type '1' to display the input numbers

Type '2' for getting the sum of numbers

Type '3' to find the maximum and minimum number

Type '4' for searching the number

Enter the choice : 2

The sum is 255

press 1 to continue and 0 to not continue : 1

Type '1' to display the input numbers

Type '2' for getting the sum of numbers

Type '3' to find the maximum and minimum number

Type '4' for searching the number

Enter the choice : 3

The maximum number is : 85

The minimum number is : 25

press 1 to continue and 0 to not continue : 1

Type '1' to display the input numbers

Type '2' for getting the sum of numbers

Type '3' to find the maximum and minimum number

Type '4' for searching the number

Enter the choice : 4

Enter the number you want to find : 85

The number is found at 3 position

press 1 to continue and 0 to not continue : 0

PROGRAM ENDED