S.No: 44	Exp. Name: ***Menu driven C program***	Date:2024-11-26

Aim:

Write a menu-driven **C** program that allows a user to enter **n** numbers and then choose between finding the **smallest**, **largest**, **sum**, or **average**. The menu and all the choices are to be functions. Use a **switch** statement to determine what action to take. Display an **error message** if an invalid **choice** is entered.

Source Code:

ProgramMenu.c

```
#include <stdio.h>
void smallest(int[], int);
void largest(int[], int);
void sum(int[], int);
void average(int[], int);
#include<stdio.h>
void smallest(int[], int);

void largest(int[], int);

void sum(int[], int);

void average(int[], int);

void printMenu(){
   printf("The menu driven is:\n");
   printf("1.smallest\n");
   printf("2.largest\n");
   printf("3.sum\n");
   printf("4.average\n");
}
void main() {
   int n, option;
   printf("Enter number : ");
   scanf("%d", &n);
   int numbers[n];
   printf("Enter %d numbers : ",n);
   for(int i = 0; i < n; i++){
      scanf("%d", &numbers[i]);
   }
   printMenu();
   printf("Enter an option : ");
   scanf("%d", &option);
   switch(option){
      case 1:
      smallest(numbers, n);
      break;
      case 2:
      largest(numbers, n);
      break;
      case 3:
      sum(numbers, n);
      break;
```

```
      case 4:
      average(numbers, n);
      break;
      default:
      printf("Invalid choice\n");
      break;
   }
}
void smallest(int arr[], int n) {
   int smallest = arr[0];
   for(int i = 1; i < n; i++){
      if (arr[i] < smallest){
         smallest = arr[i];
      }
   }
   printf("The smallest element is %d\n", smallest);
}
void largest(int arr[], int n) {
   int largest = arr[0];
   for(int i = 1; i < n; i++){
      if(arr[i] > largest){
         largest = arr[i];
      }
   }
   printf("The largest element is %d\n", largest);
}
void sum(int arr[], int n) {
   int sum = 0;
   for(int i = 0; i < n; i++){
      sum += arr[i];
   }
   printf("The sum of all elements is %d\n", sum);
}
void average(int arr[], int n) {
   int sum = 0;
   for(int i = 0; i< n; i++){
      sum += arr[i];
   }
   double avg = (double)sum / n;
   printf("The average of all elements is %.6lf\n", avg);
}
```

Execution Results - All test cases have succeeded!

Test Case - 1
User Output
Enter number : 5
Enter 5 numbers : 6 7 8 9 12
The menu driven is: 5
1.smallest 5
2.largest 5
3.sum 5
4.average 5
Enter an option : 5

Invalid choice

Test Case - 2
User Output
Enter number : 4
Enter 4 numbers : 6 8 9 7
The menu driven is: 4
1.smallest 4
2.largest 4
3.sum 4
4.average 4
Enter an option : 4
The average of all elements is 7.500000

Test Case - 3
User Output
Enter number : 4
Enter 4 numbers : 10 20 30 40
The menu driven is: 2
1.smallest 2
2.largest 2
3.sum 2
4.average 2
Enter an option : 2
The largest element is 40

Test Case - 4
User Output
Enter number : 6
Enter 6 numbers : 11 2 33 4 55 6
The menu driven is: 3
1.smallest 3
2.largest 3
3.sum 3
4.average 3
Enter an option : 3
The sum of all elements is 111

Test Case - 5
User Output
Enter number : 4
Enter 4 numbers : 24 25 26 28
The menu driven is: 1
1.smallest 1
2.largest 1
3.sum 1
4.average 1
Enter an option : 1
The smallest element is 24