

Array in C Language

1. Write a program to calculate the sum of numbers stored in an array of size 10. Take array values from the user.

```
#include<stdio.h>
int sum(int[],int);
int main()
{
    int num[10], s, n;
    printf("Enter number of elements to store in array (Max 10 numbers) : ");
    scanf("%d", &n);
    s = sum(num, n);
    printf("Sum of given numbers is %d", s);
    return 0;
}
// below function is for sum of values in the array and return sum
int sum(int a[], int n)
{
    int s = 0, i;
    printf("Enter %d numbers : ", n);
    for (i = 0; i < n; i++)
    {
        scanf("%d", &a[i]);
        s = s + a[i];
    }
    return(s);
}
=====
Output:
Enter number of elements to store in array (Max 10 numbers) : 5
Enter 5 numbers : 3 8 4 6 9
Sum of given numbers is 30
```

2. Write a program to calculate the average of numbers stored in an array of size 10. Take array values from the user.

```
#include<stdio.h>
float avg(int[],int);
int main()
{
    int num[10], n;
    float result;
    printf("Enter number of elements to store in array (Max 10 numbers) : ");
    scanf("%d", &n);
    result = avg(num, n);
    printf("Average of given numbers is %.2f", result);
    return 0;
}
// below function is for sum of values in the array and return average of the
// numbers
float avg(int a[], int n)
{
    float s = 0.00;
    int i;
    printf("Enter %d numbers : ", n);
    for (i = 0; i < n; i++)
    {
        scanf("%d", &a[i]);
        s = s + a[i];
    }
    return(s/n);
}
```

```
=====
Output:
Enter number of elements to store in array (Max 10 numbers) : 5
Enter 5 numbers : 52 51 56 7 8
Average of given numbers is 34.80
=====
```

3. Write a program to calculate the sum of all even numbers and sum of all odd numbers, which are stored in an array of size 10. Take array values from the user.

```
#include <stdio.h>
void sum(int[], int);
int main()
{
    int num[10], n;
    printf("Enter number of elements to store in array (Max 10 numbers) : ");
    scanf("%d", &n);
    sum(num, n);
    return 0;
}
// below function is for sum of all even numbers and sum of all odd numbers,
// values in the array
void sum(int a[], int n)
{
    int se = 0, so = 0, i;
    printf("Enter %d numbers : ", n);
    for (i = 0; i < n; i++)
    {
        scanf("%d", &a[i]);
        if (a[i] % 2 == 0)
            se = se + a[i];
        else
            so = so + a[i];
    }
    printf("The sum of all even numbers : %d\n", se);
    printf("The sum of all odd numbers : %d", so);
}
=====
Output:
Enter number of elements to store in array (Max 10 numbers) : 10
Enter 10 numbers : 2 6 8 9 7 46 4 56 7 41
The sum of all even numbers : 122
The sum of all odd numbers : 64
=====
```

4. Write a program to find the greatest number stored in an array of size 10. Take array values from the user.

```
#include <stdio.h>
void greatestNumber(int[], int);
int main()
{
    int num[10], n;
    printf("Enter number of elements to store in array (Max 10 numbers) : ");
    scanf("%d", &n);
    greatestNumber(num, n);
    return 0;
}
// below function is for finding greatest numbers in the array
void greatestNumber(int a[], int n)
{
    int i;
    printf("Enter %d numbers : ", n);
    for (i = 0; i < n; i++)
        scanf("%d", &a[i]);
}
```

```

    for (i = 0; i < n - 1; i++)
    {
        a[i + 1] = a[i] > a[i + 1] ? a[i] : a[i + 1];
    }
    printf("The greatest number stored in an array : %d", a[n - 1]);
}
=====
Output:
Enter number of elements to store in array (Max 10 numbers) : 5
Enter 5 numbers : 5 87 2 66 45
The greatest number stored in an array : 87

```

5. Write a program to find the smallest number stored in an array of size 10. Take array values from the user.

```

#include <stdio.h>
void smallestNumber(int[], int);
int main()
{
    int num[10], n;
    printf("Enter number of elements to store in array (Max 10 numbers) : ");
    scanf("%d", &n);
    smallestNumber(num, n);
    return 0;
}
// below function is for finding smallest numbers in the array
void smallestNumber(int a[], int n)
{
    int i;
    printf("Enter %d numbers : ", n);
    for (i = 0; i < n; i++)
        scanf("%d", &a[i]);
    for (i = 0; i < n - 1; i++)
    {
        a[i + 1] = a[i] < a[i + 1] ? a[i] : a[i + 1];
    }
    printf("The smallest number stored in an array : %d", a[n - 1]);
}
=====
Output:
Enter number of elements to store in array (Max 10 numbers) : 9
Enter 9 numbers : 58 45 66 77 12 7 95 52 5
The smallest number stored in an array : 5

```

6. Write a program to sort elements of an array of size 10. Take array values from the user.

```

#include <stdio.h>
void sortElement(int[], int);
int main()
{
    int num[10];
    sortElement(num, 10);
    return 0;
}
// below function is for sorting elements of an array
void sortElement(int a[], int n)
{
    int i, j, temp;
    printf("Enter 10 numbers : ");

    // Input from the user
    for (i = 0; i < n; i++)
        scanf("%d", &a[i]);

    // print array element

```

```

printf("Before sorting \n");
for (i = 0; i < n; i++)
    printf("%d ", a[i]);

for (i = 0; i < n - 1; i++)
{
    for (j = i + 1; j < n; j++)
    {
        if (a[i] > a[j])
        {
            temp = a[j];
            a[j] = a[i];
            a[i] = temp;
        }
    }
}
printf("\nAfter sorting\n");
for (i = 0; i < n; i++)
    printf("%d ", a[i]);
}

```

Output:

```

Enter 10 numbers : 56 87 9 5 49 75 24 22 588 45
Before sorting
56 87 9 5 49 75 24 22 588 45
After sorting
5 9 22 24 45 49 56 75 87 588

```

7. Write a program to find the second largest number in an array. Take array values from the user.

```

#include <stdio.h>
void sortElement(int[], int);
int main()
{
    int num[10];
    sortElement(num, 10);
    return 0;
}
// below function is for sorting elements of an array
void sortElement(int a[], int n)
{
    int i, j, temp;
    printf("Enter 10 numbers : ");

    // Input from the user
    for (i = 0; i < n; i++)
        scanf("%d", &a[i]);

    /*
    print array element
    printf("Before sorting \n");
    for (i = 0; i < n; i++)
        printf("%d ", a[i]);
    */

    for (i = 0; i < n - 1; i++)
    {
        for (j = i + 1; j < n; j++)
        {
            if (a[i] > a[j])
            {
                temp = a[j];
                a[j] = a[i];
                a[i] = temp;
            }
        }
    }
}

```

```

    }
}
/*
printf("\nAfter sorting\n");
for (i = 0; i < n; i++)
    printf("%d ", a[i]);
*/
printf("The second largest number in an array is %d", a[n - 2]);
}
=====

```

Output:

```

Enter 10 numbers : 56 89 7 6 45 68 55 4 58 97
The second largest number in an array is 89

```

8. Write a program to find the second smallest number in an array. Take array values from the user.

```

#include <stdio.h>
void sortElement(int[], int);
int main()
{
    int num[10];
    sortElement(num, 10);
    return 0;
}
// below function is for sorting elements of an array
void sortElement(int a[], int n)
{
    int i, j, temp;
    printf("Enter 10 numbers : ");

    // Input from the user
    for (i = 0; i < n; i++)
        scanf("%d", &a[i]);

    /*
    print array element
    printf("Before sorting \n");
    for (i = 0; i < n; i++)
        printf("%d ", a[i]);
    */

    for (i = 0; i < n - 1; i++)
    {
        for (j = i + 1; j < n; j++)
        {
            if (a[i] > a[j])
            {
                temp = a[j];
                a[j] = a[i];
                a[i] = temp;
            }
        }
    }
    /*
    printf("\nAfter sorting\n");
    for (i = 0; i < n; i++)
        printf("%d ", a[i]);
    */
    printf("The second smallest number in an array is %d", a[1]);
}
=====

```

Output:

```

Enter 10 numbers : 100 90 80 70 60 50 40 30 20 10
The second smallest number in an array is 20

```

9. Write a program in C to read n number of values in an array and display it in reverse order. Take array values from the user.

```
#include <stdio.h>
int main()
{
    int i, num[10], n;
    printf("Enter number of elements to store in array (Max 10 numbers) : ");
    scanf("%d", &n);
    printf("Enter %d numbers to store in array : ", n);
    for (i = 0; i < n; i++)
        scanf("%d", &num[i]);
    printf("Before reverse\n");
    for (i = 0; i < n; i++)
        printf("%d ", num[i]);
    printf("\nAfter reverse\n");
    for (i = n-1; i >= 0; i--)
        printf("%d ", num[i]);
    return 0;
}
=====
Output:
Enter number of elements to store in array (Max 10 numbers) : 5
Enter 5 numbers to store in array : 20 78 68 45 98
Before reverse
20 78 68 45 98
After reverse
98 45 68 78 20
```

10. Write a program in C to copy the elements of one array into another array. Take array values from the user.

```
#include <stdio.h>
int main()
{
    int a[10], b[10], i, n;
    printf("Enter number of elements to store in array (Max 10 numbers) : ");
    scanf("%d", &n);
    printf("Enter %d numbers to store in array : ", n);
    for (i = 0; i < n; i++)
    {
        scanf("%d", &a[i]); // input in array a
        b[i] = a[i];        // copy array a to array b
    }
    printf("Array element stored in another array : ");
    for (i = 0; i < n; i++)
        printf("%d ", b[i]); // print value of array b

    return 0;
}
=====
Output:
Enter number of elements to store in array (Max 10 numbers) : 7
Enter 7 numbers to store in array : 56 87 95 78 52 45 8
Array element stored in another array : 56 87 95 78 52 45 8
```