

# CSA0265- C Programming

## TEAM-6

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The screenshot shows the SIMATS C IDE interface. The top bar displays the SIMATS logo and 'Saveetha School of Engineering'. The user's name 'YASRAM HEMANTH KUMAR REDDY' and ID '192211361' are visible in the top right. The main area is divided into three sections: Questions, Test Cases, and a code editor. The 'Questions' section contains a problem statement about leap years. The 'Test Cases' section lists five test cases. The code editor shows a C program that takes a year as input and checks if it is a leap year. The output section shows the result of the program execution.

```
1. #include <stdio.h>
2.
3. int main() {
4.     int year;
5.     printf("Enter a year: ");
6.     scanf("%d", &year);
7.
8.     if (year % 4 == 0) {
9.         if (year % 100 == 0) {
10.            if (year % 400 == 0) {
11.                printf("%d is a leap year.", year);
12.            } else {
13.                printf("%d is not a leap year.", year);
14.            }
15.        } else {
16.            printf("%d is a leap year.", year);
17.        }
18.    } else {
19.        printf("%d is not a leap year.", year);
20.    }
21.
22.    return 0;
23. }
```

Test Cases

- 04/11/1947
- 11/15/1996
- 31/05/1996
- 04/05/1947
- 00/00/2000

Sample Input:

Enter Date : 04/11/1947

Sample Output:

Given year is Non Leap Year

Your Input Goes Here....!!!

Enter a year: 0 is a leap year.

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```
1. #include <stdio.h>
2.
3. int main() {
4.     int matrix[3][10];
5.     int i, j, sum = 0;
6.
7.     for (i = 0; i < 3; i++) {
8.         for (j = 0; j < 10; j++) {
9.             matrix[i][j] = 0;
10.        }
11.    }
12.
13.    printf("The matrix is:\n");
14.    for (i = 0; i < 3; i++) {
15.        for (j = 0; j < 10; j++) {
16.            printf("%d ", matrix[i][j]);
17.        }
18.        printf("\n");
19.    }
20.
21.    printf("The diagonal elements are: ");
22.    for (i = 0; i < 3; i++) {
23.        printf("%d ", matrix[i][i]);
24.        sum += matrix[i][i];
25.    }
26.
27.    printf("\nThe sum of diagonal elements is %d\n", sum);
28.
29.    return 0;
30. }
```

Test Cases

- 1 2 3
- 4 5 6
- 7 8 9
- 1 2 3
- 4 5 6

Sample Input:

1 2 3  
4 5 6  
7 8 9

Output:

Diagonal elements are 1 5 9  
Sum of diagonal elements = 15

Your Input Goes Here....!!!

The matrix is:  
1 2 3  
4 5 6  
7 8 9  
The diagonal elements are: 1 5 9  
The sum of diagonal elements is 15

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Questions

CMQ211

Write a Program to find the Maximum and Minimum value in a given array of numbers.

Sample Input:  
Enter no. of elements in an array 5  
Enter the elements:  
1 2 3 4 5  
Output:  
Maximum of an array 5  
Minimum of an array 1

Test Cases

C Run Save Logout

```
1 #include<stdio.h>
2 int main() {
3     int arr[10];
4     int i, n, max, min;
5     printf("Enter the size of the array(up to 10): ");
6     scanf("%d", &n);
7     printf("Enter the elements of the array: ");
8     for(i = 0; i < n; i++) {
9         scanf("%d", &arr[i]);
10    }
11    max = arr[0];
12    min = arr[0];
13    for(i = 1; i < n; i++) {
14        if(arr[i] > max) {
15            max = arr[i];
16        }
17        if(arr[i] < min) {
18            min = arr[i];
19        }
20    }
21    printf("Maximum value in the array: %d\n", max);
22    printf("Minimum value in the array: %d\n", min);
23    return 0;
24 }
25
26
27
28
```

Your Input Goes Here...!!!

Enter the size of the array(up to 10): Enter the elements of the array: Maximum value in the array: 0  
Minimum value in the array: 0

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Questions  
CMQ12

Write a Program to find the sum and average of numbers in a matrix.  
  
Sample Input:  
1 2 3  
4 5 6  
7 8 9  
  
Output:  
Sum = 45  
Average = 5

Test Cases

C

Run

Save

Logout

```
1 #include<stdio.h>
2 int main() {
3     int matrix[3][3], i, j, sum = 0;
4     float average;
5     printf("Enter the elements of the matrix:\n");
6     for(i=0; i<3; i++) {
7         for(j=0; j<3; j++) {
8             scanf("%d", &matrix[i][j]);
9         }
10    }
11    for(i=0; i<3; i++) {
12        for(j=0; j<3; j++) {
13            sum += matrix[i][j];
14        }
15    }
16    average = (float)sum / 9;
17    printf("sum = %d\n", sum);
18    printf("Average = %f\n", average);
19
20    return 0;
21 }
```

Your Input Goes Here...!!!

Runtime Error

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## Questions

CMQ13

Write a program in C to add numbers using call by reference.

Test Data :

Input the first number : 5  
Input the second number : 6

Expected Output :

The sum of 5 and 6 is 11

## Test Cases

1. X = 0, N = 4
2. X = 5, N = 0
3. X = 3, N = 3
4. X = 0, N = 0
5. X = 123, N = 123

C Run Save Logout

```

1. #include <stdio.h>
2.
3. void add(int *a, int *b, int *sum){
4.     *sum = *a + *b;
5. }
6. int main() {
7.     int num1, num2, sum;
8.     printf("Enter two numbers to add: ");
9.     scanf("%d %d", &num1, &num2);
10.
11.     printf("sum of %d and %d is %d", num1, num2, sum);
12.
13.     return 0;
14. }
15.
16.
17.
18.
19.
20.
21.
22.
23.
24.
25.
26.
27.
28.

```

Your Input Goes Here.....!!

Enter two numbers to add: sum of 16 and 0 is 708

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Windows taskbar showing the Start button, Search bar, and various application icons (File Explorer, Edge, etc.). The system tray on the right shows the language set to English (IN), the date as 07-04-2023, and the time as 14:54.

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### Questions

CMD15.

Write a program in C to swap elements using call by reference.

**Test Data :**

- Input the value of 1st element : 5
- Input the value of 2nd element : 6
- Input the value of 3rd element : 7

**Expected Output :**

The value before swapping are :

```
element 1 = 5
element 2 = 6
element 3 = 7
```

```
#include<stdio.h>
void swap(int *a, int *b) {
    int temp = *a;
    *a = *b;
    *b = temp;
}
int main() {
    int arr[3];
    printf("Input the value of 1st elements : ");
    scanf("%d", &arr[0]);
    printf("Input the value of 2nd element : ");
    scanf("%d", &arr[1]);
    printf("Input the value of 3rd element : ");
    scanf("%d", &arr[2]);

    printf("\nthe value before swapping are:\n");
    printf("element 1 = %d\n", arr[0]);
    printf("element 2 = %d\n", arr[1]);
    printf("element 3 = %d\n", arr[2]);
    swap(&arr[0], &arr[1]);
    printf("element 1 = %d\n", arr[0]);
    printf("element 2 = %d\n", arr[1]);
    printf("element 3 = %d\n", arr[2]);
    return 0;
}
```

Your Input Goes Here...!!!

Input the value of 1st elements : Input the value of 2nd element : Input the value of 3rd element :  
The value before swapping are:  
element 1 = 495  
element 2 = 16  
element 3 = 0  
element 1 = 0  
element

12345678910111213141516171819202122232425262728

```
#include <stdio.h>

void factorial(int num, int *result);

int main() {
    int num, result;
    printf("Enter a number: ");
    scanf("%d", &num);
    factorial(num, &result);
    printf("The factorial of %d is: %d\n", num, result);
    return 0;
}

void factorial(int num, int *result) {
    int i;
    *result = 1;
    for (i = 1; i <= num; i++) {
        *result *= i;
    }
}
```

Test Cases

1. N=0  
2. N=5  
3. N=1  
4. N=M  
5. N=%

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Logout

Questions  
CMQ16

Write a program in C to find the factorial of a given number using pointers.

Test Data :  
Input a number : 5

Expected Output :  
The Factorial of 5 is : 120

Run

Save

Your Input Goes Here...!!!!

Enter a number: The factorial of 0 is: 1

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Questions

CMQ17:

Write a program in C to compute the sum of all elements in an array using pointers.

Test Data :  
Input the number of elements to store in the array (max 10) : 5  
Input 5 number of elements in the array :  
element - 1 : 2  
element - 2 : 3  
element - 3 : 4  
element - 4 : 5  
element - 5 : 6  
Expected Output :  
.....

Test Cases  
1. N=0,1,3,8,7,-6  
1. N=5,5,5,5,5,4  
2. N=2,2,-2,4,4  
3. N=-4,55,30,0,5  
4. N=0,2,2,4,5,8

Run

Save

Logout

```
1. #include<stdio.h>
2. #define MAX_SIZE 10
3. int main() {
4.     int arr[MAX_SIZE], n, sum = 0;
5.     int *p;
6.     printf("Input the number of elements to store in the array (max %d):",MAX_SIZE);
7.     scanf("%d", &n);
8.     printf("Input %d number of elements in the array:\n", n);
9.
10.    for(int i = 0; i < n; i++) {
11.        printf("element %d: ", i+1);
12.        scanf("%d", &arr[i]);
13.    }
14.    p = arr;
15.    for(int i = 0; i < n ; i++) {
16.        sum += *p;
17.        p++;
18.    }
19.    printf("The sum of array is : %d", sum);
20.    return 0;
21. }
```

Your Input Goes Here...!!!!

Input the number of elements to store in the array (max 10):Input 0 number of elements in the array:  
The sum of array is : 0

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The screenshot shows a web browser window with the address bar displaying "172.18.49.175/php\_c/home.php". The page header includes the SIMATS logo and "Saveetha School of Engineering". The user's name, "YADAM HEEMANTH KUMAR REDDY 192211361", is visible in the top right corner.

The main content area is divided into two sections: "Questions" and "Test Cases". The "Questions" section contains a C programming problem: "Write a program in C to check whether a number is a prime number or not using the function." The "Test Cases" section lists five test cases: 1. N = P, 2. N = 0, 3. N = 4, 4. N = 11, and 5. N = 72.

The C program code is displayed in a code editor. It includes a function `is\_prime` that checks if a number is prime by testing divisibility from 2 to the number itself. The `main` function prompts the user to enter a number and prints the result.

The output of the program is shown in a text area: "Enter a number: 0 is not a prime number".

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Questions

CMQ19

Write a program in C to print all perfect numbers in given range using the function.

Test Data :  
Input lowest search limit of perfect numbers : 1  
Input lowest search limit of perfect numbers : 100

Expected Output :  
The perfect numbers between 1 to 100 are :  
6  
28

Test Cases

1. 17  
2. 261  
3. 143  
4. 94.1  
5. -963

C

Run

Save

Logout

```
1. #include<stdio.h>
2. int isperfect(int num) {
3.     int i, sum=0;
4.     for(i=1; i<=num/2; i++) {
5.         if (num%i == 0) {
6.             sum+=i;
7.         }
8.     }
9.     if(sum == num) {
10.        return 1;
11.    } else {
12.        return 0;
13.    }
14. }
15. int main() {
16.     int start, end, i;
17.     printf("Enter the start and end values: ");
18.     scanf("%d %d", &start, &end);
19.     printf("The perfect number between %d and %d are: ", start, end);
20.     for(i=start; i<=end; i++) {
21.         if(isperfect(i)) {
22.             printf("%d", i);
23.         }
24.     }
25.     return 0;
26. }
```

Your Input Goes Here...!!!!

Enter the start and end values: The perfect number between 16 and 381 are:

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12345678910111213141516171819202122232425262728

#include <stdio.h>

int main() {

int N, n, even\_count = 0;

printf("Enter the value of N: ");

scanf("%d", &N);

printf("Enter the value of N: ");

scanf("%d", &n);

for (int num = N; num <= N; num++) {

if (num % 2 != 0) {

printf("%d", num);

else {

even\_count++;

}

printf("\nNumber of Evn Numbers = %d", even\_count);

return 0;

}

Test Cases

1. H = 100, N = 100

2. H = 500, N = 100

3. H = -5, N = 4

4. H = 72, N = -72

5. H = 0, N = 0

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CMQ2

CMQ23

CMQ3

CMQ4

CMQ5

CMQ6

CMQ7

Run

Save

Logout

Your Input Goes Here...!!!!

<pre>ExecutionFolder/192211361.c: In function 'main':  
ExecutionFolder/192211361.c:8:37: error: expected ';' before '\n'  
token  
8 | printf("Enter the value of N: ");  
|  
|

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Questions

CMQ5

Write a program to find the number of student users in the college, get the total users, staff users details from the client.

Sample Input:  
Total Users: 856  
Staff Users: 128  
Sample Output:  
Student Users: 888

Test Cases

1. Total Users: 0  
2. Total Users: -143  
3. Total Users: 1026, Staff Users: 1026  
4. Total Users: 450, Staff Users: 540  
5. Total Users: 600, Staff Users: 450

C

Run

Debug

Logout

```
1. #include <stdio.h>
2.
3. int main() {
4.     int total_users = 856;
5.     int staff_users = 128;
6.     int student_users = total_users - staff_users;
7.
8.     printf("Student Users:%d\n", student_users);
9.
10.    return 0;
11. }
```

Your Input Goes Here...!!!!

Student Users:730

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Questions

CMQ6

Write a program to print the longest word in the below text "Programming does wonders in the world".

Test Cases

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CMQ1

CMQ2

CMQ23

CMQ3

CMQ4

CMQ5

CMQ6

CMQ7

C

Run

Save

Logout

```
1. #include<stdio.h>
2. #include<conio.h>
3. int main() {
4.     char *a;
5.     int i, max=0, pos=0, l=0;
6.     gets(a);
7.     for(i=0; a[i]!='\0'; i++)
8.     {
9.         if(i==max)
10.        {
11.            pos=i-max;
12.        }
13.        if (a[i]==' ')
14.        {
15.            l=0;
16.        }
17.        else
18.        {
19.            l++;
20.        }if(l>max)
21.        {
22.            max=l;
23.        }
24.    }
25.    printf("%d\n",max);
26.    for(i=1; i<=max;i++,pos++)
27.    {
28.        printf("%c", a[pos]);
29.    }
```

Your Input Goes Here...!!!!

Runtime Error

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Questions

CMQ8

Write a C program to display the details of student(Name , Age) by passing structures to a function.

Sample Input :  
Enter No.Students: 1  
Enter student 1 Name, Age :AAA, 25

Sample Outputs:  
Student 1 details:  
Name: AAA  
Age : 25

Test Cases

No Student :4 (Any details of student)  
No Student :5  
No Student 1( 62, 28)  
No Student A  
No Student 1( xxx, 28.2)

CMQ1

CMQ2

CMQ3

CMQ4

CMQ5

CMQ6

CMQ7

CMQ8

C

Run

Debug

Logout

```
1. #include<stdio.h>
2. int main()
3. {
4.     int numStudents,totalUsers,numStaff,numNonTeachingStaff,numStudentsUsers;
5.     printf("enter the number of students user: \n");
6.     scanf("%d",&numStudents);
7.     printf("enter the total number of users: \n");
8.     scanf("%d",&totalUsers);
9.     printf("enter the number od staff users: \n");
10.    scanf("%d",&numStaff);
11.    printf("enter the number of non teaching satff users: \n");
12.    scanf("%d", &numNonTeachingStaff);
13.    numStudentsUsers=numStudents*(totalUsers-numStaff-numNonTeachingStaff*3);
14.    printf("number of students users in the college is:%d\n",numStudentUsers);
15.    return 0;
16. }
```

Your Input Goes Here...!!!!

enter the number of students user:  
enter the total number of users:  
enter the number od staff users:  
enter the number of non teaching satff users:  
number of students users in the college is:-9441

Search

ENG IN

14:56

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