

Day-6

# Practice Programs

CSAo265

*Pagidala Madeena*

192211011

The screenshot shows a web-based C IDE interface. At the top, there's a navigation bar with links like 'Dbms', 'HR', 'NPTEL-C', 'Gmail', 'YT', 'ARMS', 'GitHub', 'pdf', and 'compiler'. Below the bar, the title 'SIMATS| Saveetha School of Engineering' is displayed, along with the student's name 'PAGIDALA MADEENA' and ID '192211011'. On the right side, there's a sidebar with buttons for 'CEQ41' through 'CEQ50', with 'CEQ43' being the active one. The main area has tabs for 'C' and 'Run'. The code editor contains the following C program:

```
1. #include<stdio.h>
2. int main()
3. {
4.     int n,t,sum=0,rem;
5.     printf("Enter integer:\n");
6.     scanf("%d",&n);
7.     t=n;
8.     while(t!=0)
9.     {
10.         rem=t%10;
11.         sum=sum+rem;
12.         t=t/10;
13.     }
14.     printf("sum of digits:%d",sum);
15.     return 0;
16. }
```

To the right of the code editor, the output window shows '143' above a purple input field containing 'Enter integer: Sum of digits:8'. Above the output window, a 'Test Cases' section lists five test cases with their expected results:

- 1. N = 2, 158
- 2. N = 3, 14
- 3. N = 4, 0148
- 4. N = 1, 0004
- 5. N = 4, 7263

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Questions  
CEQ45.

Write a program to print inverted pyramid pattern.

Test Cases

CEO41  
CEO42  
**CEO43**  
CEO44  
CEO45  
CEO46  
CEO47  
CEO48  
CEO49

C Run Save Logout

```
1. #include<stdio.h>
int main()
{
    int rows, space, i, j;
    printf(" ");
    scanf("%d", &rows);
    for(i=rows; i>1; --i){
        for(space=0; space<rows-1; ++space)
            printf(" ");
        for(j=1; j<=2*i-1; ++j)
            printf(" * ");
        for(j=0; j<i-1; ++j)
            printf(" * ");
        printf("\n");
    }
    return 0;
}
```

4

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09:35 10-04-2023

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Questions  
CEQ44.

Write a program to find the square root of a perfect square number (print both the positive and negative roots).

Sample Input:  
Enter the number : 6561

Sample Output:  
Square Root: 81, -81

Test Cases

1. 1225  
2. 9801  
3. 1827  
4. -100  
5. 0

CEO41  
CEO42  
**CEO43**  
CEO44  
CEO45  
CEO46  
CEO47  
CEO48  
CEO49

C Run Save Logout

```
1. #include<stdio.h>
2. #include<math.h>
3. int main()
4. {
5.     int num;
6.     printf("Enter a num:");
7.     scanf("%d", &num);
8.     int root=sqrt(num);
9.     if(root*root==num){
10.         printf("Square root of %d is %d", num, root);
11.         printf("Square root of %d is - %d", num, root);
12.     }
13.     else{
14.         printf("Not a perfect square");
15.     }
16.     return 0;
17. }
```

6561

Enter a num: Square root of 6561 is 81 Square root of 6561 is - 81

09:42 10-04-2023

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Questions  
CEQ42.

Write a program to print hollow Rectangle Dollar pattern?

Test Cases

CEQ41  
CEQ42  
CEQ43  
CEQ44  
CEQ45  
CEQ5  
CEQ6  
CEQ7  
CEQ8  
CEQ9

C Run Save Logout

```
1. #include<stdio.h>
2. int main()
3. {
4.     int i,j,N;
5.     printf("");
6.     scanf("%d",&N);
7.     for(i=1;i<=N;i++){
8.         for(j=1;j<=N;j++)
9.             if(i==1 || i==N || j==1 || j==N)
10.                printf("$");
11.            else
12.                printf(" ");
13.                printf("");
14.            }
15.        return 0;
16.    }
```

5

\$\$\$\$\$ \$ \$ \$ \$\$\$\$\$

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Questions  
CEQ6.

Write a program to print Right Triangle Star Pattern.

Sample Input:: n = 5

Output:

```
*
 *
 ***
 ****
 *****
```

Test Cases

CEQ41  
CEQ42  
CEQ43  
CEQ44  
CEQ45  
CEQ5  
CEQ6  
CEQ7  
CEQ8  
CEQ9

C Run Save Logout

```
1. #include<stdio.h>
2. int main()
3. {
4.     int i,j,k;
5.     for(i=1;i<=5;i++)
6.     {
7.         for(j=5;j>i;j--)
8.         {
9.             printf(" ");
10.         }
11.         for(k=1;k<=j;k++)
12.         {
13.             printf("*");
14.         }
15.         printf("\n");
16.     }
17.     return 0;
18. }
```

Your Input Goes Here...!!!

\*

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## SIMATS| Saveetha School of Engineering

**Questions**  
CEQ5.

Find the LCM and GCD of n numbers?  
 Sample Input:  
 N value = 2  
 Number 1 = 16  
 Number 2 = 20  
 Sample Output:  
 LCM = 80  
 GCD = 4

**Test Cases**

1. N = 3, {12, 25, 30}
2. N = 2, {52, 25, 63}
3. N = 3, {17, 19, 11}
4. N = -2, {52, 60}
5. N = 2, {30, 45}

**C Run Save Logout**

```
1. #include<stdio.h>
2. int main()
3. {
4.     int num1,num2,gcd,lcm,remainder,numerator,denominator;
5.     printf("Enter two numbers:");
6.     scanf("%d%d",&num1,&num2);
7.     numerator=(num1*num2)/num1:num2;
8.     denominator=(num1*num2)?num2:num1;
9.     remainder=numerator%denominator;
10.    while(remainder!=0)
11.    {
12.        numerator=denominator;
13.        denominator=remainder;
14.        remainder=numerator%denominator;
15.    }
16.    gcd=denominator;
17.    lcm=num1*num2/gcd;
18.    printf("GCD=%d",gcd);
19.    printf("LCM=%d",lcm);
```

2  
16

Enter two numbers:GCD=16LCM=2

10:09 10-04-2023

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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 Output:  
 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)

**C Run Save Logout**

```
1. #include<stdio.h>
2. struct Student{
3.     char name[50];
4.     int age;
5. };
6. void displaystudent(struct Student student){
7.     printf("Name=%s\n",student.name);
8.     printf("Age=%d\n",student.age);
9. }
10. int main()
11. {
12.     struct Student s1={"AAA",25};
13.     displaystudent(s1);
14.     return 0;
15. }
```

Your Input Goes Here...!!!

Name=AAA  
Age=25

10:14 10-04-2023

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Questions CHQ5.

Write a program in C to check Armstrong and perfect numbers using the function.

Test Data :  
Input any number: 371  
Expected Output :  
The 371 is an Armstrong number.  
The 371 is not a Perfect number.

Test Cases

CMQ4 CMQ5 CMQ6 CMQ7 CMQ8 CHQ4 CHQ5 CHQ6 CHQ7 CHQ8

C Run Save Logout

```

1. #include<stdio.h>
2. int checkarmstrong(int n1);
3. int checkperfect(int n1);
4. int main()
5. {
6.     int n1;
7.     printf("Enter num:");
8.     scanf("%d",&n1);
9.     if(checkarmstrong(n1))
10.    {printf("\nArmstrong number");}
11.    else
12.    {printf("\nNot armstrong number");}
13.    if(checkperfect(n1))
14.    {printf("\nPerfect number");}
15.    else
16.    {printf("\nNot perfect number");}
17.    return 0;
18. }
19. int checkarmstrong(int n1)

```

371

Enter num:  
Armstrong number  
Not perfect number

12:58 10-04-2023

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Write a program to print the all Odd numbers and number of even numbers in between M and N.

Sample Input:

M = 6  
N = 15

Sample Output:

All Odd Numbers = 7,9,11,13

1. M = 100, N = 100  
2. M = 500, N = 100  
3. M = -5, N = 4  
4. M = 72, N = -72  
5. M = 0, N = 0

C Run Save Logout

```

1. #include<stdio.h>
2. #include<stdlib.h>
3. int main()
4. {
5.     int num1,num2,i,r;
6.     printf("Lower range:");
7.     scanf("%d",&num1);
8.     printf("Upper range:");
9.     scanf("%d",&num2);
10.    for(i=num1;i<=num2;i++)
11.    {
12.        r=i%2;
13.        if(r==0)
14.        {printf("\nEVEN numbers:%d",i);}
15.    }
16.    for(i=num1;i<=num2;i++)
17.    {
18.        r=i%2;
19.        if(r==1)
20.        {printf("\nODD numbers:%d",i);}
21.    }
22.    return 0;
}

```

6 15

Lower range:Upper range:  
EVEN numbers:6  
EVEN numbers:8  
EVEN numbers:10  
EVEN numbers:12  
EVEN numbers:14  
ODD numbers:7  
ODD numbers:9

13:05 10-04-2023

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Questions  
CEQ9.

Write a C Program to Find Even Sum of Fibonacci Series Till number N?

Sample Input: n = 4

Sample Output: 33  
(N = 4, So here the Fibonacci series will be produced from 0th term till 8th term:0, 1, Sum of numbers at even indexes = 0 + 1 + 3 + 8 + 21 = 33)

Test Cases

CEQ45  
CEQ5  
CEQ6  
CEQ7  
CEQ8  
CEQ9  
CMQ4  
CMQ5  
CMQ6  
CMQ7

C Run Save Logout

```
1. #include<stdio.h>
2. int calculateevensum(int n)
3. {
4.     if(n==0)
5.         return 0;
6.     int fibo[2*n+1];
7.     fibo[0]=0,fibo[1]=1;
8.     int sum=0;
9.     for(int i=2;i<=2*n;i++)
10.    {fibo[i]=fibo[i-1]+fibo[i-2];
11.     if(i%2==0)
12.     {sum+=fibo[i];}
13.    }
14. }
15. int main()
16. {
17.     int n=4;
        int sum=calculateevensum(n);
```

4

13:17 ENG IN 10-04-2023

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# SIMATS| Saveetha School of Engineering

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Test Cases

CEQ45  
CEQ5  
CEQ6  
CEQ7  
CEQ8  
CEQ9  
CMQ4  
CMQ5  
CMQ6  
CMQ7  
CMQ8

C Run Save Logout

```
1. #include<stdio.h>
2. int main(){
3.     int totalusers,staffusers,studentusers;
4.     printf("Total user:");
5.     scanf("%d",&totalusers);
6.     printf("\nStaff users:");
7.     scanf("%d",&staffusers);
8.     studentusers=totalusers-staffusers-42;
9.     printf("\nNo.of students in clg:%d",studentusers);
10.    return 0;
11. }
```

856  
126

Total user:  
Staff users:  
No.of students in clg:688

13:33 ENG IN 10-04-2023

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**STIVIAT S** Saveetha School of Engineering 192211011

Questions  
CEQ41.

Write a program that accepts a string from user and displays the same string after removing vowels from it.

Sample Input & Output:  
Enter a string: we can play the game  
The string without vowels is: w cn plv thgm

**Test Cases**

CEQ41
CEQ42
CEQ43
CEQ44
CEQ45
CEQ46
CEQ47
CEQ48
CEQ49

C Run Save Logout

```

1. #include<stdio.h>
2. #include<string.h>
3. #include<stdlib.h>
4. int main(){
5.     char str[100];
6.     int i,j,len=0;
7.     printf("Enter a string:");
8.     scanf("%s",&str);
9.     len=strlen(str);
10.    for(i=0;i<len;i++){
11.        if(str[i]=='a'||str[i]=='e'||str[i]=='i'||str[i]=='o'||str[i]=='u'||str[i]=='A'||str[i]=='E'||str[i]==
12.        {
13.            for(j=i;j<len;j++){
14.                str[j]=str[j+1];
15.            }
16.            i--;
17.            len--;
18.        }
19.        str[len+1]='\0';
}

```

we can play the game

Enter a string:  
After removing vowels:w

13:50 10-04-2023

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**STIVIAT S** Saveetha School of Engineering 192211011

Questions  
CEQ8.

Write a program using function to calculate the simple interest. Suppose the customer is a senior citizen. He is being offered 12 percent rate of interest; for all other customers, the ROI is 10 percent.

Sample Input:  
Enter the principal amount: 200000  
Enter the no of years: 3  
Is customer senior citizen (y/n): n

Sample Output:  
Interest: 60000

**Test Cases**

CEQ44
CEQ45
CEQ46
CEQ47
CEQ48
CEQ49
CMQ4
CMQ5
CMQ6

C Run Save Logout

```

1. #include<stdio.h>
2. int main()
3. {
4.     int years,amount;
5.     float interest;
6.     char sc;
7.     printf("Enter citizen:");
8.     scanf("%c",&sc);
9.     printf("\nEnter amount:");
10.    scanf("%f",&amount);
11.    printf("\nEnter years:");
12.    scanf("%d",&years);
13.    if(sc=='n'){
14.        interest=(amount*years*12)/100;
15.        printf("\nSimple interest=%f",interest);
}
else if(sc=='y')
{
    interest=(amount*years*10)/100;
    printf("Simple interest=%f",interest);
}

```

n  
200000  
3

<pre>ExecutionFolder/192211011.c: In  
function 'main':  
ExecutionFolder/192211011.c:13:6:  
warning: assignment to 'char' from 'char \*'

13:50 10-04-2023

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# SIMATS| Saveetha School of Engineering

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Questions  
CEQ7.

Write a program to print the below pattern?

```
1   2   1   2   1  
1   2   3   2   1  
1   2   3   4   3   2   1  
1   2   3   4   5   4   3   2   1
```

Test Cases

CE045  
CE05  
CE06  
CE07  
CE08  
CE09  
CM04  
CM05  
CM06  
CM07

C Run Save Logout Your Input Goes Here...!!!

```
1. #include<stdio.h>
2. int main()
3. {
4.     int n=5;
5.     int i,j,k;
6.     for(i=1;i<=n;i++){
7.         for(j=1;j<=n-i;j++){
8.             printf(" ");
9.         }
10.        for(k=i;k<=i;k++){
11.            printf("%d",k);
12.        }
13.        for(k=i-1;k>=1;k--){
14.            printf("%d",k);
15.        }
16.        printf("\n");
17.    }
18.    return 0;
19. }
```

1 1 2 1  
1 2 3 2 1  
1 2 3 4 3 2 1

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# SIMATS| Saveetha School of Engineering

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192211011

Questions  
CHQ4.

Write a program to print n prime numbers then find the nth Prime number.

Sample Input:  
N = 3

Sample Output:  
3rd Prime number is 5  
3 prime numbers after 5 are: 7, 11, 13

Test Cases

CM04  
CM05  
CM06  
CM07  
CM08  
CM09  
CHQ5  
CHQ6  
CHQ7  
CHQ8

C Run Save Logout

```
1. #include<stdio.h>
2. int main()
3. {
4.     int num,primecount=0,i,flag,prime=1;
5.     printf("Enter num:");
6.     scanf("%d",&num);
7.     while(num!=primecount)
8.     {
9.         flag=0;
10.        prime++;
11.        for(i=2;i<=(prime/2);i++)
12.        {
13.            if(prime%i==0)
14.                flag=1;
15.        }
16.        if(flag==0)
17.            {primecount++;}
18.    }
19.    printf("\n %d prime number is:%d",num,prime);
20.    return 0;
21. }
```

3

Enter num:  
3 prime number is:5

14:22 10-04-2023

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# SIMATS| Saveetha School of Engineering

Questions  
CMQ6.

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

Test Cases

CMQ4 CMQ5 CMQ6 CMQ7 CMQ8 CHQ3 CHQ5 CHQ6 CHQ7 CHQ8

C Run Save Logout

Your Input Goes Here...!!!

```
1. #include<stdio.h>
2. #include<string.h>
3. int main(){
4.     char text[]="Programming does wonders in the world";
5.     char *word=strtok(text, " ");
6.     char longest_word[100]="";
7.     while(word!=NULL){
8.         if(strlen(word)>strlen(longest_word)){
9.             strcpy(longest_word,word);
10.        }
11.        word=strtok(NULL, " ");
12.    }
13.    printf("\nLongest word is:%s",longest_word);
14.    return 0;
15. }
```

Longest word is:Programming

14:27 10-04-2023

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# SIMATS| Saveetha School of Engineering

Questions  
CMQ7.

Write a C program to display the subject and mark information using Dynamic Memory Allocation for Structure.

Sample Input:  
Enter the number of records: 2  
Enter subject 1 and marks:  
Science 82  
Enter subject 2 and marks:  
DSA 73

Sample Output:  
Science 82  
-- --

Test Cases

CMQ4 CMQ5 CMQ6 CMQ7 CMQ8 CHQ3 CHQ5 CHQ6 CHQ7 CHQ8

C Run Save Logout

Your Input Goes Here...!!!

```
1. #include<stdio.h>
2. #include<stdlib.h>
3. struct marks{
4.     char subject[20];
5.     int marks;
6. };
7. int main(){
8.     int n;
9.     printf("No.of subj:");
10.    scanf("%d",&n);
11.    struct MARKS*marksarray=(struct Marks*)malloc(n*sizeof(structmarks));
12.    if(marksArray==NULL){
13.        printf("Memory allocation failed\n");
14.        return 1;
15.    }
16.    for(int i=0;i<n;i++){
17.        printf("Subj name:",i+1);
18.        scanf("%s", marksArray[i].subject);
```

Your OUTPUT Goes Here...!!!

14:36 10-04-2023