

SIMATS

Saveetha School of Engineering

KOMATIGUNTIL VASANTH KUMAR
192211930

Questions
CEQ42.

Write a program to print hollow Rectangle Dollar pattern?

Test Cases

CEQ42

CEQ40

CEQ41

CEQ43

CEQ44

CEQ45

CEQ46

CEQ47

CEQ48

CEQ49

C

Run

Save

Logout

```
1. #include<stdio.h>
int main() {
    int i, j, N;
    printf("Enter number of rows:");
    scanf("%d",&N);
    for(i=1; i<=N; i++) {
        for(j=1; j<=N; j++) {
            if (i==1 || i==N || j==1 || j==N) {
                printf("$");
            }
            else {
                printf(" ");
            }
        }
        printf("\n");
    }
    return 0;
}
```

5

Enter number of rows:\$\$\$\$\$ \$ \$ \$ \$ \$\$\$\$\$

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Questions
CE05

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, {51, 25, 63}
3. N = 8, {17, 19, 11}
4. N = -2, {52, 60}
5. N = 2, {30, 45}

Logout

1. #include <stdio.h>
int main()
{
int num1, num2, gcd, lcm, count = 1, small;
printf("Enter 2 integer numbers\n");
scanf("%d %d",&num1,&num2);
small = (num1 < num2) ? num1 : num2;
while(count <= small)
{
if(num1 % count == 0 && num2 % count == 0)
{
gcd = count;
count++;
}
lcm = (num1 * num2) / gcd;
printf("gcd = %d\nlcm = %d\n", gcd, lcm);
return 0;
}

2
16
20

Enter 2 integer numbers
gcd = 2
lcm = 16

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Questions
CEQ7.
Write a program to print the below pattern?

```
1
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

CEQ7.1

CEQ7.2

CEQ7.3

CEQ7.4

CEQ7.5

CEQ7.6

CEQ7.7

CEQ7.8

CEQ7.9

CEQ7.10

C Run Save Logout

```
1. #include<stdio.h>
int main() {
    int n = 5;
    int i, j, k;
    for (i = 1; i <= n; i++) {
        for (j = n; j > i; j--) {
            printf(" ");
        }
        for (j = i; j <= i; j++) {
            printf("%2d ", j);
        }
        for (k = i - 1; k >= 1; k--) {
            printf("%2d", k);
        }
        printf("\n");
    }
    return 0;
}
```

Your Input Goes Here...!!!

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

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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 values)

Sample Input:
Enter the number : 6561

Sample Output:
Square Root: 81, -81

Test Cases

1. 1225
2. 9601
3. 1827
4. -100
5. 0

CEQ44
CEQ40
CEQ41
CEQ42
CEQ43
CEQ45
CEQ46
CEQ47
CEQ48
CEQ49

C

Run

Save

Logout

```
1. #include<stdio.h>
#include<math.h>
int main() {
int number;
double root;
printf("Enter the number:P");
scanf("%d",&number);
root = sqrt(number);
if (floor(root + 0.5) == root) {
printf("square Root: %d, %d, %d\n",(int) root, -(int) root);
} else {
printf("The number is not a perfect square .\n");
}
return 0;
}
```

100

Enter the number:Psquare Root: 10, -10, 0

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Questions
CEQ43.

Write a program to find the sum of digits of N digit number.

Sample Input:
Enter N value : 3
Enter 3 digit number: 143

Sample Output:
Sum of 3 digit number: 8

Test Cases

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

CEQ43

CEQ40

CEQ41

CEQ42

CEQ44

CEQ45

CEQ46

CEQ47

CEQ48

CEQ49

C

Run

Save

Logout

```
1. #include<stdio.h>
int main() {
    int n, num, digit, sum = 0;
    printf("Enter N value: ");
    scanf("%d", &n);
    printf("Enter %d digit number: ",n);
    scanf("%d", &num);
    while (num > 0) {
        digit = num % 10;
        sum += digit;
        num /= 10;
    }
    printf("sum of %d digit number: %d", n, sum);
    return 0;
}
```

3
143

Enter N value: Enter 3 digit number: sum of 3 digit number: 8

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

```
1. #include<stdio.h>
int main()
{
    int x = 0, y = 0;
    unsigned int rows = 0;
    printf("Enter the number of rows - ");
    scanf("%u",&rows);
    for(x=1; x<=rows; x++)
    {
        //printf spaces
        for (y=1; y<= x; y++)
        {
            printf("*");
        }
        //print new line
        printf("\n");
    }
    return 0;
}
```

5

```
Enter the number of rows = 5
**
***
****
*****
```

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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, 1, 2, 3, 5, 8, 13, 21
Sum of numbers at even indexes = 0 + 1 + 3 + 5 + 21 = 30)

Test Cases

CEQ9.1

CEQ9.2

CEQ9.3

CEQ9.4

CEQ9.5

CEQ9.6

CEQ9.7

CEQ9.8

CEQ9.9

CEQ9.10

C

Run

Save

Logout

```
1. #include<stdio.h>
int main() {
    int n, i, a = 0, b = 1, c, sum = 0;
    printf("Enter the value of n: ");
    scanf("%d", &n);
    while(a+b <= n) {
        c = a + b;
        if (c % 2 == 0) {
            sum += c;
        }
        a = b;
        b = c;
    }
    printf("The even sum of the fibonacci series till %d is: %d", n, sum);
    return 0;
}
```

4

Enter the value of n: The even sum of the fibonacci series till 4 is: 2

1. #include <stdio.h>

int main() {

int rows, i, j, space;

printf("Enter the number of rows: ");

scanf("%d", &rows);

for (i = rows; i >= 1; i--) {

for (space = 0; space < rows-i; space++) {

printf(" ");

}

for (j = 1; j <= i; j++) {

printf("* ");

}

printf("\n");

}

return 0;

}

5

Enter the number: 5
Square Root: 10, -10, 0

Test Cases

Test Case 1

Test Case 2

Test Case 3

Test Case 4

Test Case 5

Test Case 6

Test Case 7

Test Case 8

Test Case 9

Test Case 10

C

Run

Save

Logout

SIMATS C IDE

Not secure | 172.18.60.6/php_c/home.php

Paused

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Questions
CEQ45.

Write a program to print inverted pyramid pattern.

91°F
Sunny

Search

13:46
10-04-2023

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

 $N = 6$

N = 15

Sample Output:

All Odd Numbers = 7,9,11,13

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

CEQ44
CEQ45
CEQ5
CEQ6
CEQ7
CEQ8
CEQ9
CMQ4
CMQ5
CMQ6
CMQ7

Your Input Goes Here...!!!

```
<pre>ExecutionFolder/192211930.c: In function 'main':
ExecutionFolder/192211930.c:9:8: warning: 'return' with a
value, in function returning void
    9 | return 0;
      |      ^
ExecutionFolder/19
```

Enter a number: 371 is a Armstrong number.
371 is not a perfect number.

Questions
CHQ8.

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)

- CHQ1
- CHQ2
- CHQ3
- CHQ4
- CHQ5
- CHQ6
- CHQ7
- CHQ8

CRunSaveLogout

```
1. #include<stdio.h>
2. struct student {
3.     char firstname[50];
4.     int roll;
5.     float marks;
6. } s[1];
7. int main() {
8.     int i;
9.     printf("Enter information of students:\n");
10.    for(i=0; i<5; i++) {
11.        s[i].roll = i + 1;
12.        printf("\nFor roll number%d,\n",s[i].roll);
13.        printf("Enter first name:");
14.        scanf("%s",s[i].firstname);
15.        printf("Enter marks:");
16.        scanf("%f",&s[i].marks);
17.    }
18.    printf("Displaying information :\n\n");
19.    for(i=0; i<5; i++) {
20.        printf("\nRoll number : %d\n",i+1);
21.        printf("First name: ");
22.        puts(s[i].firstname);
23.        printf("Marks: %.1f",s[i].marks);
24.        printf("\n");
25.    }
26.    return 0;
27. }
```

AAA
25
BBB
27
CCC
28
DDD
30
EEE
40

Enter information of students:

For roll number1,
Enter first name:Enter marks:
For roll number2,
Enter first name:Enter marks:
For roll number3,
Enter first name:Enter marks:

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
- 1. N = P
 - 2. N = 0
 - 3. N = 4
 - 4. N = 11
 - 5. N = 72

- CHQ1
- CHQ2
- CHQ3
- CHQ4
- CHQ5
- CHQ6
- CHQ7
- CHQ8

C

Run

Save

Logout

```
1. #include<stdio.h>
2. int is_prime(int num) {
3.     if (num <= 1) {
4.         return 0;
5.     }
6.     for(int i = 2; i! <= num; i++) {
7.         if(num % i == 0) {
8.             return 0;
9.         }
10.    }
11.    return 1;
12. }
13. int main() {
14.     int n, count = 0, num = 2;
15.     printf("Enter N: ");
16.     scanf("%d", &n);
17.     printf("prime numbers are:\n",n);
18.     while (count < n-1) {
19.         if (is_prime(num)) {
20.             printf("%d", num);
21.             count++;
22.         }
23.         num++;
24.     }
25.     printf("\n%dth prime number is ",n);
26.     while(!is_prime(num)) {
27.         count = 0;
28.         while (count < n) {
29.             num++;
30.             if (is_prime(num)) {
31.                 printf("%d ",num);
32.                 count++;
33.             }
34.         }
35.         printf("\n");
36.         return 0;
37.     }
```

3

Runtime Error

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
DSA 73

Test Cases

Enter the number of records: 4 (Any details of subject and marks)
Enter the number of records: A
Enter the number of records: 1 (CPP 74.5)
Enter the number of records: 1 (CPP seventy)
Enter the number of records: 1 (233 75)

CMQ4
CMQ5
CMQ6
CMQ7
CMQ8
CHQ4
CHQ5
CHQ6
CHQ7
CHQ8

Logout

```
1. #include<stdio.h>
2. #include<stdlib.h>
3. struct student {
4.     char subject[50];
5.     int marks;
6. };
7. int main() {
8.     int n, i;
9.     struct student *ptr;
10.    printf("Enter the number of records :");
11.
12.    scanf("%d", &n);
13.    ptr = (struct student*) malloc(n * sizeof(struct student));
14.    for(i = 0; i < n; i++) {
15.        printf("Enter subject %d and ,marks:\n", i+1);
16.        scanf("%s %d", (ptr+i)->subject, &(ptr+i)->marks);
17.    }
18.    printf("\nEntered details are:\n");
19.    for(i = 0; i < n; i++) {
20.        printf("%s %d\n", (ptr+i)->subject, (ptr+i)->marks);
21.    }
22.    free(ptr);
23.    return 0;
24. }
```

2
science 82
DSA 73

Enter the number of records :Enter subject 1 and ,marks:
Enter subject 2 and ,marks:

Write a

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
Maths       75
English     68
History     85
Physical    78

```

Test Cases

```
Enter the number of records :4 (Any details of subject and marks )
Enter the number of records :A
Enter the number of records :1 (CPP 74.5 )
Enter the number of records :1 (CPP seventy)
Enter the number of records :1 (233 75)
```

CMQ
CMQ3
CMQ4
CMQ5
CMQ6
CMQ7
CMQ8

```
1. #include<stdio.h>
2. #include<stdlib.h>
3. struct course {
4.     int marks;
5.     char subject[30];
6. };
7. int main() {
8.     struct course *ptr;
9.     int noofrecords;
10.    printf("Enter the number of records:");
11.    scanf("%d",&noofrecords);
12.    ptr = (struct course *)malloc(noofrecords*sizeof(struct course));
13.    for(int i=0; i<noofrecords; i++) {
14.        printf("Enter subject and marks:\n");
15.        scanf("%s %d",&(ptr + i)->subject, &(ptr+i)->marks);
16.    }
17.    printf("Displaying Information:\n");
18.    for(int i=0; i<noofrecords; i++) {
19.        printf("%s\t%d\n", (ptr+i)->subject, (ptr+i)->marks);
20.    }
21.    free(ptr);
22.    return 0;
23. }
```

2
SCIENCE
GENETIC 100

```

Enter the number of records:Enter subject and marks:
Enter subject and marks:
Displaying Information:
SCIENCE      860185872
GENETIC      100

```

In an organization they decide to give bonus to all the employees on New Year. A 5% bonus on salary is given to the grade A workers and 10% bonus on salary to the grade B workers. Write a program to enter the salary and grade of the employee. If the salary of the employee is less than \$10,000 then the employee gets an extra 2% bonus on salary. Calculate the bonus that has to be given to the employee and print the salary that the employee will get.

```
Sample Input & Output:
Enter the grade of the employee: B
Enter the employee salary: 50000
Salary=50000
Bonus=5000.0
```

```

1. Enter the grade of the employee: A
Enter the employee salary: 8000
2. Enter the grade of the employee: C
Enter the employee salary: 60000
3. Enter the grade of the employee: B
Enter the employee salary: 0
4. Enter the grade of the employee: 38000
Enter the employee salary: A
5. Enter the grade of the employee: B
Enter the employee salary: -8000

```

CMQ3
CMQ4
CMQ5
CMQ6
CMQ7
CMQ8
CHQ4
CHQ5
CHQ6
CHQ7
CHQ8

```
1. #include<stdio.h>
2. int main() {
3.     int salary,grade;
4.     float bonus;
5.     printf("Enter employee's salary:");
6.     scanf("%d", &grade);
7.     printf("Enter employee's grade(A=1,B=2:");
8.     scanf("%d", &grade);
9.     if(salary<10000) {
10.        bonus = 0.07* salary;
11.    } else {
12.        if(grade == 1) {
13.            bonus = 0.05* salary;
14.        } else {
15.            bonus = 0.1* salary;
16.        }
17.    }
18.    printf("Bonus amount:%.2f\n",bonus);
19.    printf("Total salary:%d\n",salary +bonus);
20.    return 0;
21. }
```

Your Input Goes Here...!!!

```
Enter employee's salary:Enter employee's
grade(A=1,B=2):Bonus amount:1.12
Total salary:0.000000
```

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)

CMQ8

CMQ5

CMQ6

CMQ7

CMQ9

CHQ4

CHQ5

CHQ6

CHQ7

CHQ8

C

Run

Save

Logout

```
1. #include<stdio.h>
2. struct student{
3.     char name[50];
4.     int age;
5. };
6. void displaystudent(struct student s){
7.     printf("name: %s\n",s.name);
8.     printf("age: %d\n",s.age);
9. }
10. int main() {
11.     struct student student1;
12.     printf("enter name: \n");
13.     scanf("%s",&student1.name);
14.     printf("enter age: \n");
15.     scanf("%d",&student1.age);
16.     displaystudent(student1);
17.     return 0;
18. }
19.
20.
21.
22.
```

aaa,25

enter name:
enter age:
name: aaa,25
age: 530

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 ply thgm
```

Test Cases

C

Run

Save

Logout

<pre> 1. #include<stdio.h> 2. #include<string.h> 3. int main() { 4. char str[100]; 5. int i, j, len = 0; 6. printf("Enter a string:"); 7. scanf("%s",str); 8. len = strlen(str); 9. for(i=0; i<len; i++) { 10. if(str[i] == 'a' str[i] == 'e' str[i] == 'i' str[i] == 'o' str[i] == 'u' str[i] == 'A' str[i] == 'E' str[i] == 'I' str[i] == 'O' str[i] == 'U') 11. for(j=i; j<len; j++) { 12. str[j] = str[j+1]; 13. } 14. i--; 15. len--; 16. } 17. str[len + 1] = '\0'; 18. printf("After deleting the vowels, the string will be: %s",str); 19. return 0; 20. } </pre>	<p>ACCOMPLISHMENT</p> <p>Enter a string:After deleting the vowels, the string will be:</p>
--	--

ACCOMPLISHMENT

Enter a string:After deleting the vowels, the string will be:
CCOMPLSHMNT

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

CHQ5

CHQ5

CHQ5

CHQ5

CHQ5

CHQ4

CHQ5

CHQ7

CHQ6

CRunSaveLogout

```
1. #include<stdio.h>
2. #include<math.h>
3. int main(){
4. int num,sum=0,originalnum,digit,numdigits=0;
5. printf("enter a number: \n");
6. scanf("%d",&num);
7. originalnum=num;
8. while (num>0){
9. num/=10;
10. numdigits++;
11. }
12. num=originalnum;
13. while(num>0){
14. digit=num%10;
15. sum+=pow(digit,numdigits);
16. num/=10;
17. }
18. if (sum==originalnum){
19. printf("%d is an armstrong number.\n %d is not a perfect number.\n");
20. }else{
21. printf("%d is not an armstrong number.\n",originalnum);
22. }
23. return 0;
24. }
```

Your Input Goes Here...!!!

enter name:
enter age:
name: aaa,25
age: 530

1. #include <stdio.h>
#include <string.h>

#define MAX_LENGTH 100

int main(){
 char text[MAX_LENGTH] = "Programming does wonders in the world";
 char *word, *longest_word;
 int longest_length = 0;

 word = strtok(text, " ");

 while (word != NULL) {
 if (strlen(word) > longest_length) {
 longest_word = word;
 longest_length = strlen(word);
 }
 word = strtok(NULL, " ");
 }

 printf("The longest word in the text is: %s\n", longest_word);
 return 0;
}

Test Cases

CMQ5

CMQ6

CMQ7

CMQ8

Questions

CMQ6

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

Run

Save

Logout

Your Input Goes Here...!!!

Enter the number of rows: * * * * *

91°F Sunny

Search

13:47 10-04-2023

SIMATS

Saveetha School of Engineering

KOMATIGUNTLA VASANTH KUMAR
192211930

Questions
CEO3

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

Sample Output:
Interest: 60000

Test Cases

1. Principal: 2000 , Years: 0
2. Principal: 20000 , Years: -2
3. Principal: -2000 , Years: 2
4. Principal: 2 , Years: 2000
5. Principal: 0 , Years: 5

CEO3
CEO3
CEO3
CEO3
CEO3
CEO3
CEO3
CEO3

C

Run

Save

Logout

```
1. #include<stdio.h>
int main()
{
float principle, rate, sinterest;
int time;
printf("Enter principle amount, rate % per Annum and Time \n");
scanf("%f %f %d", &principle, &rate, &time);
sinterest = (principle * rate * time)/100.0;
printf("principle amount = %5.2f\n",principle);
printf("rate % per annum = %5.2f\n",rate);
printf("time=%d years\n",time);
printf("simple interest = %5.2f\n",sinterest);
}
```

10000
10
9

Enter principle amount, rate % per Annum and Time
principle amount = 10000.00
rate % per annum = 10.00%
time=9 years
simple interest = 9000.00