MODEL PRACTICE

DAY-6

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TEAM – 2

192225038

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

```c
#include <stdio.h>

int main() {
int rows, columns, i, j;

printf("Enter the number of rows: ");
scanf("%d", &rows);
printf("Enter the number of columns: ");
scanf("%d", &columns);

for(i = 1; i <= rows; i++)
{
  for(j = 1; j <= columns; j++)
{
 if(i == 1|| i == rows || j == 1 || j == columns)
{
 printf("$");
}
else
{
 printf(" ");
}
}
printf("\n");
}
return 0;
}
```

```
5
8
```

```
Enter the number of rows: Enter the number of columns: $$$$$$$$
$       $
$       $
$       $
$$$$$$$$
```

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 ply thgm

Test Cases

CEQ41
CEQ42
CEQ43
CEQ44
CEQ45
CEQ5
CEQ6
CEQ7
CEQ8
CEQ9

C | Run | Save | Logout

```c
#include<stdio.h>
#include<string.h>
int main() {
char string[100];
int i, j = 0;
printf("Enter a string: ");
scanf("%s", string);
for (i = 0; string[i] != '\0'; i++) {
if (string[i] != 'a' && string[i] != 'e' && string[i] != 'i' && string[i] != 'o' && string[i] != 'u' &&
    string[i] != 'A' && string[i] != 'E' && string[i] != 'I' && string[i] != 'O' && string[i] != 'U') {
string[j++] = string[i];
}
}
string[j] = '\0';
printf("string after removing vowels: %s", string);
return 0;
}
```

```
we can play the game
```

```
Enter a string: string after removing vowels: w
```

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 = 1, 14
3. N = 4, 0148
4. N = 1, 9984
5. N = 4, 7261

CLO41 CEQ42 CEQ43 CEQ44 CEQ45 CEQ5 CLO6 CEQ7 CEQ8

C Run Save Logout

```c
#include<stdio.h>
int main () {
int num, sum = 0, digit;
printf("Enter a number: ");
scanf("%d", &num);
while (num != 0) {
digit = num % 10;
sum += digit;
num /= 10;
}
printf("the sum of digits is: %d\n", sum);
return 0;
}
```

```
4
0148
```

```
Enter a number: the sum of digits is: 2
```

Questions
CEQ44.

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

Sample Input:
Enter the number : 6561

Sample Output:
Square Root: 81, -81

Test Cases

1. 1225
2. 9801
3. 1027
4. -100
5. 0

CLO41 CEQ42 CEQ43 CEQ44 CEQ45 CEQ5 CEQ8 CEQ7 CEQ8

C Run Save Logout

```c
#include <stdio.h>
#include <math.h>

int main()
{
 int num;
float sqroot;

printf("enter a perfect square number: ");
scanf("%d", &num);

sqroot = sqrt(num);

if(sqroot * sqroot == num)
{
  printf("The square root of %d is +%.2f and -%.2f", num, sqroot, -sqroot);
}
else
{
  printf("%d is not a perfect square number", num);
}

return 0;
}
```

```
1225
```

```
enter a perfect square number: The square root of 1225 is +35.00 and -35.00
```

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Questions
CEQ45.

Write a program to print inverted pyramid pattern.

Test Cases

CEQ41
CEQ42
CEQ43
CEQ44
CEQ45
CEQ5
CEQ6
CEQ7
CEQ8

C | Run | Save | Logout

```c
#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 <= 2* i - 1; j++) {
 printf("* ");
}
for(j = 0; j < i - 1; ++j) {
printf("* ");
}
printf("\n");
}
return 0;
}
```

5

```
Enter the number of rows: * * * * * * * * * * * *
* * * * * * * * * *
 * * * * * * * *
  * * * *
   *
```

```c
#include <stdio.h>

int gcd(int a,int b) {
if (a == 0) {
 return b;
}
return gcd(b % a, a);
}

int lcm(int a,int b) {
return (a * b) / gcd(a, b);
}

int main() {
int n, arr[100], i, g, l;

printf("Enter the number of elements: ");
scanf("%d", &n);

printf("Enter the %d elements: ", n);
for (i = 0; i < n; i++) {
scanf("%d", &arr[i]);

g = arr[0];
for (i = 1; i < n; i++)
 {
g = gcd(g, arr[i]);
}
printf("gcd: %d\n", g);

l = arr[0];
for (i = 1; i < n; i++) {
l = lcm(l, arr[i]);
}

printf("lcm: %d\n", l);
return 0;
}
```

3, {12, 25, 30}

```
 Enter the number of elements: Enter the 3
elements: gcd: 1
lcm: 69827760
```

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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

C | Run | Save | Logout

```c
#include <stdio.h>

int main() {
int n;
printf("Enter the number of rows: ");
scanf("%d", &n);

for(int i = 1; i <= n; i++) {
  for(int j = 1; j <= i; j++) {
  printf(" *");
}
printf("\n");
}

return 0;
}
```

5

Enter the number of rows: *
* *
* * *
* * * *
* * * * *

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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 6th term:0, 1, 1, 2,
Sum of numbers at even indexes = 0 + 1 + 3 + 8 + 21 = 33)

Test Cases

CEQ41 CEQ42 CEQ43 CEQ44 CEQ45 CEQ5 CEQ6 CEQ7 CEQ8

C | Run | Save | Logout

```c
#include <stdio.h>

int main() {
int n, a = 1, b = 1, sum = 0, temp;
printf("Enter a number: ");
scanf("%d", &n);
while (b <= n) {
if (b % 2 == 0) {
sum += b;

}

temp = b;
b += a;
a = temp;
}
printf("Even sum of Fibonacci series until %d is %d\n", n, sum);
return 0;
}
```

4

Enter a number: Even sum of Fibonacci series until 4 is 2

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
    2   3   4   5   4   3   2   1
```

Test Cases

CMQ4 CMQ5 CMQ6 CMQ7 CMQ8 CHQ4 CHQ5 CHQ6 CHQ7 CHQ8

C | Run | Save | Logout

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

Your Input Goes Here...!!!

<pre>C:/CCPPComp/CCPP8/bin/../lib/gcc/x86_64-w64-mingw32/10.3.0/../../../../x86_64-w64-mingw32/bin/ld.exe: cannot open output file exe.exe: Permission denied

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

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

CEQ7 CEQ8 CEQ9 CMQ4 CMQ5 CMQ6 CMQ7 CMQ8 CHQ4

C | Run | Save | Logout

```c
#include <stdio.h>
float calculateInterest(float principal, int time, int seniorCitizen) {
float rate = seniorCitizen ? 0.12 : 0.1;
return principal * rate * time;
}
int main() {
float principal, interest;
int time, seniorCitizen;
printf("Enter principal amount: ");
scanf("%f", &principal);
printf("Enter time period (in years): ");
scanf("%d", &time);
printf("Is the customer a senior citizen? (1 for yes, 0 for no): ");
scanf("%d", &seniorCitizen);
interest = calculateInterest(principal, time, seniorCitizen);
printf("Simple interest: %.2f\n", interest);
return 0;
}
```

2000
0

Enter principal amount: Enter time period (in years): Is the customer a senior citizen? (1 for yes, 0 for no): Simple interest: 0.00

Questions
CMQ4.

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

All Even Numbers = 8,10,12,14

Test Cases

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

CEQ44 CEQ45 CEQ5 CEQ6 CEQ7 CEQ8 CEQ9 CMQ4 CMQ5

C | Run | Save | Logout

```c
#include <stdio.h>
int main() {
int m, n, i, count = 0;

printf("Enter the value of M: ");
scanf("%d", &m);
printf("Enter the value of N: ");
scanf("%d", &n);

printf("Odd numbers between %d and %d are:\n", m, n);
for (i = m; i<= n; i++) {
if (i % 2 != 0) {
printf("%d ", i);
} else {
count++;
}
}
printf("\nNumber of even numbers between %d and %d is %d.\n", m, n, count);
return 0;
}
```

```
-5
4
```

```
Enter the value of M: Enter the value of N:
Odd numbers between -5 and 4 are:
-5 -3 -1 1 3
Number of even numbers between -5 and 4 is 5.
```

CHQ4 CHQ5 CHQ6 CHQ7 CHQ8

C | Run | Save | Logout

```c
#include <stdio.h>
#include <string.h>

int main() {
char text[] = "Programming does wonders in the world";
char longest_word[20] = "";
char current_word[20] = "";

int i, j, len = strlen(text);

for (i=0; i <= len; i++) {
if (text[i] == ' ' || text[i] == '\0') {

if (strlen(current_word) > strlen(longest_word)) {
strcpy(longest_word, current_word);
}
memset(current_word, 0, sizeof(current_word));
} else {
current_word[strlen(current_word)] =- text[i];
}
}
printf("The longest word is: %s\n", longest_word);
return 0;
}
```

```
Your Input Goes Here...!!!
```

```
The longest word is: ����������
```

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Questions
CNQ8

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)

CNQ4
CNQ5
CNQ6
CHQ4
CHQ5
CHQ6
CHQ7
CHQ8

C | Run | Save | Logout

```c
#include <stdio.h>
#include <string.h>

struct Student {
char name[50];
int age;
};

void displayStudent(struct Student s) {
printf("Name: %s\n", s.name);
printf("Age: %d\n", s.age);
}
int main() {
struct Student student1;
strcpy(student1.name, "RAMU");
student1.age = 25;

displayStudent(student1);
return 0;
}
```

Your Input Goes Here...!!!

Name: RAMU
Age: 25

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Questions
CNQ7

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 75

Sample Output :
science 82

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)

CNQ5
CNQ6
CNQ7
CNQ8

C | Run | Save | Logout

```c
#include <stdio.h>
#include <stdlib.h>

struct SubjectMark {
   char subject[20];
int mark;
};

int main() {
int n;
printf("Enter the number of subjects: ");
scanf("%d", &n);

struct SubjectMark *subjects;
subjects = (struct SubjectMark*)malloc(n * sizeof(struct SubjectMark));

printf("Enter subject and mark for each subjects:\n");
for (int i = 0; i < n; i++) {
printf("Subject %d: ", i+1);
scanf("%s", subjects[i].subject);
printf("Mark: ");
scanf("%d", &subjects[i].mark);
}
printf("\nSubject and Mark Information:\n");
printf("Subject\tMark\n");
for (int i =0; i < n; i++) {
printf("%s\t%d\n", subjects[i].subject, subjects[i].mark);
}
free(subjects);
return 0;
}
```

4
science 56

Enter the number of subjects: Enter subject and mark for each subjects:
Subject 1: Mark: Subject 2: Mark: Subject 3: Mark: Subject 4: Mark:
Subject and Mark Information:
Subject Mark
science 56
Driv

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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

CHQ1 CHQ2 CHQ3 CHQ4 CHQ5 CHQ6 CHQ7 CHQ8 CHQ9 CHQ10

C | Run | Save | Logout

```c
#include <stdio.h>

int isArmstrong(int num);
int isPerfect(int num);

int main() {
int num;
printf("Enter a number: ");
scanf("%d", &num);

if (isArmstrong(num)) {
printf("%d is an Armstrong number.\n", num);
} else {
printf("%d is not an Armstrong number.\n", num);
}
if (isPerfect(num)) {
printf("%d is a Perfect number.\n", num);
} else {
printf("%d is not a Perfect nuber.\n", num);
}
return 0;
}

int isArmstrong(int num) {
int sum = 0, digit;
int orginal = num;

while (num > 0) {
digit = num % 10;
sum += digit * digit * digit;
num /=10;
}

return (orginal == sum);
}
int isPerfect(int num) {
int i, sum =0;

for (i = 1; i < num; i++)  {
if (num % i == 0) {
 sum += i;
}
}
return (num == sum);
```

371

Enter a number: 371 is an Armstrong number.
371 is not a Perfect nuber

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Questions
CHQ4.

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

Sample Input:
N = 5

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

Test Cases

1. N = 1
2. N = 0
3. N = -4
4. N = 11
5. N = 7.2

CHQ1 CHQ2 CHQ3 CHQ4 CHQ5 CHQ6 CHQ7 CHQ8 CHQ9 CHQ10

C | Run | Save | Logout

```c
#include <stdio.h>

int main() {
int num, PrimeCount = 0, i, flag, prime = 1;
printf("\n enter the number: ");
scanf("%d", &num);
while(num!=PrimeCount)
{
flag = 0;
prime++;
for(i=2;i<=(prime/2);i++)
{
if(prime%i==0)
flag = 1;
}
if(flag==0)
{
PrimeCount++;
}
}
printf("%d prime number is: %d",num,prime);
return 0;
}
```

3

enter the number: 3 prime number is: 5

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Questions
CH07

Write a program to search the given element using binary search method and display its position in a linear array.

Sample Input:
Array of elements = {16, 18, 27, 17, 23, 21, 19}
Element to search = 23

Sample Output:
Given element 23 is found at 5 th position

Test Cases

CH01 CH04 CH05 CH06 CH07 CH08 CH09 CH10 CH03 CH02 CH11

C | Run | Save | Logout

```c
#include <stdio.h>
int binarysearch(int arr[], int n, int x) {
int left = 0, right = n - 1;
while (left <= right) {
int mid = left + (right - left) / 2;
if (arr[mid] == x) {
return mid;
}
if (arr[mid] < x) {
left = mid + 1;
} else {
right = mid - 1;
}
}
return -1;
}
int main() {
int arr[] = {16, 18, 27, 17, 23, 21, 19};
int n = sizeof(arr) / sizeof(arr[0]);
int x = 16;
int pos = binarysearch(arr, n, x);
if (pos == -1) {
printf("Element not found in the array\n");
} else {
printf("Element found at position %d in the array\n", pos);
}
return 0;
}
```

Your Input Goes Here

Element found at position 0 in the array

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Questions
CH20

Find the N[th] maximum number and N[th] minimum number in an array and then find the sum of it and difference of it.

Sample Input:
Array of elements = {34, 16, 87, 35, 25, 89, 34}
M = 1
N = 3

Sample Output:
1st Maximum Number = 89
3rd Minimum Number = 25
Sum = 114

Test Cases

1. {16, 16, 16, 16, 16}, M = 0, N = 1
2. {0, 0, 0, 0}, M = 1, N = 2
3. {12, 78, 35, 42, 85}, M = 3 , N = 3
4. {15, 19, 34, 56, 12}, M = 6 , N = 3
5. {85, 45, 85, 75, 85}, M = 5 , N = 7

C | Run | Save | Logout

```c
#include <stdio.h>

int main() {
int arr[100], n, m, i, j, temp;
int max, min, max_m, min_n, sum, diff;

printf("Enter the size of array: ");
scanf("%d", &n);

printf("Enter the array elements:\n");
for(i = 0; i<n; i++) {
scanf("%d", &arr[i]);
}

printf("Enter m and n: ");
scanf("%d %d", &m, &j);

for(i=0; i<n; i++) {
for(j=i+1; j<n; j++) {
if(arr[i] < arr[j]) {
temp = arr[i];
arr[i] = arr[j];
arr[j] = temp;
}
}
if(i == m-1) {
max_m = arr[i];
}
if(i == j-1) {
min_n = arr[i];
}
}

sum = max_m + min_n;
diff = max_m - min_n;

printf("mth maximum number: %d\n", max_m);
printf("nth maximum number: %d\n", min_n);
printf("Sum: %d\n", sum);
printf("Difference: %d\n", diff);

return 0;
}
```

```
4
16 16 16 16
```

Enter the size of array: Enter the array elemnts:
Enter m and n: mth maximum number: 16
nth maximum number: 16
Sum: 32
Difference: 0