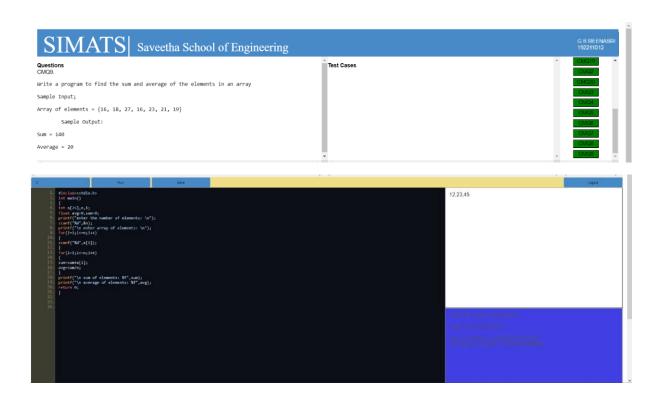# CSA02 C Programming Day 4 Practice

GB REENASRI

192211012

Questions
CMQ9.

Write a program to find the sum and average of the elements in an array

Sample Input;

Array of elements = {16, 18, 27, 16, 23, 21, 19}

    Sample Output:

Sum = 140

Average = 20

Test Cases

```
#include<stdio.h>
int main()
{
int a[25],n,i;
float avg=0,sum=0;
printf("enter the number of elements: \n");
scanf("%d",&n);
printf("\n enter array of elements: \n");
for(i=1;i<=n;i++)
{
scanf("%d",a[i]);
}
for(i=1;i<=n;i++)
{
sum=sum+a[i];
avg=sum/n;
}
printf("\n sum of elements: %f",sum);
printf("\n average of elements: %f",avg);
return 0;
}
```

12,23,45

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)

```
#include<stdio.h>
int main()
{
int numStudents,totalUsers,numStaff,numNonTeachingStaff,numStudentUsers;
printf("enter the number of student user: \n");
scanf("%d",&numStudents);
printf("enter the total number of users: \n");
scanf("%d",&totalUsers);
printf("enter the number of staff users: \n");
scanf("%d",&numStaff);
printf("enter the number of non teaching staff users: \n");
scanf("%d",&numNonTeachingStaff);
numStudentUsers=numStudents+(totalUsers-numStaff-numNonTeachingStaff*3);
printf("number of student users in the college is:%d\n",numStudentUsers);
return 0;
}
```

10
50
16
12

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)

CMQ19
CMQ2
CMQ20
CMQ3
CMQ4
CMQ5
CMQ6
CMQ7
CMQ8
CMQ9

C | Run | Save | Logout

```c
#include<stdio.h>
#include<stdlib.h>
struct subject
{
char name[20];
int marks;
};
int main()
{
int n,i;
struct subject *s;
printf("enter number of subjects \n");
scanf("%d",&n);
s=(struct subject*) malloc(n*sizeof(struct subject));
for(i=0;i<n;i++)
{
printf("enter name of subject:%d \n",i+1);
scanf("%s",s[i].name);
printf("enter marks of subject:%d \n",i+1);
scanf("%d",&s[i].marks);
}
printf("Subject\t\t\tMarks\n");
for(i=0;i<n;i++)
{
printf("%s\t\t%d\n",s[i].name,s[i].marks);
}
free(s);
return 0;
}
```

6
bio 26
mat 52
tam 98
sci 52
soc 55
jap 55

Questions
CMQ6.

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

Test Cases

CMQ18
CMQ19
CMQ2
CMQ20
CMQ3
CMQ4
CMQ5
CMQ6
CMQ7
CMQ8

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];
int length=0;
char *word=strtok(text," ");
while(word!=NULL)
{
int word_length=strlen(word);
if(word_length>length)
{
length=word_length;
strcpy(longest_word,word);
}
word=strtok(NULL," ");
}
printf("The longest word in the text is:%s \n",longest_word);
return 0;
}
```

Your Input Goes Here...!!!

The longest word in the text is:Programming

Questions
CMQ5.

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

Sample Input:

Total Users: 856

Staff Users: 126

Sample Output:

Student Users: 688

Test Cases

1.   Total User: 0

2.   Total User: -143

3.   Total User: 1026, Staff User: 1026

4.   Total User: 450, Staff User: 540

5.   Total User: 600, Staff User: 450

CMQ18
CMQ19
CMQ2
CMQ20
CMQ3
CMQ5
CMQ0
CMQ7
CMQ8

```c
#include<stdio.h>
struct Student
{
char name[50];
int age;
};
void displayStudentDetails(struct Student s);
int main()
{
struct Student s1;
printf("enter name: \n");
scanf("%s",s1.name);
printf("enter age: \n");
scanf("%d",&s1.age);
displayStudentDetails(s1);
return 0;
}
void displayStudentDetails(struct Student s)
{
printf("\n StudentDetail: \n");
printf("name: %s\n",s.name);
printf("age: %d\n",s.age);
}
```

chethna
12

Questions
CMQ20.

Write a program to reverse a number using function?(Get the input from user).

Sample Input:
Number: 14567

Sample Output:
Reverse Number: 76541

Test Cases

1. -45721
2. 000
3. AD1947
4. !@#$%
5. 145*999=144855

CMQ18
CMQ19
CMQ2
CMQ20
CMQ3
CMQ4
CMQ5
CMQ0
CMQ7
CMQ8

```c
#include<stdio.h>
int reverse(int num);
int main(){
int num,reversed;
printf("Enter the number\n");
scanf("%d",&num);
reversed=reverse(num);
printf("The reversed number is %d",reversed);
return 0;
}
int reverse(int num){
int reversed=0;
while(num!=0){
  int remainder=num%10;
```
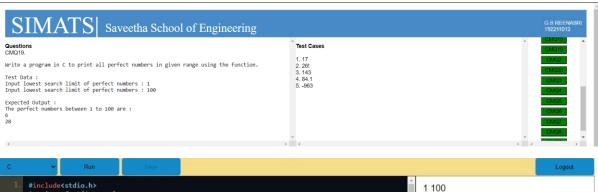
14567

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. 26!
3. 143
4. 84.1
5. -963

CMQ18
CMQ19
CMQ2
CMQ20
CMQ3
CMQ4
CMQ5
CMQ6
CMQ7
CMQ8

C | Run | Save | Logout

```c
#include<stdio.h>
int isperfect(int num);
int main(){
int start,end,i;
printf("Enter the start number and end number:");
scanf("%d %d",&start,&end);
printf("The perfect numbers between %d and %d are:",start,end);
for(i=start;i<=end;i++){
if(isperfect(i)){
printf("%d\n",i);
}
}
return 0;
}
```

1 100

Questions
CMQ18.

Write a program in C to check whether a number is a prime number or not using the function.

Test Data :
Input a positive number : 5

Expected Output :
The number 5 is a prime number.

Test Cases

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

CMQ18
CMQ19
CMQ2
CMQ20
CMQ3
CMQ4
CMQ5
CMQ6
CMQ7
CMQ8

C | Run | Save | Logout

```c
#include<stdio.h>
int isprime(int num){
 for(int i=2;i<=num/2;i++)
   if(num%i==0)
    return 0;
 return 1;
}
int main(){
int num;
printf("Enter the number");
scanf("%d",&num);
printf("%d %s a prime number.\n",num,isprime(num)? "is":"is not");
return 0;
}
```

Your Input Goes Here...!!!

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 :
The sum of array is : 20

Test Cases

1. N = 0,1,3,8,7,-5
1. N = 5,5,5,5,5,5,4
2. N = -2,2,-2,4,-4
3. N = -5,55,30,0.5
4. N = 0.2,2,4,5,8

CMQ1
CMQ10
CMQ11
CMQ12
CMQ13
CMQ14
CMQ15
CMQ16
CMQ17

```c
#include<stdio.h>
int main(){
int arr[5];
int *ptr=arr;
int sum=0;
printf("Enter the 5 integer elements");
for(int i=0;i<5;i++){
scanf("%d",ptr+i);
}
for(int i=0;i<5;i++){
sum +=*(ptr+i);
}
printf("The sum of the elements in the array is:%d",sum);
return 0;
```

```
4
3
5
2
3
```

C   Run   Save   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

Test Cases

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

CMQ1
CMQ10
CMQ11
CMQ12
CMQ13
CMQ14
CMQ15
CMQ16
CMQ17

```c
#include<stdio.h>
int factorial(int *n){
 int fact=120;
 for(int i=1;i<=*n;i++){
fact *=i;
 return fact;
}
}
int main(){
int n,fact;
printf("Enter the number:");
scanf("%d",&n);
fact=factorial(&n);
printf("The factorial of given number is %d",fact);
```

```
5
```

C   Run   Save   Logout

Questions
CMQ15.

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

Test Cases

CMQ1
CMQ10
CMQ11
CMQ12
CMQ13
CMQ14
CMQ15
CMQ16
CMQ17

```
C          Run      Save                                          Logout

1.  #include<stdio.h>
    void swap(int *a,int *b,int *c){
     int temp=*a;
         *a=*c;
         *b=*c;
         *b=temp;
    }
    int main(){
    int num1,num2,num3;
    printf("Enter the 3 numbers to swap:");
    scanf("%d %d %d",&num1,&num2,&num3);
    printf("Before swap: num1=%d,num2=%d,num3=%d",num1,num2,num3);
    swap(&num1,&num2,&num3);
    printf("After swap: num1=%d,num2=%d,num3=%d",num1,num2,num3);
```

Your Input Goes Here...!!!

Questions
CMQ14.

Write a program in C to store n elements in an array and print the elements using pointer.

Test Data :
Input the number of elements to store in the array :5
Input 5 number of elements in the array :
element - 0 : 5
element - 1 : 7
element - 2 : 2
element - 3 : 9
element - 4 : 8

Expected Output :
The elements you entered are :

Test Cases

1. N = 16
2. N = -8
3. N = 0
4. N = -10.01
5. N = 11.22

CMQ1
CMQ10
CMQ11
CMQ12
CMQ13
CMQ14
CMQ15
CMQ16
CMQ17

```
C          Run      Save                                          Logout

1.  #include<stdio.h>
    int main(){
    int n,i;
    printf("Enter the number of elements:\n");
    scanf("%d",&n);
    int arr[n],*ptr=arr;
    printf("Enter %d elements:\n",n);
    for(i=0;i<n;i++){
    scanf("%d",ptr+i);
    }
    printf("The elements in the array are:\n");
    for(i=0;i<n;i++){
    printf(" %d ",*(ptr+i));
    }
```
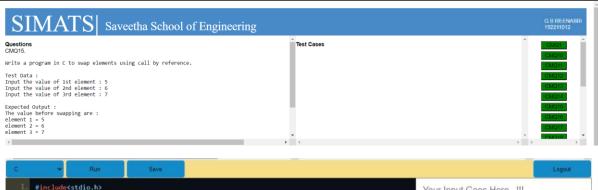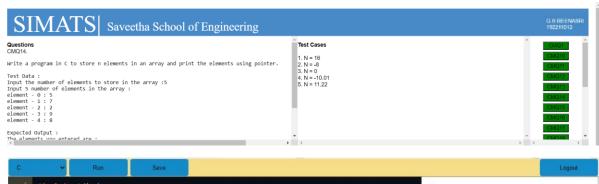
5
2
3
4
5
6

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

CMQ1
CMQ10
CMQ11
CMQ12
CMQ13
CMQ14
CMQ15
CMQ16
CMQ17
CMQ18

| C | Run | Save | Logout |

```c
#include<stdio.h>
long addtwonumbers(long*,long*);
int main()
{
long fno,sno,sum;
printf("Enter 1st num:\n");
scanf("%ld",&fno);
printf("Enter 2nd num:\n");
scanf("%ld",&sno);
sum=addtwonumbers(&fno,&sno);
printf("Sum of %ld and %ld is:%lf\n",fno,sno,sum);
return 0;
}
long addtwonumbers(long*n1,long*n2)
{
long sum;
sum=*n1+*n2;
return sum;
}
```

```
5
6
```

```
Enter 1st num:16
Enter 2nd num:346
```

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

CMQ1
CMQ10
CMQ11
CMQ12
CMQ13
CMQ14
CMQ15
CMQ16
CMQ17
CMQ18

| C | Run | Save | Logout |

```c
#include<stdio.h>
int main(){
int matrix[100][100],rows,cols;
printf("Enter the number of rows:");
scanf("%d",&rows);
printf("Enter the number of columns:");
scanf("%d",&cols);
printf("Enter the elements in the matrix:");
for(int i=0;i<rows;i++){
for(int j=0;j<cols;j++){
scanf("%d",&matrix[i][j]);
}
}
//sum of matrix numbers
```

Your Input Goes Here...!!!

Questions
CMQ11.

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

CMQ1
CMQ10
CMQ11
CMQ12
CMQ13
CMQ14
CMQ15
CMQ16
CMQ17
CMQ18

C | Run | Save | Logout

```c
#include<stdio.h>
int main(){
int arr[10],size;
printf("Enter the size of the array:\n");
scanf("%d",&size);
printf("Enter the elements of the array:\n");
for(int i=0;i<size;i++){
scanf("%d",&arr[i]);
}
int max=arr[0],min=arr[0];
for(int i=1;i<size;i++){
if(arr[i]>max){
```

```
3
5
4
1
```

Questions
CMQ10.

Write a Program to display the diagonal elements in a matrix array and also find the sum of them.

Sample input:
1 2 3
4 5 6
7 8 9

Output:
Diagonal Elements are 1 5 9
Sum of diagonal elements = 15

Test Cases

CMQ1
CMQ10
CMQ11
CMQ12
CMQ13
CMQ14
CMQ15
CMQ16
CMQ17
CMQ18

C | Run | Save | Logout

```c
#include<stdio.h>
int main(){
int rows,cols,matrix[5][5];
printf("Enter the number of rows:");
scanf("%d",&rows);
printf("Enter the number of cols:");
scanf("%d",&cols);
printf("Enter the elements in the matrix:");
for(int i=0;i<rows;i++){
for(int j=0;j<cols;j++){
scanf("%d",matrix[i][j]);
}
```

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

Questions
CMQ1.

A year has 365 days but leap year consists of 366 days. This one day is added in the month of

Sample Input:

Enter Date : 04/11/1947

Sample Output:

Given year is Non Leap Year

Test Cases

1.	04/11/19.47
2.	11/15/1936
3.	31/45/1996
4.	64/09/1947
5.	00/00/2000

CMQ1
CMQ10
CMQ11
CMQ12
CMQ13
CMQ14
CMQ15
CMQ16
CMQ17

C	Run	Save		Logout

```c
#include<stdio.h>
int main(){
int date,month,year;
printf("Enter the date:DD/MM/YYYY\n");
scanf("%d/%d/%d",&date,&month,&year);
if(year%4==0 && year%100!=0|| year%400==0){
printf("The year %d is a leap year",year);
}else{
printf("The year %d is not a leap year",year);
}return 0;
}
```

04/11/1947