

SIMATS
Saveetha School of Engineering
NAGARAM SUNIL
192224076

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
CMQ18

C
Run
Save
Logout

```

1. #include<stdio.h>
2. int main()
3. {
4.     int date,month,year;
5.     printf("enter the date:DD/MM/YYYY");
6.     scanf("%d/%d/%d",&date,&month,&year);
7.     if(year%4==0 && year%100!=0 || year%400==0){
8.         printf("the year %d is a leap year",year);
9.     }
10.    else
11.    {
12.        printf("the year %d is not a leap year",year);
13.    }
14.    return 0;
15. }

```

04/11/1947

enter the date:DD/MM/YYYYthe year 1947 is not a leap year

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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

```

1. #include<stdio.h>
2. int main(){
3.     int rows,cols,matrix[5][5];
4.     printf("enter the number of rows:");
5.     scanf("%d",&rows);
6.     printf("enter the number of cols:");
7.     scanf("%d",&cols);
8.     printf("enter the elements in the matrix:");
9.     for(int i=0;i<rows;i++){
10.        for(int j=0;j<cols;j++){
11.            scanf("%d",&matrix[i][j]);
12.        }
13.    }
14.    for(int i=0;i<rows && i<cols;i++){
15.        printf("%d",matrix[i][i]);

```

1 2 3
4 5 6
7 8 9

function main:

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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

CMQ11
CMQ12
CMQ13
CMQ14
CMQ15
CMQ16
CMQ17
CMQ18

C
Run
Save
Logout

```

1. #include<stdio.h>
2. #include<conio.h>
3. int main()
4. {
5.     int a[1000],i,n,min,max;
6.     printf("\nenter the size of the array:\n");
7.     scanf("%d",&n);
8.     printf("enter the elements in array:\n");
9.     for(i=0;i<n;i++)
10.    {
11.        scanf("%d",&a[i]);
12.    }
13.    min=max=a[0];
14.    for(i=1;i<n;i++)
15.    {

```

5
1
2
3
4
5

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

CMQ11
CMQ12
CMQ13
CMQ14
CMQ15
CMQ16
CMQ17
CMQ18

C Run Save Logout

```
1. #include<stdio.h>
2. int main()
3. {
4.     int i,j,m,n;
5.     float a[10][10], sum=0.0, avg;
6.     printf("enter the row and column size:\n");
7.     scanf("%d%d",&m,&n);
8.     printf("enter matrix elements:\n");
9.     for(i=0;i<m;i++)
10.    {
11.        for(j=0;j<n;j++)
12.        {
13.            printf("a[%d][%d]= ",i,j);
14.            scanf("%d",&a[i][j]);
15.        }
16.    }
17.    // Sum of all elements
```

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

enter the row and column size:

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
```

CMQ11
CMQ12
CMQ13
CMQ14
CMQ15
CMQ16
CMQ17
CMQ18

C Run Save Logout

```
1. #include<stdio.h>
2. long addtwonumbers(long*,long*);
3. int main()
4. {
5.     long fno,sno,sum;
6.     printf("\n\n pointer: add two numbers using call by reference:\n");
7.     printf("-----\n");
8.     printf(" input the first number: ");
9.     scanf("%ld",&fno);
10.    printf(" input the second number: ");
11.    scanf("%ld",&sno);
12.    sum=addtwonumbers(&fno,&sno);
13.    printf(" the sum of %ld and %ld is %ld\n\n", fno,sno,sum);
14.    return 0;
15. }
16. long addtwonumbers(long *n1, long *n2)
```

```
5
6
```

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

CMQ11
CMQ12
CMQ13
CMQ14
CMQ15
CMQ16
CMQ17
CMQ18

C Run Save Logout

```
1. #include<stdio.h>
2. void swapnumbers(int *x,int *y,int *z);
3. int main()
4. {
5.     int e1,e2,e3;
6.     printf("\n\n pointer : swap elements using call by reference :\n");
7.     printf("-----\n");
8.     printf("input the value of 1st element: ");
9.     scanf("%d",&e1);
10.    printf("input the value of 2nd element: ");
11.    scanf("%d",&e2);
12.    printf("input the value of 3rd element: ");
13.    scanf("%d",&e3);
14.
15.    printf("\n the values before swapping are :\n");
16.    printf(" element 1 =%d\n element 2 = %d\n element 3 = %d\n",e1,e2,e3);
17.    swapnumbers(&e1,&e2,&e3);
```

```
5
6
7
```

pointer : swap elements using call by reference :

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 = %

CMQ16

CMQ17

CMQ18

CMQ19

CMQ20

CMQ21

CMQ22

CMQ23

CMQ24

CMQ25

CMQ26

CMQ27

CMQ28

CMQ29

CMQ30

C Run Save Logout

```
1. #include<stdio.h>
2. int main()
3. {
4.     int num,fact=1;
5.     int *pn, *pf;
6.     printf("enter any number:");
7.     scanf("%d",&num);
8.
9.     pn=&num;
10.    pf=&fact;
11.
12.    do
13.    {
14.        *pf=(*pf)*(*pn);
15.        *pn=*pn-1;
16.    }while( *pn>0);
17.    printf("\n factorial of entered number is:%d",*pf);
```

5

enter any number:
factorial of entered number is:120

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

CMQ20

CMQ21

CMQ22

CMQ23

CMQ24

CMQ25

CMQ26

CMQ27

CMQ28

C Run Save Logout

```
1. #include<stdio.h>
2. int primenumber(int number)
3. {
4.     int i;
5.     for (i=2;i<= number/2;i++) {
6.         if (number%i !=0)
7.             continue;
8.         else
9.             return 1;
10.    }
11.    return 0;
12. }
13. int main()
14. {
15.     int num,res=0;
16.     printf("enter a number:\n");
17.     scanf("%d",&num);
```

5

enter a number:
5 is a prime number

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

CMQ19

CMQ20

CMQ21

CMQ22

CMQ23

CMQ24

CMQ25

CMQ26

CMQ27

CMQ28

CMQ29

C Run Save Logout

```
1. #include<stdio.h>
2. int main()
3. {
4.     int a[25],n,i;
5.     float avg=0,sum=0;
6.     printf("enter the number of elements in a array:");
7.     scanf("%d",&n);
8.     printf("\n enter teh array of elements:\n"); {
9.         for(i=1;i<=n;i++)
10.            scanf("%d",&a[i]);
11.    }
12.    for(i=1;i<=n;i++)
13.    {
14.        sum=sum+a[i];
15.        avg=sum/n;
16.    }
```

7

16

18

27

16

23

21

19

enter the number of elements in a array:

Questions

CMQ20.

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

Sample Input:
Number: 14567Sample Output:
Reverse Number: 76541

Test Cases

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

CMQ19

CMQ2

CMQ20

CMQ3

CMQ4

CMQ5

CMQ6

CMQ7

CMQ8

CMQ9

C Run Save

Logout

```
1. #include<stdio.h>
2. int main()
3. {
4.     int n, reverse=0,remainder;
5.     printf("enter an number: ");
6.     scanf("%d",&n);
7.
8.     while(n !=0) {
9.         remainder=n%10;
10.        reverse=reverse*10+remainder;
11.        n/=10;
12.    }
13.    printf("reverse number =%d",reverse);
14.    return 0;
15. }
```

14567

enter an number: reverse number =76541

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 : 6Expected Output :
The sum of array is : 20

Test Cases

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

CMQ19

CMQ2

CMQ3

CMQ4

CMQ5

CMQ6

CMQ7

CMQ8

CMQ9

C Run Save

Logout

```
1. #include<stdio.h>
2. int main(){
3.     int arr[5];
4.     int *ptr=arr;
5.     int sum=0;
6.     printf("enter the 5 integer elements");
7.     for(int i=0;i<5;i++){
8.         scanf("%d",ptr+i);
9.     }
10.    for(int i=0;i<5;i++){
11.        sum+=*(ptr+i);
12.    }
13.    printf("the sum of the elements in the array is:%d",sum);
14.    return 0;
15. }
```

2
3
4
5
6enter the 5 integer elementsthe sum of the
elements in the array is:20

Permutation refers number of ways in which set members can be arranged or ordered in some fashi

Sample Input:

Given Number: 143

Sample Output:

Permutations are:

134

143

Test Cases

1. 0
2. 111
3. 505
4. -143
5. -598

CMQ19

CMQ2

CMQ3

CMQ4

CMQ5

CMQ6

C Run Save

Logout

```
1. #include<stdio.h>
2. #include<string.h>
3. void swap(char* x, char* y)
4. {
5.     char temp;
6.     temp=*x;
7.     *x=*y;
8.     *y=temp;
9. }
10. void permute(char* a, int l,int r){
11.     int i;
12.     if (l==r)
13.         printf("%s\n",a);
14.     else {
15.         for(i=l;i<=r;i++){
16.             swap(a[l], a[i]);
17.             permute(a, l+1, r);
18.             swap(a[l], a[i]);
19.         }
20.     }
21. }
```

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 :

4

Test Cases

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

CMQ13
CMQ10
CMQ11
CMQ13
CMQ10
CMQ14
CMQ15
CMQ16
CMQ17
CMQ18

C

Run

Save

Logout

```
1. #include<stdio.h>
2. int main()
3. {
4.     int a[5]={5,7,2,9,8};
5.     int *p=&a[0];
6.     int i;
7.     for(i=0;i<5;i++)
8.         printf("%d",*(p+i));
9.     return 0;
10. }
```

Your Input Goes Here...!!!

57298

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

CMQ18
CMQ17
CMQ18
CMQ19
CMQ2
CMQ20
CMQ3
CMQ4
CMQ5
CMQ6

C

Run

Save

Logout

```
1. #include<stdio.h>
2. int main()
3. {
4.     int i,n,even=0,odd=0;
5.     printf("\nEnter the ending value:");
6.     scanf("%d",&n);
7.     printf("\n even numbers:");
8.     for(i=0;i<n;i++)
9.     {
10.         if(i%2==0)
11.         {
12.             printf("\n%d",i);
13.             even++;
14.         }
15.     }
```

6
15