C Programs Solution

1) Write a program to store Kathmandu valley's 7 days maximum and minimum and minimum temperature(in centigrade) and calculate average, maximum, minimum temperature using function and print 7 days temperature, maximum minimum and average temperature using c programming language.

solution

```c
#include<stdio.h>
#include<conio.h>
int max(int ma[]);
int min(int mi[]);
int avg(int ma[],int mi[]);
void main()
{
int ma[7],mi[7],i,maximum,minimum,average;
clrscr();
printf("Enter 7 days maximum and minimum temperature in centigrade
\n");
for(i=0;i<7;i++)
{
scanf("%d%d",&ma[i],&mi[i]);
}
maximum= max(ma);
printf("Maximum temperature is %d \n",maximum);
minimum=min(mi);
printf("Minimum temperature is %d \n",minimum);
average=avg(ma,mi);
printf("Average temperature is %d \n",average);
getch();
}
int max(int ma[])
{
int i,g;
g=ma[0];
for(i=0;i<7;i++)
{
if(g<ma[i])
g=ma[i];
}
return(g);
}
int min(int mi[])
{
int i,s;
s=mi[0];
for(i=0;i<7;i++)
{
if(s>mi[i])
s=mi[i];
}
return(s);
}
int avg(int ma[], int mi[])
{
int i,a=0,av[7];
for(i=0;i<7;i++)
{
av[i]=(ma[i]+mi[i])/2;
a=a+av[i];
}
a=a/7;
return(a);
}
```

2) The marks obtained by a student in 7 different subjects are entered through the keyboard. The students gets a division as per the following rules

Percentage greater or equal to 60   first division
Percentage between 45 and 59   second division
Percentage between 35 and 44   third division
Percentage less than 35   fail
Marks less than 35 in a subject will be declared as fail
Write a program using c language to process result of all students based on the specification state above.

solution
```c
#include<stdio.h>
#include<conio.h>
void main()
{
int s1[50],s2[50],s3[50],s4[50],s5[50],s6[50],s7[50],i,tot,n,t;
float p;
char name[50][10];
clrscr();
printf("How many students are there \n");
scanf("%d",&n);
for(i=0;i<n;i++)
{
printf("Enter name and marks obtained in 7 different subjects \n");
scanf("%s%d%d%d%d%d%d%d",name[i],&s1[i],&s2[i],&s3[i],&s4[i],&s5[i]
,&s6[i],&s7[i]);
}
for(i=0;i<n;i++)
{
if(s1[i]>=35&&s2[i]>=35&&s3[i]>=35&&s4[i]>=35&&s5[i]>=35&&s6[i]>=35
&&s7[i]>=35)
{
printf("%s is Pass \n",name[i]);
tot=s1[i]+s2[i]+s3[i]+s4[i]+s5[i]+s6[i]+s7[i];
p=tot/7;
printf("Total marks =%d \n",tot);
printf("Percentage =%f \n",p);
if(p>=60)
printf("First division \n");
else if(p>=45)
printf("Second division \n");
else if(p>=35)
printf("Third division \n");
}
else
printf("%s is fail\n",name[i]);
}
getch();
}
```

3) Write a program using c language to read the age of 100 persons and count the number of persons in the age between 50 and 60. Use 'for' and 'continue' statements.

solution
```c
#include<stdio.h>
#include<conio.h>
void main()
{
int age[100],i,count=0;
clrscr();
printf("Enter age of 100 persons\n");
for(i=0;i<100;i++)
```

```
{
scanf("%d",&age[i]);
}
for(i=0;i<100;i++)
{
if(age[i]<50||age[i]>60)
continue;
count=count+1;
}
printf("There are %d persons of age between 50 and 60",count);
getch();
}
```

4) Write a c program to print the 10 positive integers and their factorials

solution

```
#include<stdio.h>
#include<conio.h>
void main()
{
int i,j;
long int fact=1;
clrscr();
for(i=1;i<=10;i++)
{
for(j=i;j>=1;j--)
{
fact=fact*j;
}
printf("Factorial of %d =%ld\n",i,fact);
fact=1;
}
getch();
}
```

5) For any integer input through the keyboard, write a c program to find out whether it is an odd number or even number.

solution
```
#include<stdio.h>
#include<conio.h>
void main()
{
int num;
clrscr();
printf("Enter a number\n");
scanf("%d",&num);
if(num%2==0)
printf("%d is even number",num);
else
printf("%d is odd number",num);
getch();
}
```
6) write a c program to input 'n' numbers and find out greatest and smallest number.

solution
```
#include<stdio.h>
#include<conio.h>
void main()
```

```
{
int a[20],i,s,l,n;
clrscr();
printf("How many numbers are there \n");
scanf("%d",&n);
printf("Enter numbers \n");
for(i=0;i<n;i++)
{
scanf("%d",&a[i]);
}
l=a[0];
for(i=0;i<n;i++)
{
if(l<a[i])
l=a[i];
}
printf("Largest number is %d \n",l);
s=a[0];
for(i=0;i<n;i++)
{
if(s>a[i])
s=a[i];
}
printf("Smallest number is %d",s);
getch();
}
```

7) write a c program to read in a positive integer less than 20 and display its multiplication table.

solution
```
#include<stdio.h>
#include<conio.h>
void main()
{
int i,j;
clrscr();
for(i=1;i<=20;i++)
{
for(j=1;j<=10;j++)
{
printf("%d * %d  = %d\n",i,j,i*j);
}
printf("\n");
}
getch();
}
```

8) write a c program to input names of 'n' numbers of students and sort them in alphabetical order.

Solution
```
#include<stdio.h>
#include<conio.h>
#include<string.h>
void main()
{
char sname[50][10],temp[10];
int n,i,j;
clrscr();
printf("\n How many students are there\n");
scanf("%d",&n);
printf("Enter names of students\n");
for(i=0;i<n;i++)
```

```
{
scanf("%s",sname[i]);
}
for(i=0;i<n-1;i++)
{
for(j=i+1;j<n;j++)
{
if(strcmp(sname[i],sname[j])>0)
{
strcpy(temp,sname[i]);
strcpy(sname[i],sname[j]);
strcpy(sname[j],temp);
}
}
}
printf("Alphabetically arranged names of students are\n");
for(i=0;i<n;i++)
{
printf("%s\n",sname[i]);
}
getch();
}
```

9)   write a c program to read salaries of 200 employees and count the number of employees getting salary between 5000 – 10000.

Solution
```
#include<stdio.h>
#include<conio.h>
void main()
{
int emp[200],i,count=0;
clrscr();
printf("Enter salary of 200 employes \n");
for(i=0;i<200;i++)
{
scanf("%d",&emp[i]);
}
for(i=0;i<200;i++)
{
if(emp[i]<5000||emp[i]>10000)
continue;
else
count=count+1;
}
printf("There are %d employees getting salary above 5000 and below
10000 \n",count);
getch();
}
```

10) Write a c program to display the sum of 'n' terms of even numbers.

Solution
```
#include<stdio.h>
#include<conio.h>
void main()
{
int n,i,s=0;
clrscr();
printf("How many numbers are there \n");
scanf("%d",&n);
for(i=1;i<n;i++)
```

```
{
if(i%2==0)
s=s+i;
}
printf("Sum of n terms of even numbers is %d \n",s);
getch();
}
```

11) Write a c program to calculate the factorial of a given number using functions.

<u>Solution</u>
```
#include<stdio.h>
#include<conio.h>
int fact(int num);
void main()
{
int n,f;
clrscr();
printf("Enter a number \n");
scanf("%d",&n);
f=fact(n);
printf("Factorial of %d = %d \n",n,f);
getch();
}

int fact(int num)
{
int fa=1,i;
for(i=num;i>=1;i--)
{
fa=fa*i;
}
return(fa);
}
```

12) Write a c program to print first 10 terms of the following series using FOR loop 1,5,9,13,……

<u>Solution</u>
```
#include<stdio.h>
#include<conio.h>
void main()
{
int i,j=1,n,s=0;
clrscr();
printf("How many terms are there\n");
scanf("%d",&n);
for(i=1;i<=n;i++)
{
s=s+j;
j=j+4;
}
printf("\n Sum =%d",s);
getch();
}
```

13) Write a c program to sort integer values in descending order.

<u>Solution</u>
```
#include<stdio.h>
#include<conio.h>
void main()
{
```

```
int a[20],i,j,temp,n;
clrscr();
printf("How many items are there \n");
scanf("%d",&n);
printf("Enter values of in array \n");
for(i=0;i<n;i++)
{
scanf("%d",&a[i]);
}
for(i=0;i<n-1;i++)
{
for(j=i+1;j<n;j++)
{
if(a[i]<a[j])
{
temp=a[i];
a[i]=a[j];
a[j]=temp;
}
}
}
printf("Values in descending order \n");
for(i=0;i<n;i++)
{
printf("%d \n",a[i]);
}
getch();
}
```

14) Write a c program to read age of 40 students and count the number of students of age between 15 and 22.

Solution
```
#include<stdio.h>
#include<conio.h>
void main()
{
int age[40],i,count=0;
clrscr();
printf("Enter age of 40 students \n");
for(i=0;i<40;i++)
{
scanf("%d",&age[i]);
}
for(i=0;i<40;i++)
{
if(age[i]<15||age[i]>22)
continue;
else
count=count+1;
}
printf("Number of students having age between 15 and 22 = %d
\n",count);
getch();
}
```

15) Write a recursive function to calculate the factorial of any integer number.

Solution

```
#include<stdio.h>
#include<conio.h>
int fact(int);
```

```
void main()
{
int n,f;
clrscr();
printf("Enter a number\n");
scanf("%d",&n);
f=fact(n);
printf("Factorial of given number is %d \n",f);
getch();
}
int fact(int num)
{
int fa=1;
if(num<=1)
return(1);
else
fa=num*fact(num-1);
return(fa);
}
```

16) Write a program to store ten different constant variables in an array and print out the greatest number.

Solution
```
#include<stdio.h>
#include<conio.h>
void main()
{
int a[10],i,j,g;
clrscr();
printf("Enter items of an array\n");
for(i=0;i<10;i++)
{
scanf("%d",&a[i]);
}
g=a[0];
for(i=0;i<10;i++)
{
if(a[i]>g)
g=a[i];
}
printf("Greater number =%d",g);
getch();
}
```

17) Write a program that reads different names and addresses into the computer and sorts the names into alphabetical order using structure variables.

solution

```
#include<stdio.h>
#include<conio.h>
#include<string.h>
void main()
{
int i,j,n;
char temp[10];
clrscr();
struct student
{
char name[10];
char add[10];
```

```
}stu[10];
printf("How many students are there\n");
scanf("%d",&n);
printf("Enter names and address of students\n");
for(i=0;i<n;i++)
{
scanf("%s%s",stu[i].name,stu[i].add);
}
for(i=0;i<n-1;i++)
{
for(j=i+1;j<n;j++)
{
if(strcmp(stu[i].name,stu[j].name)>0)
{
strcpy(temp,stu[i].name);
strcpy(stu[i].name,stu[j].name);
strcpy(stu[j].name,temp);
strcpy(temp,stu[i].add);
strcpy(stu[i].add,stu[j].add);
strcpy(stu[j].add,temp);
}
}
}
for(i=0;i<n;i++)
{
printf("%s\t%s\n",stu[i].name,stu[i].add);
}
getch();
}
```

18) Write a program to count the number of vowels and consonants in a given text.

solution
```
#include<stdio.h>
#include<conio.h>
void main()
{
int v=0,c=0,i;
char str[15];
clrscr();
printf("Enter a string \n");
scanf("%s",str);
i=0;
while(str[i]!='\0')
{
if(str[i]=='a'||str[i]=='e'||str[i]=='i'||str[i]=='o'||str[i]=='u')
v=v+1;
else
c=c+1;
i++;
}
printf("Number of vowels is %d \n",v);
printf("Number of consonants is %d \n",c);
getch();
}
```

19) Write a program that checks whether the number entered by user is exactly divisible by 5 but not by 11.

Solution
```
#include<stdio.h>
```

```
#include<conio.h>
void main()
{
int num;
clrscr();
printf("Enter a number\n");
scanf("%d",&num);
if(num%5==0&&num%11!=0)
printf("%d is the required number",num);
else
printf("sorry %d is not required number",num);
getch();
}
```

20) Write a program that reads three numbers and displays the largest among them.

<u>Solution</u>

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b,c;
clrscr();
printf("Enter three numbers\n");
scanf("%d%d%d",&a,&b,&c);
if(a>b)
{
     if(a>c)
     printf("%d is greater",a);
     else
     printf("%d is greater",c);
 }
 else
 {
     if(b>c)
     printf("%d is greater",b);
     else
     printf("%d is greater",c);

 }
 getch();
 }
```

21) Write a program to read a four digit number and display it in reverse order.

<u>Solution</u>
```
#include<stdio.h>
 #include<conio.h>
 void main()
 {
 int i,n,digit,rev=0;
 clrscr();
 printf("Enter a four digit number\n");
 scanf("%d",&n);
 while(n>0)
 {
 digit=n%10;
 rev=rev*10+digit;
 n=n/10;
 }
```

```
    printf("\n The reverse number is %d",rev);
    getch();
    }
```

22) Write a program to add two matrix.

Solution
```
    #include<stdio.h>
    #include<conio.h>
    void main()
    {
    int a[3][3],b[3][3],c[3][3],i,j;
    clrscr();
    printf("Enter elements of matrix a\n");
    for(i=0;i<3;i++)
    {
    for(j=0;j<3;j++)
    {
    scanf("%d",&a[i][j]);
    }
    }
    printf("Enter elements of matrix b\n");
    for(i=0;i<3;i++)
    {
    for(j=0;j<3;j++)
    {
    scanf("%d",&b[i][j]);
    }
    }
    for(i=0;i<3;i++)
    {
    for(j=0;j<3;j++)
    {
    c[i][j]=a[i][j]+b[i][j];
    }
    }
    printf("Sum of two marix are\n");
    for(i=0;i<3;i++)
    {
    for(j=0;j<3;j++)
    {
    printf("%d\t",c[i][j]);
    }
    printf("\n");
    }
    getch();
    }
```

23) Write a program to enter 'n' numbers into one dimensional array and sort and display them in ascending order.

Solution
```
    #include<stdio.h>
    #include<conio.h>
    void main()
    {
    int n,num[100],i,j,temp;
    clrscr();
    printf("How many numbers are there\n");
    scanf("%d",&n);
```

```
printf("Enter numbers\n");
for(i=0;i<n;i++)
{
scanf("%d",&num[i]);
}
for(i=0;i<n-1;i++)
{
for(j=i+1;j<n;j++)
{
if(num[i]>num[j])
{
temp=num[i];
num[i]=num[j];
num[j]=temp;
}
}
}
printf(" Sorted numbers are\n");
for(i=0;i<n;i++)
{
printf("\n%d",num[i]);
}
getch();
}
```

24) Write a program that input cost price (cp) and selling price (sp) and determine whether there is gain or loss.

<u>Solution</u>
```
#include<stdio.h>
#include<conio.h>
void main()
{
float cp,sp,g,l;
clrscr();
printf("Enter cost price and selling price \n");
scanf("%f%f",&cp,&sp);
if(cp<sp)
{
g=sp-cp;
printf("\n\nGain =%.2f",g);
}
else
{
l=cp-sp;
printf("\nLoss =%.2f",l);
}
getch();
}
```

25) Write a program to display the name of day on the basis of entered number 1 to 7. For example 1 to Sunday.
<u>Solution</u>

```
#include<stdio.h>
#include<conio.h>
void main()
{
int day;
clrscr();
printf("Enter the day of week in number\n");
```

```
scanf("%d",&day);
 switch(day)
 {
 case 1:
 printf("sunday");
 break;
 case 2:
 printf("Monday");
 break;
 case 3:
 printf("Tuesday");
 break;
 case 4:
 printf("Wednesday");
 break;
 case 5:
 printf("Thusday");
 break;
 case 6:
 printf("Friday");
 break;
case 7:
 printf("Saturday");
 break;
 default:
 printf("sorry you have Pressed wrong number");
 }
 getch();
 }
```

26) Write a program to input an integer number and checks whether it is prime or not.

Solution
```
    #include<stdio.h>
    #include<conio.h>
    void main()
    {
    int num,i,f=0;
    clrscr();
    printf("Enter a number\n");
    scanf("%d",&num);
    for(i=1;i<=num;i++)
    {
    if(num%i==0)
    f++;
    }
    if(f==2||num==1)
    printf("%d is prime number\n",num);
    else
    printf("%d is not prime number",num);
    getch();
    }
```

27) Write a program to store name and marks of 20 students. Sort the data according with mark in descending order and display them.

Solution
```
    #include<stdio.h>
    #include<conio.h>
    #include<string.h>
    void main()
    {
```

```c
char name[20][10],temp[10];
int marks[20],i,j,t;
clrscr();
printf("Enter name and marks of 20 students\n");
for(i=0;i<20;i++)
{
scanf("%s%d",name[i],&marks[i]);
}
for(i=0;i<19;i++)
{
for(j=i+1;j<20;j++
ds)
{
if(marks[i]<marks[j])
{
t=marks[i];
marks[i]=marks[j];
marks[j]=t;
strcpy(temp,name[i]);
strcpy(name[i],name[j]);
strcpy(name[j],temp);
}
}
}
printf("\n Names and marks in descending");
for(i=0;i<20;i++)
{
printf("\n%s\t%d",name[i],marks[i]);
}
getch();
}
```

28) Write a program to find the sum of 'n' integer numbers using function.
<u>Solution</u>
```c
#include<stdio.h>
#include<conio.h>
int sum(int b[],int);
void main()
{
int a[50],i,n,s;
clrscr();
printf("How many numbers are there in array\n");
scanf("%d",&n);
printf("Enter numbers\n");
for(i=0;i<n;i++)
{
scanf("%d",&a[i]);
}
s=sum(a,n);
printf("Sum of array = %d",s);
getch();
}
int sum(int b[],int n)
{
int i,su=0;
for(i=0;i<n;i++)
{
su=su+b[i];
}
return(su);
}
```

29) Write a program to store std-no, name and mark of 'n' students in a data file. Display the records in appropriate format reading from the file.

Solution

```c
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
int sno[10],mark[10],i,n;
char sname[10][10];
FILE *fpt;
fpt=fopen("record.txt","w+");
printf("How many students are there \n");
scanf("%d",&n);
for(i=0;i<n;i++)
{
printf("Enter student number, student name and marks \n");
scanf("%d%s%d",&sno[i],sname[i],&mark[i]);
fprintf(fpt,"%d\t%s\t%d \n",sno[i],sname[i],mark[i]);
}
rewind(fpt);
for(i=0;i<n;i++)
{
fscanf(fpt,"%d%s%d",&sno[i],sname[i],&mark[i]);
printf("%d\t%s\t%d\n",sno[i],sname[i],mark[i]);
}
fclose(fpt);
getch();
}
```

30) Write a program asking name, salary and age of employees in a company. Store those data in a file "employees.dat" and display the contents of the file

Solution

```c
#include<stdio.h>
#include<conio.h>
void main()
{
int salary[50],age[50],n,i;
char name[50][10];
FILE *fp;
printf("How many employees are there \n");
scanf("%d",&n);
/* wrinting data into file */
fp=fopen("employee.dat","w+");
printf("Enter employee name salary and age \n");
for(i=0;i<n;i++)
{
scanf("%s%d%d",name[i],&salary[i],&age[i]);
fprintf(fp,"%s\t%d\t%d\n",name[i],salary[i],age[i]);
}
/* reading data from file */
rewind(fp);
printf("Name\tSalary\tAge \n");
for(i=0;i<n;i++)
{
fscanf(fp,"%s%d%d",name[i],&salary[i],&age[i]);
printf("%s\t%d\t%d\n",name[i],salary[i],age[i]);
}
fclose(fp);
getch();
}
```

C PROGRAM SOLUTION

1. For any integer input through the keyboard, write a C program to find out whether it is odd or even. [HSEB 2062,2066,2068]

```c
#include<stdio.h>
#include<conio.h>
void main()
 {
   int n;
   printf("\nEnter any number: ");
   scanf("%d",&n);
   if(n%2==0)
    printf("Even is %d ",n);
   else
    printf("Odd is %d ",n);
   getch();
 }
```

2. Write a C program to input cost price (CP) and selling price (SP) and determines whether there is gain or loss. [HSEB 2066]

```c
#include<stdio.h>
#include<conio.h>
void main()
 {
   float cp,sp,p,l;
   clrscr();
   printf("\nEnter Cost Price and Selling Price: ");
   scanf("%f%f",&cp,&sp);
   if(sp>cp)
        p=sp-cp;
    printf("Profit is Rs. %f ",p);
   else
        l=cp-sp;
    printf("Loss is Rs. %f  ",l);
   getch();
 }
```

3.   Write a C program that reads three numbers and displays the largest among them.
        [HSEB 2065]

```c
#include<stdio.h>
#include<conio.h>
void main()
 {
   int a,b,c;
   clrscr();
   printf("\nEnter any three numbers: ");
   scanf("%d%d%d",&a,&b,&c);
   if(a>b && a>c)
    printf("%d is Greater",a);
```

```
  else if(b>a && b>c)
   printf("%d is Greater",b);
  else
   printf("%d is Greater",c);
  getch();
 }
```

4.   Write a C program that checks whether the numbered entered by the user is exactly divisible by 5 but not by 11.[HSEB 2065]

```
#include<stdio.h>
#include<conio.h>
void main()
 {
  int n;
  clrscr();
  printf("\nEnter any number: ");
  scanf("%d",&n);
  if(n%5==0 && n%11!=0)
   printf("%d is exactly Divisible by 5 but not by 11",n);
  else
   printf("condition dissatisfied");
  getch();
 }
```

5.   Write a C program to find the commission amount on the basis of sales amount as per following conditions:

Sales amount (Rs)	Commission	
0-1000	5%	
1001-2000	10%	
>2000	12%	[HSEB 2066]

```
#include<stdio.h>
#include<conio.h>
void main()
 {
  float s,ca;
  clrscr();
  printf("\nEnter sales amount: ");
  scanf("%f",&s);
  if(s>=0 && s<=1000)
            ca=0.05*c;
       else if(s>1000 && s<=2000)
            ca=0.1*c;
  else
            ca=0.12*c;
       printf("Your Commission is Rs. %.2f",ca);
  getch();
 }
```

6.   Write a program to display name of the day on the basis of entered number 1 to 7. For example, 1 for Sunday. [HSEB 2066]

```c
#include<stdio.h>
#include<conio.h>
void main()
 {
  int n;

  printf("\nEnter number between 1 to 7 ");
  scanf("%d",&n);
  switch(n)
   {
    case 1:
     printf("\nSUNDAY");
     break;
    case 2:
     printf("\nMONDAY");
     break;
    case 3:
     printf("\nTUESDAY");
     break;
    case 4:
     printf("\nWEDNESDAY");
     break;
    case 5:
     printf("\nTHURSDAY");
     break;
    case 6:
     printf("\nFRIDAY");
     break;
    case 7:
     printf("\nSATURDAY");
     break;
    default:
     printf("\n Invalid Choice");
   }

 getch();
 }
```

7.   Write a C program to display the sum of 'n' terms of even numbers. [HSEB 2063]

```c
#include<stdio.h>
#include<conio.h>
void main()
 {
  int i,n,s=0,a=2;
  clrscr();
  printf("\nEnter how many numbers? ");
  scanf("%d",&n);
  for(i=0;i<n;i++)
   {
    s+=a;
    a=a+2;
   }
```

```
    printf("\n Sum of %d terms of even numbers is %d",n,s);
   getch();
   }
```

8.   Write a C program to input a number and display its multiplication table.
[HSEB 2958, 2061]

```
#include<stdio.h>
#include<conio.h>
void main()
 {
   int n,i;
   clrscr();
   printf("\n Enter number:");
   scanf("%d",&n);
   for(i=1;i<=10;i++)
   printf("\n%d X %d = %d",n,i,n*i);

  getch();
  }
```

9.   Write a C program to read a positive number integer less than 20 and
display its multiplication table. [HSEB 2062]

```
#include<stdio.h>
#include<conio.h>
void main()
 {
   int n,i;
   clrscr();
   printf("\n Enter positive number less than 20:");
   scanf("%d",&n);
   if(n>0 && n<20)
   {
   for(i=1;i<=10;i++)
   printf("\n%d X %d = %d",n,i,n*i);
   }
   else
   printf("\n Invalid number");

  getch();
  }
```

10.   Write a C program to print 10 terms of any series using FOR loop. [HSEB
2064]

```
#include<stdio.h>
#include<conio.h>
void main()
 {
   int n,i,a=5;
   clrscr();
   printf("\n Enter how many numbers?");
   scanf("%d",&n);
```

```c
    for(i=0;i<n;i++)
     {
      printf("%d\t",a);
      a=a+5;
     }

  getch();
   }
```

11. Write a C program to print 10 terms of the following series using FOR loop, 1, 5, 9, 13 [HSEB 2063]

```c
#include<stdio.h>
#include<conio.h>
void main()
  {
    int i,a=1;
    clrscr();
         for(i=0;i<10;i++)
     {
      printf("%d\t",a);
      a=a+4;
     }

  getch();
   }
```

12. Write a C program to read a four digit number and display it in reverse order. [HSEB 2055]

```c
#include<stdio.h>
#include<conio.h>
void main()
  {
    int c=0,n,r,s=0;
    clrscr();
    printf("\n Enter any 4 digit number: ");
    scanf("%d",&n);
    while(n!=0)
     {
      r=n%10;
      s=s*10+r;
      n=n/10;
      c=c+1;
     }
    if(c<=4)
    printf("\n Reversed number is %d",s);
    else
    printf("\n It is not a 4 digit number");
   getch();
   }
```

13. Write a C program to find the factorial of a given positive number. [HSEB 2066]

```c
#include<stdio.h>
#include<conio.h>
void main()
 {
   int n,f=1,i;
   clrscr();
   printf("\n Enter positive number: ");
   scanf("%d",&n);
   if(n<0)
   printf("\n You have entered negative number");
   else if(n==0)
   printf("\n Factorial of %d is 1",n);
   else
   {
    for(i=1;i<=n;i++)
    f=f*i;
    printf("\n Factoria of %d is %d",n,f);
   }


   getch();
 }
```

14. Write a C program to print 10 positive integers and their factorials. [HSEB 2062]

```c
#include<stdio.h>
#include<conio.h>
void main()
 {
   int n,f=1,i;
   clrscr();
   printf("\n Enter positive number: ");
   scanf("%d",&n);
   if(n<0)
   printf("\n You have entered negative number");
   else if(n==0)
   printf("\n Factorial of %d is 1",n);
   else
   {

    for(i=1;i<=n;i++)
    {
    printf("%d\t",i);
    f=f*i;
    }
    printf("\n Factoria of %d is %d",n,f);
   }


   getch();
```

```
}
```

15. Write a program to input an integer number and check whether it is prime or not. [HSEB 2066]

```c
#include<stdio.h>
#include<conio.h>
void main()
 {
   int n,c=0,i;
   clrscr();
   printf("\nEnter any integer number: ");
   scanf("%d",&n);
   for(i=1;i<=n;i++)
   {
    if(n%i==0)
     c=c+1;
   }
    if(c==2)
    printf("%d is prime number",n);
    else
    printf("%d is not prime number",n);


    getch();
 }
```

16. Write a C program to input 'n' numbers and find out the largest and smallest number. [HSEB 2062]

```c
#include<stdio.h>
#include<conio.h>
void main()
 {
   int n,i,num[100],g,s;
   clrscr();
   printf("\nEnter how many numbers?");
   scanf("%d",&n);
   printf("\nEnter %d numbers",n);
   for(i=0;i<n;i++)
    scanf("%d",&num[i]);
   g=num[0];
   s=num[0];
   for(i=1;i<n;i++)
    {
     if (num[i]>g)
      g=num[i];
     if(num[i]<s)
      s=num[i];
    }
   printf("\nThe greatest number is %d",g);
   printf("\nThe smallest number is %d",s);
  getch();
}
```

17. Write a program to ask any n numbers from the user. Sort them in ascending order and display. [HSEB 2065, 2067]

```c
#include<stdio.h>
#include<conio.h>
void main()
 {
   int n,i,j,num[10],temp;
   clrscr();
   printf("Enter how many numbers?");
   scanf("%d",&n);
   printf("\nEnter %d numbers",n);
   for(i=0;i<n;i++)
    scanf("%d",&num[i]);


   for(i=0;i<n;i++)
    {
     for(j=i+1;j<n;j++)
      {
          if(num[i]>num[j])
           {
             temp=num[i];
             num[i]=num[j];
             num[j]=temp;
           }
      }
    }
   printf("\n The sorted numbers in ascending order are\n");
   for(i=0;i<n;i++)
    printf("%d\t",num[i]);
 getch();
 }
```

18. Write a program to store ten different constant variables in an array and print out the greatest number. [HSEB 2064]

```c
#include<stdio.h>
#include<conio.h>
void main()
 {
   int i,num[10],g;
   clrscr();
   printf("\nEnter 10 numbers");
   for(i=0;i<10;i++)
    scanf("%d",&num[i]);
   g=num[0];
   for(i=1;i<10;i++)
    {
     if (num[i]>g)
      g=num[i];
    }
   printf("\nThe greatest number is %d",g);
   getch();
}
```

19. Write a program to sort integer variables in descending order. [HSEB 2063]

```c
#include<stdio.h>
#include<conio.h>
void main()
 {
   int n,i,j,num[10],temp;
   clrscr();
   printf("Enter how many numbers?");
   scanf("%d",&n);
   printf("\nEnter %d numbers",n);
   for(i=0;i<n;i++)
    scanf("%d",&num[i]);


   for(i=0;i<n;i++)
    {
     for(j=i+1;j<n;j++)
      {
         if(num[i]<num[j])
          {
            temp=num[i];
            num[i]=num[j];
            num[j]=temp;
          }
       }
    }
  printf("\n The sorted numbers in ascending order are\n");
  for(i=0;i<n;i++)
   printf("%d\t",num[i]);
 getch();
 }
```

20. Write a C program to read salaries of 200 employees and count the number of employees getting salary between 5000 to 10000. [HSEB 2062]

```c
#include<stdio.h>
#include<conio.h>
void main()
 {
   int i,c=0;
   float s[200];
   clrscr();
   printf("\nEnter salaries for 200 employees");
   for(i=0;i<200;i++)
    scanf("%f",&s[i]);
   for(i=0;i<200;i++)
    {
     if (s[i]>5000 && s[i]<10000)
         c=c+1;
    }
   printf("Total number of employees getting salary between 5000 and 10000 are %d",c);

   getch();
 }
```

21. Write a program using C language to read the age of 100 persons and count the number of persons in the age group between 50 and 60. Use FOR and CONTINUE statement. [HSEB 2061]

```c
#include<stdio.h>
#include<conio.h>
void main()
 {
   int i,c=0;
   float a[100];
   clrscr();
   printf("\nEnter age of 100 persons");
   for(i=0;i<100;i++)
    scanf("%f",&a[i]);
   for(i=0;i<100;i++)
   {
    if (a[i]>50 && a[i]<60)
        c=c+1;
    else
     continue;
   }
   printf("Total number of persons aged between 50 and 60 are %d",c);

    getch();
 }
```

22. Write a C program to read age of 40 students and count the number of students of the age between 15 and 22. [HSEB 2063]

```c
#include<stdio.h>
#include<conio.h>
void main()
 {
   int i,c=0;
   float a[40];
   clrscr();
   printf("\nEnter age of 40 students");
   for(i=0;i<40;i++)
    scanf("%f",&a[i]);
   for(i=0;i<40;i++)
   {
    if (a[i]>15 && a[i]<22)
        c=c+1;
   }
   printf("Total number of students aged between 15 and 21 are %d",c);

    getch();
 }
```

23. Write a program in C to store mark obtained by 'n' students and count the number of students who obtained mark greater than 70. Also count the number of students who are failed. (<35) [HSEB 2066]

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

```c
void main()
{
 int n,i,c=0,cf=0;
 float m[100];
 clrscr();
 printf("\nEnter how many students?");
 scanf("%d",&n);
 printf("\n Enter marks for %d students: ",n);
 for(i=0;i<n;i++)
 scanf("%f",&m[i]);
 for(i=0;i<n;i++)
 if(m[i]>70)
 c=c+1;
 else if(m[i]<35)
 cf=cf+1;
 printf("\n Total no. of students scoring more than 70 are %d ",c);
 printf("\nTotal no. of students who are fail are %d ",cf);
getch();
}
```

24. Write a program to read elements of the two matrices of order 3 x 3 and perform the matrix addition. [HSEB 2065]

```c
#include<stdio.h>
#include<conio.h>
void main()
{
 int a[3][3], b[3][3],s[3][3],i,j;
 clrscr();
 printf("\n Enter elements for matrix A\n");
 for(i=0;i<3;i++)
  {
  for(j=0;j<3;j++)
   {
    printf("\nEnter the number [%d] [%d] ",i,j);
    scanf("%d",&a[i][j]);
   }
  }
 printf("\n Enter the elements for matrix B\n");
 for(i=0;i<3;i++)
  {
  for(j=0;j<3;j++)
   {
    printf("\nEnter the number [%d] [%d] ",i,j);
    scanf("%d",&b[i][j]);
   }
  }
 printf("\n The sum of two matrix is\n");
 for(i=0;i<3;i++)
  {
  for(j=0;j<3;j++)
   {
    s[i][j]=a[i][j]+b[i][j];
   }
  }
 for(i=0;i<3;i++)
```

```c
  {
   for(j=0;j<3;j++)
    {
     printf("%d\t",s[i][j]);
    }
   printf("\n");
  }
  getch();
 }
```

25. Write a program to count the number of vowels and consonants in a given text. [HSEB 2064, 2066]

```c
#include<stdio.h>
#include<conio.h>
#include<string.h>
void main()
{
char str[20];
int nv=0,nc=0,i;
printf("\nEnter any string");
gets(str);
strupr(str);
for(i=0;str[i]!='\0';i++)
{
if(str[i]=='A' || str[i]=='E' || str[i]=='I' || str[i]=='O' || str[i]=='U')
nv++;
else if(str[i]>='A' && str[i]<='Z')
nc++;
}
printf("\n No. of Vowels = %d ",nv);
printf("\n No. of Consonants = %d ",nc);
getch();
}
```

26. Write a program to read a line of text and convert it into uppercase. [HSEB 2068]

```c
#include<stdio.h>
#include<conio.h>
#include<string.h>
void main()
{
 char string[100];
 printf("\nEnter any line of text in lowercase\n");
 gets(string);
 strupr(string);
 printf("\n Enterd text converted into uppercase\n");
 puts(string);
 getch();
 }
```

OR

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

```c
void main()
{
char string[100];
int i;
printf("\nEnter any line of text in lowercase\n");
gets(string);
for(i=0;string[i]!=0;i++)
{
if(string[i]>='a' && string[i]<='z')
string[i]=string[i]-32;
}
printf("\n Enterd text converted into uppercase\n");
puts(string);
getch();
}
```

27. Write a program to input n names and sort them in alphabetical order. [HSEB 2062, 2068]

```c
#include<stdio.h>
#include<conio.h>
#include<string.h>
void main()
{
char name[50][20],temp[20];
int i,n,j;
printf("\nEnter how many names: ");
scanf("%d",&n);
printf("Enter %d names\n",n);
for(i=0;i<n;i++)
scanf("%s",name[i]);
for(i=0;i<n;i++)
{
for(j=i+1;j<n;j++)
{
if(strcmp(name[i],name[j])>0)
{
strcpy(temp,name[i]);
strcpy(name[i],name[j]);
strcpy(name[j],temp);
}
}
}
printf("\nThe sorted names are\n");
for(i=0;i<n;i++)
printf("\n%s",name[i]);
getch();
}
```

28. Write a C Program to enter name of students and age of ten different students in array and arrange them in descending order according to the age and print them. [HSEB 2057]

```c
#include<stdio.h>
#include<conio.h>
#include<string.h>
struct student
{
char name [25];
int age;
}std[10];

void main()
{
 char temp[25];
 int i,j,tm;

 printf("Enter 10 names and age of students\n");
 for(i=0;i<10;i++)
 {
 scanf("%s",std[i].name);
 scanf("%d",&std[i].age);
 }
 for(i=0;i<10;i++)
 {
 for(j=i+1;j<10;j++)
 {
 if(std[i].age<std[j].age)
 {
 tm=std[i].age;
 std[i].age=std[j].age;
 std[j].age=tm;
 strcpy(temp,std[i].name);
 strcpy(std[i].name,std[j].name);
 strcpy(std[j].name,temp);
 }
 }
 }
 printf("\nThe sorted names and age in descending order according to age
are\n");
 for(i=0;i<10;i++)
 printf("\n%s\t%d",std[i].name,std[i].age);
 getch();
 }
```

29. Write a program to store name and mark of 20 students. Sort the data according to mark in descending order and display them. [HSEB 2066]

```c
#include<stdio.h>
#include<conio.h>
#include<string.h>
struct student
{
char name [25];
int mark;
}std[10];
```

```c
void main()
{
 char temp[25];
 int i,j,tm;

 printf("Enter names and marks for 20 students\n");
 for(i=0;i<20;i++)
 {
 scanf("%s",std[i].name);
 scanf("%d",&std[i].mark);
 }
 for(i=0;i<20;i++)
 {
 for(j=i+1;j<20;j++)
 {
 if(std[i].mark<std[j].mark)
 {
 tm=std[i].mark;
 std[i].mark=std[j].mark;
 std[j].mark=tm;
 strcpy(temp,std[i].name);
 strcpy(std[i].name,std[j].name);
 strcpy(std[j].name,temp);
 }
 }
 }
 printf("\nThe sorted names and marks in descending order according to marks
are\n");
 for(i=0;i<20;i++)
 printf("\n%s\t%d",std[i].name,std[i].mark);
 getch();
 }
```

30. Write a C program to store Kathmandu valley's 7 days maximum and minimum temperature (in centigrade) and calculate average, maximum, minimum temperature using function and print 7 days temperature, minimum, maximum and average temperature using any high level programming language. [HSEB 2060]

```c
#include<stdio.h>
#include<conio.h>
float maxt(float []);
float min(float []);
float avg(float []);
float m[7],mi[7],a[7];
void main()
```

```c
{
float maxtemp, mintemp, avgtemp;
int i;
clrscr();
maxtemp=maxt(m);
mintemp=min(mi);
avgtemp=avg(a);
printf("\n\tMax Temp\t Min Temp \t Average Temp\n");
for(i=1;i<=7;i++)
{
printf("\nDay %d\t%f\t%f\t%f\n",i,m[i],mi[i],a[i]);
}
printf("\n Maximum Temperature is %f",maxtemp);
printf("\n MInimum Temperature is %f",mintemp);
printf("\n Average Temperature is %f",avgtemp);
getch();
}
float maxt(float m[])
{
int i;
float tm;
for(i=1;i<=7;i++)
{
printf("\nEnter maximum temperature for day %d ", i);
scanf("%f",&m[i]);
}

tm=m[1];
for(i=2;i<=7;i++)
{
if (m[i]>tm)
tm=m[i];
}
return tm;
}
float min(float mi[])
{
 int i;
float tmi;
for(i=1;i<=7;i++)
{
printf("\nEnter minimum temperature for day %d ", i);
scanf("%f",&mi[i]);
}
tmi=mi[1];
for(i=2;i<=7;i++)
{
if (mi[i]<tmi)
tmi=mi[i];
}
return tmi;
```

```c
}
float avg(float a[])
{
int i;
float ta,s;
for(i=1;i<=7;i++)
{
a[i]=(m[i]+mi[i])/2;
s=s+a[i];
}
ta=s/7;
return ta;
}
```

31. Write a C program to input a message from keyboard and display the menu
a.   Print the message length in terms of characters.
b.   print the message in reverse order
c.   print the message in capital letters
d.   copy the message from one location of screen to another location.
[HSEB 2060]

```c
#include<stdio.h>
#include<conio.h>
#include<string.h>
void main()
{
char msg[100],msg1[100];
int i,ch,len,j;
clrscr();
printf("\n Enter a message:");
gets(msg);
printf("\n 1. Print the message length in terms of characters");
printf("\n 2. Print the message in reverse order");
printf("\n 3. Print the message in capital letters");
printf("\n 4. Copy the message from one location to another");
printf("\n Enter your choice (1-4)");
scanf("%d",&ch);
switch(ch)
{
 case 1:

len=0;
while(msg[len]!='\0')

len++;
printf("\n The string %s has %d characters\n",msg,len);
break;
case 2:
len=strlen(msg);
j=0;
for(i=len-1;i>=0;i--)
msg1[j++]=msg[i];
```

```c
msg[j]='\0';
strcpy(msg,msg1);
printf("\n The reversed string is %s",msg);
break;
case 3:
for(i=0;msg[i]!='\0';i++)
{
if(msg[i]>='a' && msg[i]<='z')
msg[i]=msg[i]-32;
}
printf("\n The message in uppercase %s",msg);
break;
case 4:
for(i=0;msg[i]!='\0';i++)
msg1[i]=msg[i];
msg1[i]='\0';
printf("The copied string is %s ",msg1);
break;
default:
printf("\n Invalid choice");
}
getch();
}
```

32. Write a program to find the sum of n integer numbers using function.
{HSEB 2066]

```c
#include<stdio.h>
#include<conio.h>
int sum(int);
void main()
{
int n,a;
 clrscr();
printf("\nEnter how many numbers: ");
scanf("%d",&n);
a=sum(n);
printf("\n Sum of %d numbers= %d",n,a);
getch();
}

int sum(int n)
{
int i,s=0;
for(i=1;i<=n;i++)
s=s+i;
return s;
}
```

33. Write a program to calculate the factorial of a given number using function.
[HSEB 2063]

```c
#include<stdio.h>
#include<conio.h>
int fact(int);
```

```c
void main()
{
int n,a;
clrscr();
printf("\nEnter any number: ");
scanf("%d",&n);
a=fact(n);
printf("\n factorial= %d",a);
getch();
}

int fact(int n)
{
int i,f=1;
for(i=1;i<=n;i++)
f=f*i;
return f;
}
```

34. Write a program to calculate the factorial of a given number using recursive function. [HSEB 2064, 2068]

```c
#include<stdio.h>
#include<conio.h>
int fact(int);
void main()
{
int n,a;
clrscr();
printf("\nEnter any number: ");
scanf("%d",&n);
a=fact(n);
printf("\n factorial= %d",a);
getch();
}

int fact(int n)
{
if(n<=1)
return 1;
else
return(n*fact(n-1));
}
```

35. Write a program using user defined function to calculate y raise to power x.[HSEB 2067]

```c
#include<stdio.h>
#include<conio.h>
int power(int,int);
void main()
{
int y,x,p;
printf("\n Enter values for y and x: ");
scanf("%d%d",&y,&x);
p=power(y,x);
```

```c
printf("\n y raise to power x= %d",p);
getch();
}
int power(int y, int x)
{
int pw=1,i;
for(i=1;i<=x;i++)
pw=pw*y;
return pw;
}
```

36. Write a program that reads different names and addresses into the computer and rearrange them into alphabetical order using the structure variables. [HSEB 2061, 2064]

```c
#include<stdio.h>
#include<conio.h>
#include<string.h>
struct student
{
char name[30];
char add [30];
}std[100];
void main()
{
char tname[30],tadd[30];
int i,j,n;
printf("\n Enter how many students: ");
scanf("%d",&n);
printf("Enter names and addresses for %d srudents: ",n);
for(i=0;i<n;i++)
scanf("%s%s",std[i].name, std[i].add);
for(i=0;i<n;i++)
{
for(j=i+1;j<n;j++)
{
if (strcmp(std[i].name,std[j].name)>0)
{
strcpy(tname,std[i].name);
strcpy(std[i].name,std[j].name);
strcpy(std[j].name,tname);
strcpy(tadd,std[i].add);
strcpy(std[i].add,std[j].add);
strcpy(std[j].add,tadd);
}
}
}
printf("\n Sorted names in alphabetical order according to names are:\n");
for(i=0;i<n;i++)
printf("\n %s\t %s",std[i].name,std[i].add);
getch();
}
```

37. Write a program to show data writing and reading operation to/from a data file. [HSEB 2066]

```c
#include<stdio.h>
#include<conio.h>
struct
 {
  int roll;
  char name[25];
  float mark;
  }std;
void main()
{
  int n,i;
  FILE *fp;
  fp=fopen("d:\\cprg\student.txt","wb");
  clrscr();
  printf("\n Enter how many records: ");
  scanf("%d",&n);
  printf("enter student number name and marks for %d students",n);
  for(i=0;i<n;i++)
  {
  scanf("%d%s%f",&std.roll,std.name,&std.mark);
  fwrite(&std,sizeof(std),1,fp);
  }
  fclose(fp);
  fp=fopen("d:\\cprg\student.txt","r");
  printf("\nRoll\tName\tMarks Obtained\n");
  while(fread(&std,sizeof(std),1,fp))
  printf("%d\t%s\t%f\n",std.roll,std.name,std.mark);
  fclose(fp);
  getch();
  }
```

38. Write a program to enter name, roll-number and marks of 10 students and store them in a file. [HSEB 2065]

```c
# winclude<stdio.h>
#include<conio.h>
struct
 {
  int roll;
  char name[25];
  float mark;
  }std;
void main()
{
  int i;
  FILE *fp;
  fp=fopen("d:\\cprg\student.txt","wb");
  clrscr();
  printf("enter student roll number name and marks for 10 students");
  for(i=0;i<10;i++)
  {
  scanf("%d%s%f",&std.roll,std.name,&std.mark);
```

```c
  fwrite(&std,sizeof(std),1,fp);
  }
 fclose(fp);

 getch();
 }
```

39. Write a program to store std-no, name and mark of 'n' students in a data file. Display the records in appropriate format reading from the file. [HSEB 2066]

```c
#include<stdio.h>
#include<conio.h>
struct
 {
  int roll;
  char name[25];
  float mark;
  }std;
void main()
{
 int n,i;
 FILE *fp;
 fp=fopen("d:\\cprg\student.txt","w");
 clrscr();
 printf("\n Enter how many records: ");
 scanf("%d",&n);
 printf("enter student number name and marks for %d students",n);
 for(i=0;i<n;i++)
 {
 scanf("%d%s%f",&std.roll,std.name,&std.mark);
 fprintf(fp,"%d\t%s\t%f\n",std.roll,std.name,std.mark);
 }
 fclose(fp);
 fp=fopen("d:\\cprg\student.txt","r");
 printf("\nRoll\tName\tMarks Obtained\n");
 while(fscanf(fp,"%d%s%f",&std.roll,std.name,&std.mark)!=EOF)
 printf("%d\t%s\t%f\n",std.roll,std.name,std.mark);
 fclose(fp);
 getch();
 }
```

40. Write a program using C language that reads successive records from the new data file and display each record on the screen in an appropriate format. [HSEB 2061, 2062]

```c
#include<stdio.h>
#include<conio.h>
struct
 {
  int roll;
  char name[25];
  float mark;
  }std;
void main()
{
```

```c
  int n,i;
  FILE *fp;
  fp=fopen("d:\\cprg\student.txt","wb");
  clrscr();
  printf("\n Enter how many records: ");
  scanf("%d",&n);
  printf("enter student number name and marks for %d students",n);
  for(i=0;i<n;i++)
  {
  scanf("%d%s%f",&std.roll,std.name,&std.mark);
  fwrite(&std,sizeof(std),1,fp);
  }
  fclose(fp);
  fp=fopen("d:\\cprg\student.txt","r");
  printf("\nRoll\tName\tMarks Obtained\n");
  while(fread(&std,sizeof(std),1,fp))
  printf("%d\t%s\t%f\n",std.roll,std.name,std.mark);
  fclose(fp);
  getch();
  }
```

41. Write a program to rename and delete a data file using rename and remove command. [HSEB 2064, 2067]

```c
#include<stdio.h>
#include<conio.h>
void main()
{
char filename[20];
char oldfilename[20],newfilename[20];
printf("\n Enter the file name to be removed: ");
gets(filename);
if(remove(filename)==0)
printf("File %s is removed",filename);
else
printf("File %s cannot be removed",filename);
printf("\n Enter old file name: ");
gets(oldfilename);
printf("\n Enter new file name: ");
gets(newfilename);
if(rename(oldfilename,newfilename)==0)
printf("\n File %s is renamed to %s",oldfilename,newfilename);
else
printf("\n file %s cannot be renamed",oldfilename);

getch();
}
```

42. Write a program to open a new file and read roll-no, name, address and phone number of students until the user says "no", after reading the data, write it to the file then display the content of the file. [HSEB 2068]

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

```c
struct
{
 int roll;
 char name[25];
 char add[30];
 long phone;
 }std;
void main()
{
 char ch='y';
 FILE *fp;
 fp=fopen("d:\\cprg\student.txt","w");
 clrscr();
 while(ch=='y' || ch=='Y')
 {
 printf("\n Enter roll number: ");
 scanf("%d",&std.roll);
 printf("\n Enter name: ");
 scanf("%s",std.name);
 printf("\n Enter address: ");
 scanf("%s",std.add);
 printf("\n Enter phone number: ");
 scanf("%ld",&std.phone);
 fprintf(fp,"%d\t%s\t%s\t%ld\n",std.roll,std.name,std.add,std.phone);
 printf("DO you want to continue (Y/N)? ");
 ch=getche();
 }
 fclose(fp);
 fp=fopen("d:\\cprg\student.txt","r");
 printf("\nRoll\tName\tAddress\tPhone\n");
 while(fscanf(fp,"%d%s%s%ld",&std.roll,std.name,std.add,&std.phone)!=EOF)
 printf("%d\t%s\t%s\t%ld\n",std.roll,std.name,std.add,std.phone);
 fclose(fp);
 getch();
 }
```

C Program HSEB Question Solved PART III
1.   Write a program to read a line of text and convert it into uppercase. [HSEB 2068]
```c
#include<stdio.h>
#include<conio.h>
#include<string.h>
void main()
{
 char string[100];
 printf("\nEnter any line of text in lowercase\n");
 gets(string);
 strupr(string);
 printf("\n Enterd text converted into uppercase\n");
 puts(string);
 getch();
 }
```

OR

```c
#include<stdio.h>
#include<conio.h>
#include<string.h>
void main()
{
 char string[100];
 int i;
 printf("\nEnter any line of text in lowercase\n");
 gets(string);
 for(i=0;string[i]!=0;i++)
 {
 if(string[i]>='a' && string[i]<='z')
 string[i]=string[i]-32;
 }
 printf("\n Enterd text converted into uppercase\n");
 puts(string);
 getch();
 }
```

2.   Write a program to input n names and sort them in alphabetical order.
[HSEB 2062, 2068]

```c
#include<stdio.h>
#include<conio.h>
#include<string.h>
void main()
{
 char name[50][20],temp[20];
 int i,n,j;
 printf("\nEnter how many names: ");
 scanf("%d",&n);
 printf("Enter %d names\n",n);
 for(i=0;i<n;i++)
 scanf("%s",name[i]);
 for(i=0;i<n;i++)
 {
 for(j=i+1;j<n;j++)
 {
 if(strcmp(name[i],name[j])>0)
 {
 strcpy(temp,name[i]);
 strcpy(name[i],name[j]);
 strcpy(name[j],temp);
 }
 }
 }
 printf("\nThe sorted names are\n");
 for(i=0;i<n;i++)
 printf("\n%s",name[i]);
 getch();
 }
```

3.   Write a C Program to enter name of students and age of ten different students in array and arrange them in descending order according to the age and print them. [HSEB 2057]

```c
#include<stdio.h>
#include<conio.h>
#include<string.h>
struct student
{
char name [25];
int age;
}std[10];

void main()
{
 char temp[25];
 int i,j,tm;

 printf("Enter 10 names and age of students\n");
 for(i=0;i<10;i++)
 {
 scanf("%s",std[i].name);
 scanf("%d",&std[i].age);
 }
 for(i=0;i<10;i++)
 {
 for(j=i+1;j<10;j++)
 {
 if(std[i].age<std[j].age)
 {
 tm=std[i].age;
 std[i].age=std[j].age;
 std[j].age=tm;
 strcpy(temp,std[i].name);
 strcpy(std[i].name,std[j].name);
 strcpy(std[j].name,temp);
 }
 }
 }
 printf("\nThe sorted names and age in descending order according to age are\n");
 for(i=0;i<10;i++)
 printf("\n%s\t%d",std[i].name,std[i].age);
 getch();
 }
```

4.   Write a program to store name and mark of 20 students. Sort the data according to mark in descending order and display them. [HSEB 2066]

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

```c
struct student
{
char name [25];
int mark;
}std[10];

void main()
{
 char temp[25];
 int i,j,tm;

 printf("Enter names and marks for 20 students\n");
 for(i=0;i<20;i++)
 {
 scanf("%s",std[i].name);
 scanf("%d",&std[i].mark);
 }
 for(i=0;i<20;i++)
 {
 for(j=i+1;j<20;j++)
 {
 if(std[i].mark<std[j].mark)
 {
 tm=std[i].mark;
 std[i].mark=std[j].mark;
 std[j].mark=tm;
 strcpy(temp,std[i].name);
 strcpy(std[i].name,std[j].name);
 strcpy(std[j].name,temp);
 }
 }
 }
 printf("\nThe sorted names and marks in descending order according to marks
are\n");
 for(i=0;i<20;i++)
 printf("\n%s\t%d",std[i].name,std[i].mark);
 getch();
 }
```

5.   Write a program to find the sum of n integer numbers using function.
{HSEB 2066]

```c
#include<stdio.h>
#include<conio.h>
int sum(int);
void main()
{
 int n,a;
  clrscr();
 printf("\nEnter how many numbers: ");
 scanf("%d",&n);
 a=sum(n);
 printf("\n Sum of %d numbers= %d",n,a);
 getch();
```

```
}
int sum(int n)
{
int i,s=0;
for(i=1;i<=n;i++)
s=s+i;
return s;
}
```

6.   Write a program to calculate the factorial of a given number using function. [HSEB 2063]

```
#include<stdio.h>
#include<conio.h>
int fact(int);
void main()
{
int n,a;
clrscr();
printf("\nEnter any number: ");
scanf("%d",&n);
a=fact(n);
printf("\n factorial= %d",a);
getch();
}

int fact(int n)
{
int i,f=1;
for(i=1;i<=n;i++)
f=f*i;
return f;
}
```

7.   Write a program to calculate the factorial of a given number using recursive function. [HSEB 2064, 2068]

```
#include<stdio.h>
#include<conio.h>
int fact(int);
void main()
{
int n,a;
clrscr();
printf("\nEnter any number: ");
scanf("%d",&n);
a=fact(n);
printf("\n factorial= %d",a);
getch();
}

int fact(int n)
{
if(n<=1)
return 1;
```

```
 else
 return(n*fact(n-1));
}
```

8.   Write a program using user defined function to calculate y raise to power x.[HSEB 2067]

```
#include<stdio.h>
#include<conio.h>
int power(int,int);
void main()
{
int y,x,p;
printf("\n Enter values for y and x: ");
scanf("%d%d",&y,&x);
p=power(y,x);
printf("\n y raise to power x= %d",p);
getch();
}
int power(int y, int x)
{
int pw=1,i;
for(i=1;i<=x;i++)
pw=pw*y;
return pw;
}
```

9.   Write a program that reads different names and addresses into the computer and rearrange them into alphabetical order using the structure variables. [HSEB 2061, 2064]

```
#include<stdio.h>
#include<conio.h>
#include<string.h>
struct student
{
char name[30];
char add [30];
}std[100];
void main()
{
char tname[30],tadd[30];
int i,j,n;
printf("\n Enter how many students: ");
scanf("%d",&n);
printf("Enter names and addresses for %d srudents: ",n);
for(i=0;i<n;i++)
scanf("%s%s",std[i].name, std[i].add);
for(i=0;i<n;i++)
{
for(j=i+1;j<n;j++)
{
if (strcmp(std[i].name,std[j].name)>0)
{
```

```c
strcpy(tname,std[i].name);
strcpy(std[i].name,std[j].name);
strcpy(std[j].name,tname);
strcpy(tadd,std[i].add);
strcpy(std[i].add,std[j].add);
strcpy(std[j].add,tadd);
}
}
}
printf("\n Sorted names in alphabetical order according to names are:\n");
for(i=0;i<n;i++)
printf("\n %s\t %s",std[i].name,std[i].add);
getch();
}
```

10. Write a program to show data writing and reading operation to/from a data file. [HSEB 2066]

```c
#include<stdio.h>
#include<conio.h>
struct
 {
  int roll;
  char name[25];
  float mark;
  }std;
void main()
{
  int n,i;
  FILE *fp;
  fp=fopen("d:\\cprg\student.txt","wb");
  clrscr();
  printf("\n Enter how many records: ");
  scanf("%d",&n);
  printf("enter student number name and marks for %d students",n);
  for(i=0;i<n;i++)
  {
  scanf("%d%s%f",&std.roll,std.name,&std.mark);
  fwrite(&std,sizeof(std),1,fp);
  }
  fclose(fp);
  fp=fopen("d:\\cprg\student.txt","r");
  printf("\nRoll\tName\tMarks Obtained\n");
  while(fread(&std,sizeof(std),1,fp))
  printf("%d\t%s\t%f\n",std.roll,std.name,std.mark);
  fclose(fp);
  getch();
  }
```

11. Write a program to enter name, roll-number and marks of 10 students and store them in a file. [HSEB 2065]

```c
# winclude<stdio.h>
#include<conio.h>
struct
```

```c
 {
  int roll;
  char name[25];
  float mark;
  }std;
void main()
{
  int i;
  FILE *fp;
  fp=fopen("d:\\cprg\student.txt","wb");
  clrscr();
  printf("enter student roll number name and marks for 10 students");
  for(i=0;i<10;i++)
  {
  scanf("%d%s%f",&std.roll,std.name,&std.mark);
  fwrite(&std,sizeof(std),1,fp);
  }
  fclose(fp);

  getch();
  }
```

12.   Write a program to store std-no, name and mark of 'n' students in a data file. Display the records in appropriate format reading from the file. [HSEB 2066]

```c
#include<stdio.h>
#include<conio.h>
struct
 {
  int roll;
  char name[25];
  float mark;
  }std;
void main()
{
  int n,i;
  FILE *fp;
  fp=fopen("d:\\cprg\student.txt","w");
  clrscr();
  printf("\n Enter how many records: ");
  scanf("%d",&n);
  printf("enter student number name and marks for %d students",n);
  for(i=0;i<n;i++)
  {
  scanf("%d%s%f",&std.roll,std.name,&std.mark);
  fprintf(fp,"%d\t%s\t%f\n",std.roll,std.name,std.mark);
  }
  fclose(fp);
  fp=fopen("d:\\cprg\student.txt","r");
  printf("\nRoll\tName\tMarks Obtained\n");
  while(fscanf(fp,"%d%s%f",&std.roll,std.name,&std.mark)!=EOF)
  printf("%d\t%s\t%f\n",std.roll,std.name,std.mark);
  fclose(fp);
  getch();
```

```
        }
```

13. Write a program using C language that reads successive records from the new data file and display each record on the screen in an appropriate format. [HSEB 2061, 2062]

```c
#include<stdio.h>
#include<conio.h>
struct
 {
  int roll;
  char name[25];
  float mark;
  }std;
void main()
{
  int n,i;
  FILE *fp;
  fp=fopen("d:\\cprg\student.txt","wb");
  clrscr();
  printf("\n Enter how many records: ");
  scanf("%d",&n);
  printf("enter student number name and marks for %d students",n);
  for(i=0;i<n;i++)
  {
  scanf("%d%s%f",&std.roll,std.name,&std.mark);
  fwrite(&std,sizeof(std),1,fp);
  }
  fclose(fp);
  fp=fopen("d:\\cprg\student.txt","r");
  printf("\nRoll\tName\tMarks Obtained\n");
  while(fread(&std,sizeof(std),1,fp))
  printf("%d\t%s\t%f\n",std.roll,std.name,std.mark);
  fclose(fp);
  getch();
  }
```

14. Write a program to rename and delete a data file using rename and remove command. [HSEB 2064, 2067]
15. Write a program to open a new file and read roll-no, name, address and phone number of students until the user says "no", after reading the data, write it to the file then display the content of the file. [HSEB 2068]

```c
#include<stdio.h>
#include<conio.h>
struct
 {
  int roll;
  char name[25];
  char add[30];
  long phone;
  }std;
void main()
{
  char ch='y';
```

```c
FILE *fp;
fp=fopen("d:\\cprg\student.txt","w");
clrscr();
while(ch=='y' || ch=='Y')
{
printf("\n Enter roll number: ");
scanf("%d",&std.roll);
printf("\n Enter name: ");
scanf("%s",std.name);
printf("\n Enter address: ");
scanf("%s",std.add);
printf("\n Enter phone number: ");
scanf("%ld",&std.phone);
fprintf(fp,"%d\t%s\t%s\t%ld\n",std.roll,std.name,std.add,std.phone);
printf("DO you want to continue (Y/N)? ");
ch=getche();
}
fclose(fp);
fp=fopen("d:\\cprg\student.txt","r");
printf("\nRoll\tName\tAddress\tPhone\n");
while(fscanf(fp,"%d%s%s%ld",&std.roll,std.name,std.add,&std.phone)!=EOF)
printf("%d\t%s\t%s\t%ld\n",std.roll,std.name,std.add,std.phone);
fclose(fp);
getch();
}
```