Homework

Q1.

```
#include<stdio.h>
int main()
{
   int length,breadth;
   float area;
   printf("Enter the length of the rectangle: ");
   scanf("%d",&length);
   printf("Enter the breadth of the rectangle: ");
   scanf("%d",&breadth);
   area = length * breadth;
   printf("The area of the rectangle is: %.2f\n",area);
   return 0;
}
```

Q2.

```
#include<stdio.h>
int main()
{
   int length,breadth;
   float perimeter;
   printf("Enter the length of the rectangle: ");
   scanf("%d",&length);
   printf("Enter the breadth of the rectangle: ");
   scanf("%d",&breadth);
   perimeter = 2*(length+breadth);
   printf("The perimeter of the rectangle is: %.2f\n",perimeter);
   return 0;
}
```

Q3.

```
#include<stdio.h>
static const float PI =3.14;
int main()
{
   int radius;
   float area;
   printf("Enter the radius of the circle: ");
   scanf("%d",&radius);
   area = PI * radius * radius;
   printf("The area of the circle is: %.2f\n",area);
   return 0;
}
```

Q4.

```
#include<stdio.h>
float const PI=3.14;
int main()
{
   int radius;
   float circumference;
   printf("Enter the radius of the circle: ");
   scanf("%d",&radius);
   circumference =2*PI*radius;
   printf("The circumference of the circle is: %.2f\n",circumference);
   return 0;
}
```

Q5.

```
#include<stdio.h>
int main()
{
   int base, height;
```

```
    float area;
    printf("Enter the base of the triangle: ");
    scanf("%d",&base);
    printf("Enter the height of the triangle: ");
    scanf("%d",&height);
    area = 0.5*base*height;
    printf("The area of the triangle is: %.2f\n",area);
    return 0;
}
```

Q6.

```
#include<stdio.h>
int main()
{
    int p,t;
    float r,si;
    printf("Enter the principal amount: ");
    scanf("%d",&p);
    printf("Enter the rate of the interest: ");
    scanf("%f",&r);
    printf("Enter the time in years: ");
    scanf("%d",&t);
    si=(p*r*t)/100;
    printf("The simple interest is: %.2f\n",si);
    return 0;
}
```

Q7.

```
#include<stdio.h>
int main()
{
    float celsius,farenheit;
```

```
    printf("Enter the temperature in celsius: ");
    scanf("%f",&celsius);
    farenheit = (celsius*9/5)+32;
    printf("The temperature in farenheit is: %.2f\n",farenheit);
    return 0;
}
```

Q8.

```
#include<stdio.h>
int main()
{
    float farenheit,celsius;
    printf("Enter the Fahrenheit temperature: ");
    scanf("%f",&farenheit);
    celsius = (farenheit - 32) * 5/9;
    printf("The temperature in Celsius is: %.2f\n",celsius);
    return 0;
}
```

Q9.

```
#include<stdio.h>
int main()
{
    int side,volume;
    printf("Enter the side of the cube: ");
    scanf("%d",&side);
    volume = side * side * side;
    printf("The volume of the cube is: %d\n",volume);
    return 0;
}
```

Q10

```
//formula of volume of sphere is (4/3)*pi*r^3
#include<stdio.h>
#define PI 3.14
int main()
{
   int radius;
   float volume;
   printf("Enter the radius of the sphere: ");
   scanf("%d",&radius);
   volume = (4/3)*PI*radius*radius*radius;
   printf("The volume of the sphere is: %.2f\n",volume);
   return 0;
}
```

Q11.

```
#include<stdio.h>
int main()
{
   int a,b,c;
   float average;
   printf("ENter the first number: ");
   scanf("%d",&a);
   printf("Enter the second number: ");
   scanf("%d",&b);
   printf("Enter the third number: ");
   scanf("%d",&c);
   average = (a+b+c)/3.0;
   printf("The average of the three number is: %.2f\n",average);
   return 0;
}
```

Q12.

```
#include<stdio.h>
int main()
{
   float speed,time,distance;
   printf("Enter the distance in km: ");
   scanf("%f",&distance);
   printf("ENter the time in hr: ");
   scanf("%f",&time);
   speed = distance/time;
   printf("speed: %.2f km/hr",speed);
   return 0;
}
```

Q13.

```
//formula of finding kinetic energy : 0.5*m*v*v
#include<stdio.h>
int main()
{
   float mass,velocity,kineticEnergy;
   printf("Enter the mass in kg: ");
   scanf("%f",&mass);
   printf("Enter the velocity in m/s: ");
   scanf("%f",&velocity);
   kineticEnergy = 0.5*mass*velocity*velocity;
   printf("Kinetic Energy is: %.2f J",kineticEnergy);
   return 0;
}
```

Q15.

```
//formula for finding volume of a cyclinder is (PI*r*r*h)
```

```
#include<stdio.h>
float const PI = 3.14;
int main()
{
   float r,h,volume;
   printf("Enter the radius of the cylinder: ");
   scanf("%f",&r);
   printf("Enter the height of the cylinder: ");
   scanf("%f",&h);
   volume = PI*r*r*h;
   printf("Volume of the cylinder is: %.2f",volume);
   return 0;
}
```

Q16.

```
#include<stdio.h>
int main()
{
   int side;
   printf("Enter the side of the cube: ");
   scanf("%d",&side);
   int TSA = 6*side*side;
   printf("Total surface are of a cube is: %d",TSA);
   return 0;
}
```

Q17.

```
#include<stdio.h>
int main()
{
   int l1,l2,height,area;
   printf("Enter the first length of the parallel side of a trapezoid: ");
```

```
    scanf("%d",&l1);
    printf("Enter the second length of the parallel side of a trapezoid: ");
    scanf("%d",&l2);
    printf("Enter the height of the trapezoid: ");
    scanf("%d",&height);
    area = 0.5*(l1+l2)*height;
    printf("Area of the trapezoid: %d",area);
    return 0;
}
```

Q18.

```
#include<stdio.h>
#include<math.h>
int main()
{
    int p,b;
    float h;
    printf("Enter the base of the triangle: ");
    scanf("%d",&b);
    printf("Enter the perpendicular of the triangle: ");
    scanf("%d",&p);
    h = sqrt((b*b)+(p*p));
    printf("Hypotenuse = %.2f",h);
    return 0;
}
```

Q19.

```
#include<stdio.h>
int main()
{
    float voltage,current,power;
    printf("ENter voltage (V): ");
```

```
    scanf("%f",&voltage);
    printf("Enter current (A): ");
    scanf("%f",&current);
    power = voltage*current;
    printf("Electric power = %.2f",power);
    return 0;
}
```

Q20.

```
#include<stdio.h>
#include<stdlib.h>
int main()
{
    int a,b,c;
    printf("Enter the first number: ");
    scanf("%d",&a);
    printf("Enter the second number: ");
    scanf("%d",&b);
    printf("Enter the third number: ");
    scanf("%d",&c);
    int max_value = (a+b+abs(a-b))/2;
    max_value = (max_value+c+abs(max_value-c))/2;
    printf("%d is the greatest number.",max_value);
    return 0;
}
```

Q21.

```
#include<stdio.h>
int main()
{
    int a,b;
```

```
    printf("Enter the first number: ");
    scanf("%d",&a);
    printf("Enter the first number: ");
    scanf("%d",&b);
    if(a==b)
    {
        printf("a and b are equal.");
    }
    else{
        printf("a and b are not equal.");
    }
    return 0;
}
```

Q22.

```
#include<stdio.h>
int main()
{
    float percentage;
    printf("ENter the percentage obtained in 12th grade: ");
    scanf("%f",&percentage);
    if(percentage >= 65)
    {
        printf("You are eligible for the admission in the BTech CSE course");
    }
    else if(percentage >=50)
    {
        printf("You are eligible for the IT branch.");
    }
    else
```

```
    {
        printf("You are not eligilbe for the admission in the following college.");
    }
    return 0;

}
```

Q23.

```
#include<stdio.h>
int main()
{
    int customerId,units;
    char name[50];
    float bill;
    printf("Enter the customer Id: ");
    scanf("%d",&customerId);
    printf("Enter Customer Name: ");
    scanf("%s", name);
    printf("Enter used units: ");
    scanf("%d",&units);
    if(units<=199)
    {
        bill = 1.20 * units;
    }
    else if(units>=200&&units<=399)
    {
        bill = 5.20 * units;
    }
    else
    {
        bill = 7.20 * units;
```

```
    }
    printf("\nElectricity Bill\n");
    printf("Customer ID   : %d\n", customerId);
    printf("Customer Name : %s\n", name);
    printf("Units Consumed: %d\n", units);
    printf("Total Bill    : ₹%.2f\n", bill);
    return 0;
}
```

Q24.

```
#include <stdio.h>

int main() {
    int angle1, angle2, angle3;

    printf("Enter three angles of a triangle: ");
    scanf("%d %d %d", &angle1, &angle2, &angle3);

    if (angle1 + angle2 + angle3 == 180 && angle1 > 0 && angle2 > 0 && angle3 > 0)
        printf("The angles form a valid triangle.\n");
    else
        printf("The angles do NOT form a valid triangle.\n");

    return 0;
}
```

Q25.

```
#include <stdio.h>

int main() {
```

```
    int month;

    printf("Enter month number (1-12): ");
    scanf("%d", &month);

    switch(month) {
        case 1: case 3: case 5: case 7:
        case 8: case 10: case 12:
            printf("This month has 31 days.\n");
            break;

        case 4: case 6: case 9: case 11:
            printf("This month has 30 days.\n");
            break;

        case 2:
            printf("This month has 28 or 29 days (February).\n");
            break;

        default:
            printf("Invalid month number. Please enter between 1 and 12.\n");
    }

    return 0;
}
```

Q27.

```
#include<stdio.h>
int main()
{
    int num;
```

```
    printf("Enter number: ");
    scanf("%d",&num);
    if(num>0)
    {
        printf("Given Number is positive.");
    }
    else if(num<0)
    {
        printf("Given number is negative.");
    }
    else{
        printf("Given number is neither positive nor negative.");
    }
    return 0;
}
```

Q28.

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

```
}
```

Q29.

```
#include<stdio.h>
int main()
{
   int age;
   printf("Enter your age: ");
   scanf("%d",&age);
   if(age>=18)
   {
      printf("You are eligible for vote.");
   }
   else
   {
      printf("You are not eligible for the vote.");
   }
   return 0;
}
```

Q30.

```
#include<stdio.h>
int main()
{
   int m;
   printf("Enter number: ");
   scanf("%d",&m);
   if(m>0)
   {
      printf("1");
   }
   else if(m==0)
```

```
        printf("0");
    else
        printf("-1");
    return 0;
}
```

Q32.

```
#include<stdio.h>
int main()
{
    int a,b,c;
    printf("Enter first number: ");
    scanf("%d",&a);
    printf("Enter second number: ");
    scanf("%d",&b);
    printf("Enter third number: ");
    scanf("%d",&c);
    int max=(a>b)?a:b;
    max=(max>c)?max:c;
    printf("max value: %d",max);
    return 0;
}
```

Q39.

```
#include<stdio.h>
#include <stdbool.h>
int main()
{
    int age;
    float salary,loanAmtReq;
    bool existingLoan;
    //creditScore;
```

```
    printf("Enter your age: ");
    scanf("%d",&age);
    printf("Enter your salary: ");
    scanf("%f",&salary);
    printf("Enter Amount of loan required: ");
    scanf("%f",&loanAmtReq);
    printf("Do you have an existing loan: (0--> NO/1--> YES)");
    scanf("%d",&existingLoan);
    if(age>21&&age<60&&salary>=20000&&loanAmtReq<(20*salary)&&existingLoan==0)
    {
        printf("Eligible for loan\n");
    }
    else{
        printf("Not eligible for loan\n");
    }
    return 0;
}
```

Q41.

```
#include<stdio.h>
int main()
{
    int num,factorial=1;

    printf("Enter the positive number: ");
    scanf("%d",&num);
    int temp=num;
    if(num>=0)
    {
        while(num>0)
```

```
        {
            factorial *= num;
            --num;
        }
        printf("Factorial of %d is: %d",temp,factorial);
    }
    else{
        printf("Factorial not defined for negative numbers.");
    }
    return 0;
}
```

Q42.

```
#include<stdio.h>
int main()
{
    int num,digit,rev=0;
    printf("ENter your number: ");
    scanf("%d",&num);
    int temp=num;
    while(num>0)
    {
        digit=num%10;
        rev=rev*10+digit;
        num=num/10;
    }
    printf("reversed number of %d id %d",temp,rev);
    return 0;
}
```

Q43.

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

Q44.

```
#include<stdio.h>
int main()
{
   int n,a=-1,b=1,fibonacci=0;
   printf("give the value of n: ");
   scanf("%d",&n);
   int count=0;
   while(count<n)
   {
      fibonacci = a+b;
      a=b;
      b=fibonacci;
      printf("\n %d",fibonacci);
```

```
        ++count;
    }
    return 0;
}
```

Q45.

```
#include<stdio.h>
int main()
{
    int a,b,GCD=1;
    printf(" enter the two value for finding out the GCD : ");
    scanf("%d %d", &a, &b);
    int min=(a<b)?a:b;
    for(int i=1;i<=min;i++)
    {
        if(a%i==0&&b%i==0)
        {
            GCD = i;
        }
    }
    printf("HCF of %d and %d is %d",a,b,GCD);
    return 0;
}
```

Q47.

```
#include <stdio.h>

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

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

    return 0;
}
```

Q48.

```
#include <stdio.h>

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

    for (i = 1; i <= n; i++)
    {
        for (j = 1; j <= i; j++)
        {
            printf("%d ", j);
        }
        printf("\n");
    }
```

```
    return 0;
}
```

Q49.

```
#include <stdio.h>

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

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

    return 0;
}
```

Q50

```
#include <stdio.h>

int main()
```

```
{
    int i, j, space, n;
    printf("Enter number of rows: ");
    scanf("%d", &n);

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

    return 0;
}
```

Q51.

```
#include <stdio.h>

int main()
{
    int i, j, space, n;
    printf("Enter number of rows (half of diamond): ");
    scanf("%d", &n);
```

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

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

    return 0;
}
```

Q52.

```
#include <stdio.h>

int main()
{
    int i, j, n, num = 1;
    printf("Enter number of rows: ");
    scanf("%d", &n);

    for (i = 1; i <= n; i++)
    {
        for (j = 1; j <= i; j++)
        {
            printf("%d ", num);
            num++;
        }
        printf("\n");
    }

    return 0;
}
```

Q54.

```
#include <stdio.h>

int main()
{
    int n, i, j;
    printf("Enter size of square: ");
    scanf("%d", &n);
```

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

    return 0;
}
```

Q55.

```
#include <stdio.h>

int main()
{
    int n, i, j;
    printf("Enter size of square: ");
    scanf("%d", &n);

    for (i = 1; i <= n; i++)
    {
        for (j = 1; j <= n; j++)
        {
            if (i == 1 || i == n || j == 1 || j == n)
            {
                printf("* ");
            }
```

```
            else
            {
                printf("  ");
            }
        }
        printf("\n");
    }

    return 0;
}
```

Q57.

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

int main()
{
    int num, original, rem, digits = 0, result = 0;

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

    original = num;

    int temp = num;
    while (temp != 0)
    {
        digits++;
        temp /= 10;
```

```
    }

    temp = num;
    while (temp != 0)
    {
        rem = temp % 10;
        result += pow(rem, digits);
        temp /= 10;
    }

    if (result == original)
    {
        printf("%d is an Armstrong number.\n", original);
    }
    else
    {
        printf("%d is not an Armstrong number.\n", original);
    }

    return 0;
}
```

Q75.

```
#include<stdio.h>
int main()
{
    int size,i,j,max,min;
    printf("Enter the size of an array: ");
    scanf("%d",&size);
    int arr[size];
```

```
    for(i=0;i<size;i++)
    {
        printf("value= ");
        scanf("%d",&arr[i]);
    }
    max=arr[0];
    min=arr[0];
    for(i=0;i<size;i++)
    {
        if(arr[i]>max)
        {
            max=arr[i];
        }
        else if(arr[i]<min)
        {
            min=arr[i];
        }
    }
    printf("max= %d\n",max);
    printf("Min = %d\n",min);
    return 0;
}
```

Q76.

```
#include<stdio.h>
int main()
{
    int size,i,search,ch,temp;
    printf("enter the size of an array: ");
    scanf("%d",&size);
```

```
    int arr[size];
    for(i=0;i<size;i++)
    {
       printf("value= ");
       scanf("%d",&arr[i]);
    }
    printf("Enter the value which you want to search: ");
    scanf("%d",&search);
    for(i=0;i<size;i++)
    {
       if(search==arr[i])
       {
          printf("Element found at index %d. Do you want to update it? Press 1: ", i);
          scanf("%d",&ch);
          if(ch==1)
          {
             printf("enter new value= ");
             scanf("%d",&temp);
             arr[i]=temp;
          }
       }
    }
    for(i=0;i<size;i++)
    {
       printf("%d\n",arr[i]);
    }
    return 0;

}
```

Q77.

```
#include<stdio.h>
int main()
{
   int size,i,left,right,temp;
   printf("Enter the size of array: ");
   scanf("%d",&size);
   int arr[size];
   for(i=0;i<size;i++)
   {
      printf("value= ");
      scanf("%d",&arr[i]);
   }
   left=0;
   right=size-1;
   while(left<right)
   {
      temp=arr[left];
      arr[left]=arr[right];
      arr[right]=temp;
      ++left;
      --right;
   }
   printf("Reversed array: ");
   for(i=0;i<size;i++)
   {
      printf("%d\n",arr[i]);
   }
   return 0;
}
```

Q78.

```
#include<stdio.h>
int main()
{
   int size,i;
   printf("enter the size of an array: ");
   scanf("%d",&size);
   int arr1[size];
   int arr2[size];
   for(i=0;i<size;i++)
   {
      printf("value= ");
      scanf("%d",&arr1[i]);
   }
   printf("copying array element.....\n ");
   for(i=0;i<size;i++)
   {
      arr2[i] =arr1[i];
   }
   printf("printing copied array: ");
   for(i=0;i<size;i++)
   {
      printf("%d\n",arr2[i]);
   }
   return 0;
}
```

Q79.

```
#include<stdio.h>
int main()
{
```

```
    int size,i,even=0,odd=0;
    printf("enter the size of an array: ");
    scanf("%d",&size);
    int arr1[size];
    for(i=0;i<size;i++)
    {
        printf("value= ");
        scanf("%d",&arr1[i]);
    }
    for(i=0;i<size;i++)
    {
        if(arr1[i]%2==0)
        {
            even++;
        }
        else{
            odd++;
        }
    }
    printf("even numbers in an array is: %d\n",even);
    printf("odd number in an array is: %d",odd);
    return 0;
}
```

Q80.

```
#include<stdio.h>
int main()
{
    int size,i,positive=0,negative=0,zero=0;
    printf("enter the size of an array: ");
```

```
    scanf("%d",&size);
    int arr1[size];
    for(i=0;i<size;i++)
    {
        printf("value= ");
        scanf("%d",&arr1[i]);
    }
    for(i=0;i<size;i++)
    {
        if(arr1[i]==0)
        {
            zero++;
        }
        else if(arr1[i]>0)
        {
            positive++;
        }
        else if(arr1[i]<0)
        {
            negative++;
        }
    }
    printf("positive numbers in an array is: %d\n",positive);
    printf("negative number in an array is: %d\n",negative);
    printf("zero number in an array is: %d\n",zero);
    return 0;
}
```

Q81.

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

```
int main()
{
   int size,i,va,sp;
   printf("enter the size of an array: ");
   scanf("%d",&size);
   int arr1[size];
   for(i=0;i<size;i++)
   {
      printf("value= ");
      scanf("%d",&arr1[i]);
   }
   printf("enter the specific position where you want to insert element: ");
   scanf("%d",&sp);
   printf("enter the value: ");
   scanf("%d",&va);
   arr1[sp]=va;
   printf("updated value:  ");
   for(i=0;i<size;i++)
   {
      printf("%d\n",arr1[i]);
   }

   return 0;
}
```

Q82.

```
#include<stdio.h>
int main()
{
   int size,i,j,temp;
   printf("enter the size of an array: ");
```

```
    scanf("%d",&size);
    int arr1[size];
    for(i=0;i<size;i++)
    {
       printf("value= ");
       scanf("%d",&arr1[i]);
    }
    for(i=0;i<size-1;i++)
    {
       for(j=0;j<size-i-1;j++)
       {
          if(arr1[j]>arr1[j+1])
          {
             temp=arr1[j];
             arr1[j]=arr1[j+1];
             arr1[j+1]=temp;
          }
       }
    }
    printf("sorted value:  ");
    for(i=0;i<size;i++)
    {
       printf("%d\n",arr1[i]);
    }

    return 0;
}
```

Q83.

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

```
int main()
{
    int size, i, j, minIndex, temp;

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

    int arr[size];

    for (i = 0; i < size; i++)
    {
        printf("Enter value %d: ", i + 1);
        scanf("%d", &arr[i]);
    }

    for (i = 0; i < size - 1; i++)
    {
        minIndex = i;
        for (j = i + 1; j < size; j++)
        {
            if (arr[j] < arr[minIndex])
            {
                minIndex = j;
            }
        }

        if (minIndex != i)
        {
            temp = arr[i];
            arr[i] = arr[minIndex];
```

```
            arr[minIndex] = temp;
        }
    }

    printf("\nSorted array (ascending order):\n");
    for (i = 0; i < size; i++)
    {
        printf("%d\n", arr[i]);
    }

    return 0;
}
```

Q86.

```
#include <stdio.h>

int main() {
    int size1, size2, i, j, k;

    printf("Enter size of first sorted array: ");
    scanf("%d", &size1);
    int arr1[size1];
    for (i = 0; i < size1; i++)
    {
        printf("Enter element %d: ", i + 1);
        scanf("%d", &arr1[i]);
    }

    printf("Enter size of second sorted array: ");
    scanf("%d", &size2);
```

```
int arr2[size2];
for (i = 0; i < size2; i++)
{
   printf("Enter element %d: ", i + 1);
   scanf("%d", &arr2[i]);
}

int merged[size1 + size2];
i = j = k = 0;

while (i < size1 && j < size2)
{
   if (arr1[i] < arr2[j])
   {
      merged[k++] = arr1[i++];
   } else
   {
      merged[k++] = arr2[j++];
   }
}

while (i < size1)
{
   merged[k++] = arr1[i++];
}

while (j < size2)
{
   merged[k++] = arr2[j++];
}
```

```
    printf("\nMerged sorted array:\n");
    for (i = 0; i < size1 + size2; i++)
    {
        printf("%d\n", merged[i]);
    }

    return 0;c
}
```

Q87.

```
#include <stdio.h>

int main()
{
    int size, i, delValue, pos = -1;

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

    int arr[size];

    for (i = 0; i < size; i++)
    {
        printf("Enter value %d: ", i + 1);
        scanf("%d", &arr[i]);
    }

    printf("Enter value to delete: ");
    scanf("%d", &delValue);
```

```
    for (i = 0; i < size; i++)
    {
        if (arr[i] == delValue)
        {
            pos = i;
            break;
        }
    }

    if (pos == -1)
    {
        printf("Element not found.\n");
    } else
    {
        for (i = pos; i < size - 1; i++)
        {
            arr[i] = arr[i + 1];
        }
        size--;

        printf("Array after deletion:\n");
        for (i = 0; i < size; i++)
        {
            printf("%d\n", arr[i]);
        }
    }

    return 0;
}
```

Q88.

```
#include <stdio.h>

int main()
{
    int n, i, j, k;

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

    int arr[n];

    for (i = 0; i < n; i++)
    {
        printf("Enter value %d: ", i + 1);
        scanf("%d", &arr[i]);
    }

    for (i = 0; i < n; i++)
    {
        for (j = i + 1; j < n; j++)
        {
            if (arr[i] == arr[j])
            {
                for (k = j; k < n - 1; k++)
                {
                    arr[k] = arr[k + 1];
                }
                n--;
```

```
            j--;
        }
    }
}

printf("Array after removing duplicates:\n");
for (i = 0; i < n; i++)
{
    printf("%d\n", arr[i]);
}

return 0;
}
```

Q89.

```
#include <stdio.h>

int main()
{
    int n, i, j, count;

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

    int arr[n], visited[n];

    for (i = 0; i < n; i++)
    {
        printf("Enter value %d: ", i + 1);
        scanf("%d", &arr[i]);
```

```
        visited[i] = 0;
    }

    for (i = 0; i < n; i++)
    {
        if (visited[i] == 1)
        {
            continue;
        }

        count = 1;
        for (j = i + 1; j < n; j++)
        {
            if (arr[i] == arr[j])
            {
                count++;
                visited[j] = 1;
            }
        }

        printf("%d occurs %d times\n", arr[i], count);
    }

    return 0;
}
```

Q90.

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

```
int main()
{
    int n, i, first, second;

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

    if (n < 2)
    {
        printf("Need at least two elements.\n");
        return 0;
    }

    int arr[n];

    for (i = 0; i < n; i++)
    {
        printf("Enter value %d: ", i + 1);
        scanf("%d", &arr[i]);
    }

    if (arr[0] > arr[1])
    {
        first = arr[0];
        second = arr[1];
    }
    else
    {
        first = arr[1];
        second = arr[0];
```

```
    }

    for (i = 2; i < n; i++)
    {
        if (arr[i] > first)
        {
            second = first;
            first = arr[i];
        }
        else if (arr[i] > second && arr[i] != first)
        {
            second = arr[i];
        }
    }

    if (first == second)
    {
        printf("All elements are same or no second largest.\n");
    }
    else
    {
        printf("Second largest element is: %d\n", second);
    }

    return 0;
}
```

Q91.

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

```
int main()
{
    int n, i, first, second;

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

    if (n < 2)
    {
        printf("Need at least two elements.\n");
        return 0;
    }

    int arr[n];

    for (i = 0; i < n; i++)
    {
        printf("Enter value %d: ", i + 1);
        scanf("%d", &arr[i]);
    }

    if (arr[0] < arr[1])
    {
        first = arr[0];
        second = arr[1];
    }
    else
    {
        first = arr[1];
```

```
        second = arr[0];
    }

    for (i = 2; i < n; i++)
    {
        if (arr[i] < first)
        {
            second = first;
            first = arr[i];
        }
        else if (arr[i] < second && arr[i] != first)
        {
            second = arr[i];
        }
    }

    if (first == second)
    {
        printf("All elements are same or no second smallest.\n");
    }
    else
    {
        printf("Second smallest element is: %d\n", second);
    }

    return 0;
}
```

Qstopwatch

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

```
#include <conio.h>
#include <dos.h>

int main() {
    int h = 0, m = 0, s = 0;
    while (!kbhit()) {
        system("cls");
        printf("Time: %02d:%02d:%02d\n", h, m, s);
        printf("Press any key to stop...\n");

        delay(1000);
        s++;

        if (s == 60) {
            s = 0;
            m++;
        }
        if (m == 60) {
            m = 0;
            h++;
        }
    }

    getch();
    printf("\nStopwatch stopped at %02d:%02d:%02d\n", h, m, s);

    return 0;
}
```