100 MOST IMPORTANT C++ PROGRAMS

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81. Write a C++ Program and Algorithm for Selection Sort.

82. Write a C++ Program and Algorithm for Insertion Sort

83. Write a C++ Program to convert a lowercase alphabet to uppercase or vice-versa.

84. Write a C++ Program to print three numbers in descending order

85. Write C++ Program to find whether a square matrix is a) symmetric b) skew symmetric c) none of two.

86. Write a C++ Program to calculate roots of quadratic equation ax^2+bx+c=0

87. Write a C++ Program to find quotient and remainder of two numbers.

88. Write a C++ Program to Find LCM and HCF of two numbers

89. Write a c++ Program to accept a number and check the given number is Armstrong or not.

90. Write C++ Program to Count Occurrence of a Word in a Text File

91. Write C++ Program to Count no. of alphabates, digits and spaces present in a file test.TXT

90. Write C++ Program to read from a text file and than write in another text file.

91. Write C++ Program to Count Number of Words, Lines and Total Size of a Text File

92. Write C++ Program to Remove Spaces from String

93. Write C++ program for overloading binary operators, addition, subtraction, multiplication, division and comparison

94. Write C++ program to swap two numbers using class

95. Write C++ program to add, subtract, multiply and divide two complex numbers using structures.

96. Write C++ Program to Compare Two Strings Using Pointers

99. Write C++ program to perform a PUSH operation on a dynamically allocated stack

100. Write C++ Program for Linked List Representation of Linear Queue

Note: All Above programs are compiled and executed with compiler Dev-c++ 5.3.0.4.

1. Write a simple program to print your name, class.

```
#include <iostream>
 using namespace std;
int main()
{
 cout << "My name is Bakran Ajas" << endl;
 cout << "Class: 11-B ." << endl;
 return 0;
}
```

2. Write C++ program to calculate sum of two numbers

```
#include<iostream>
using namespace std;
int main()
{
int sum,a,b;
cout<<"Enter value of a:"<<endl;
cin>>a;
cout<<"Enter value of b:"<<endl;
cin>>b;
cout<<"The sum of a and b is "<<(a+b);
return 0;
}
```

3. Write C++ Program to print your name 100 times.

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{

 int i;
 for(i=1;i<=100;++i)
  cout<<"Your Name"<<"\n";
 return 0;
}
```

4. Write C++ program to swap two numbers using macros

```
#include<iostream>
#include<conio.h>
#define SWAP(a,b) {int temp; temp=a; a=b; b=temp;}
using namespace std;
int main()
{
 int x,y;
 cout<<"Enter two numbers:";
 cin>>x>>y;
  cout<<"x="<<x<<" y="<<y;
 SWAP(x,y);
 cout<<"\nx="<<x<<" y="<<y;
 return 0;
}
```

5. Write C++ Program To Accept Student Roll No, Marks in 3 Subjects and Calculate Total, Average and Print it.

```
# include <stdio.h>
#include<iostream>
# include <conio.h>
using namespace std;
int main()

{
int r,b,c,d, tot, avg;
cout<<"ENTER STUDENT ROLL NO ; "<<endl;
cin>>r;
cout<<"ENTER FIRST SUBJECT MARKS ;"<<endl;
cin>>b;
cout<<"ENTER SECOND SUBJECT MARKS;"<<endl;
cin>>c;
cout<<"ENTER THIRD SUBJECT MARKS ;"<<endl;
cin>>d;
tot=b+c+d;
avg=tot/3;
cout<<"\n\n\t\t Lovely Professional University \n\n";
cout<<"\t STUDENT RNO :"<<r<<endl;
cout<<"\t FIRST SUBJECT MARKS :"<<b<<endl;
cout<<"\t SECOND SUBJECT MARKS :"<<c<<endl;
cout<<"\t THIRD SUBJECT MARKS :"<<d<<endl;
cout<<"\t AVERAGE MARKS :"<<avg<<endl;
```

```
return 0;
}
```

6. Write C++ Program to Read Three Numbers And Print The Biggest Of Given Three Numbers

```
# include <stdio.h>
#include<iostream>
# include <conio.h>
using namespace std;
int main( )
{
int a,b,c,big=0;
cout<<"ENTER VALUE FOR A:";
cin>>a;
cout<<"ENTER VALUE FOR B:";
cin>>b;
cout<<"ENTER VALUE FOR C:";
cin>>c;
if (a>big)
big=a ;
if(b>big)
big=b;
if (c>big)
big=c;
cout<<"BIGGEST OF ABOVE GIVEN THREE NUMBER IS "<<big;
return 0;
}
```

7. Write C++ Program to print numeric pyramid

```
# include <stdio.h>
#include<iostream>
# include <conio.h>
using namespace std;
main()
{
int i,j;
for(i=1;i<=5;i++)
{
for(j=1;j<=i;j++)
cout<<j;
cout<<"\n";
}
return 0;
}
```

8. Write C++ Program to convert binary number to decimal number

```
#include<iostream>
#include<conio.h>
#include<math.h>
using namespace std;
int main()
{
 unsigned long i,n,num=0,d;
 cout<<"Enter any Binary number:";
 cin>>n;
 cout<<"\nThe Decimal conversion of "<<n<<" is ";
 for(i=0;n!=0;++i)
 {
  d=n%10;
  num=(d)*(pow(2,i))+num;
  n=n/10;
 }
 cout<<num;
 return 0;
}
```

9. Write C++ Program to convert a decimal number to binary number

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{
 int d,n,i,j,a[50];
 cout<<"Enter a number:";
 cin>>n; cout<<"\nThe binary conversion of "<<n<<" is 1";
 for(i=1;n!=1;++i)
 {
  d=n%2;
  a[i]=d;
  n=n/2;
 }
 for(j=i-1;j>0;--j)
 cout<<a[j];
 return 0;
}
```

10. Write program to display number in hexadecimal form

```
#include <iostream.h>
int main()
{
 int x;
 cout << Enter an integer:" << endl;
 cin >> x;
 // hex keyword displays a number in hexadecimal form.
 cout << "x=" << hex << x << endl;
 cin.get();
 return 0;
}
```

11. Write a program to swap to numbers using a third variable called temp.

```
#include <iostream.h>
  int main()
{
 int a = 40;
 int b = 20;
int temp;
 cout << "Value of a (before swap): " << a << endl;
 cout << "Value of b (before swap): " << b << endl;
temp=a;
a=b;
b=temp;
cout << "Value of a (after swap): " << a << endl;
cout << "Value of b (after swap): " << b << endl;
 return 0;
}
```

12. Write a c++ Program to print ODD numbers from 1 to 10

```
# include <iostream>
using namespace std;
int main( )
{
int i;
for (i=1; i<=10; i+=2)
cout<<i<<" ";
return 0;
}
```

13. Write a c++ Program to print natural numbers from 1 to 10 in Reverse

```
 # include <iostream>
 using namespace std;
int main( )
{
int i;
for (i=10; i>=1; i--)
cout<<i<<" ";
return 0;
}
```

14. Write a c++ Program to accept a string in any case and print it by another case.

```
 # include <iostream>
 #include<conio.h>
 #include<stdio.h>
using namespace std;
int main( )
{
char ch;
cout<<"enter a string :";
while(( ch=getchar( ))!='\n')
{
if(ch>='A' && ch<='Z')
putchar(ch+32);
else
if(ch>='a' && ch<='z')
putchar(ch-32);
else
putchar(ch);
}
cout<<"is the string";
return 0;
}
```

15. Write C++ Program to check whether a given number is perfect or not.

```
# include <stdio.h>
#include<iostream>
# include <conio.h>
using namespace std;
int main( )
{
int i,n,s=0;
cout<<"enter the number";
cin>>n;
for(i=1;i<n/2;i++)
if(n%i==0)
s+=i;
if(s==n)
cout<<"the number is perfect no";
else
cout<<"the number is not perfect ";
return 0;
}
```

16. Write C++ Program to print table of any number

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{
 int i,n;
 cout<<"Enter number for which you want to generate table:";
 cin>>n;
 cout<<"\n\n";
 for(i=1;i<=10;++i)
  cout<<"\t"<<n<<"*"<<i<<"="<<n*i<<"\n";
 return 0;
}
```

17. Write C++ Program to read ‘n’ number and print them in matrix terms in all orders.

```
# include <stdio.h>
#include<iostream>
# include <conio.h>
using namespace std;
int main( )
{
int i,n,c,p,q,r,k,a[20];
cout<<"enter the array size";
cin>>n;
cout<<"enter the elements";
for(i=1;i<=n;i++)
cin>>a[i];
i=1;
while(i<=n)
{
if(n%i==0)
{
r=i;
c=n/i;
k=1;
for(p=1;p<=r;p++)
{
for(q=1;q<=c;q++)
cout<<a[k++];
```

```
cout<<"\n";
}
i++;
return 0;
}
}
}
```

18. Write C++ Program to accept two numbers and print the sum of given two numbers by using pointers

```
# include <stdio.h>
#include<iostream>
# include <conio.h>
using namespace std;
int main( )
{
int a, b,c;
a=10;
b=20;
c=*(&a)+*(&b);
cout<<c;
return 0;
}
```

19. Write a c++ Program to accept a string in upper case and print it by lower case.

```
# include <stdio.h>
# include <conio.h>
# include <iostream>
 using namespace std;
int main( )
{
char ch,c;
cout<<"enter a string in upper case:";
while(( ch=getchar( ))!='\n')
{
c=ch+32;
putchar(c);
}
cout<<" is in lower case";
return 0;
}
```

20. Write a c++ Program to accept any single digit number and print it in words.

```
# include <stdio.h>
# include <conio.h>
# include <iostream>
using namespace std;
int main( )
{
int n;
cout<<"enter a number :";
cin>>n;
switch(n)
{
case 0: cout<<"ZERO";
break;
case 1: cout<<"ONE";
break;
case 2: cout<<"TWO";
break;
case 3: cout<<"THREE";
break;
case 4: cout<<"FOUR";
break;
case 5: cout<<"FIVE";
break;
case 6: cout<<"SIX";
```

```
break;
case 7: cout<<"SEVEN";
break;
case 8: cout<<"EIGHT";
break;
case 9cout<<"NINE";
break;
default:
cout<<"please enter the number between 0  and 9";
}
return 0;
}
```

21. Write C++ program to reverse a number

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{
 long n,rev=0,d;
 cout<<"Enter the number:";
 cin>>n;
 while(n!=0)
 {
  d=n%10;
  rev=(rev*10)+d;
  n=n/10;
 }
 cout<<"The reversed number is "<<rev;
return 0;
}
```

22. Write C++ program to find largest number of a list of numbers entered through keyboard

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{
 int i,n,x,large=0;
 cout<<"How many numbers?";
 cin>>n;
 for(i=0;i<n;++i)
 {
  cout<<"\nEnter number "<<i+1<<":";
  cin>>x;
  if(x>large)
   large=x;
 }
 cout<<"\n\nThe largest number is "<<large;
 return 0;
}
```

23. Write C++ Program to calculate and print the sum of even and odd integers of the first n natural numbers.

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{
 int n,i,sumeven=0,sumodd=0;
 cout<<"Enter value of n:";
 cin>>n;
  for(i=1;i<=n;++i)
 {
  if(i%2==0)
   sumeven+=i;
  else
   sumodd+=i;
 }
 cout<<"\nSum of even Numbers is "<<sumeven;
 cout<<"\nSUm of odd Numbers is "<<sumodd;
 return 0;
}
```

24. Write C++ Program to find area of a triangle when there sides are given.

```
# include <stdio.h>
#include<iostream>
# include <conio.h>
#include<math.h>
using namespace std;
int main( )
{
int a,b,c;
float s, area;
cout<<"enter there sides of the triangle";
cin>>a>>b>>c;
if((a+b)<c||(b+c)<a||(a+c)<b)
cout<<"finding area is not possible";
else
s=(a+b+c)/2;
area=sqrt(s*(s-a)*(s-b)*(s-c));
cout<<"area="<<area;
return 0;
}
```

25. Write C++ Program to find whether a number is divisible by ‘11’ or not without actual division.

```
#include<stdio.h>
#include<conio.h>
#include<iostream>
#include<math.h>
using namespace std;
int main( )
{
int a,b,n,evensum=0,oddsum=0,div;
cout<<"enter a number";
cin>>n;
a=n;
b=n/10;
while(a>0)
{
oddsum=oddsum+(a%10);
a=a/10;
}
while(b>0)
{
evensum=evensum+(b%10);
b=b/10;
}
div=abs(evensum-oddsum);
if(div%11==0)
```

```
cout<<"The number is divisible by 11";
else
cout<<"The number is not divisible by 11";
return 0; }
```

26. Write C++ Program to check whether a number is prime number or not

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{
 int n,i,flag=1;
 cout<<"Enter any number:";
 cin>>n;
 for(i=2;i<=n/2;++i)
 {
  if(n%i==0)
  {
   flag=0;
   break;
  }
 }
 if(flag)
  cout<<"\n"<<n<<" is a Prime number";
 else
  cout<<"\n"<<n<<" is not a Prime number";
return 0;
}
```

27. Write C++ Program to print following series using function: x + x^3/3! + x^5/5! +.....+ x^n/n!

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{
 int x,n;
 double sum(int,int);
 double res;
  cout<<"x + x^3/3! + x^5/5! +.....+ x^n/n!";
 cout<<"\n\nEnter value of x and n:";
 cin>>x>>n;
 res=sum(x,n);
 cout<<"\nSum of series is "<<res;
 getch();
}
double sum(int a,int b)
{
 long power(int,int);
 int i,j;
 double s=0,fac=1;
 long p;
  for(i=1;i<=b;i+=2)
 {
  p=power(a,i);
```

```
  for(j=1;j<=i;++j)
  {
   fac*=j;
  }
  s+=p/fac;
  fac=1;
 }
 return(s);
}
long power(int x,int i)
{
 long res=1,j;
 for(j=1;j<=i;++j)
 {
  res*=x;
 }
 return(res);
}
```

28. Write C++ program to find sum of series 1 + 2 + 3 +.....+ n

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{
   int i,n,sum=0;
   cout<<"1+2+3+.....+n";
   cout<<"\nEnter the value of n:";
   cin>>n;
   for(i=1;i<=n;++i)
                sum+=i;
   cout<<"\nSum="<<sum;
   return 0;
}
```

29. Write C++ program to find sum of series 1/2+4/5+7/8+.....

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{
 int i,n;
 float sum=0,x,a=1;
 cout<<"1/2+4/5+7/8+.....";
 cout<<"\n\nHow many terms(ex: 1,2,3...n)?";
 cin>>n;


 for(i=0;i<n;++i)
 {
  x=a/(a+1);
  sum+=x;
  a+=3;
 }
 cout<<"\nSum="<<sum;
 return 0;
}
```

30. Write C++ program to find sum of series 1+x+x^2+.....+x^n

```
#include<iostream>
#include<conio.h>
#include<math.h>
using namespace std;
int main()
{
 long i,n,x,sum=1;
 cout<<"1+x+x^2+.....+x^n";
 cout<<"\n\nEnter the value of x and n:";
 cin>>x>>n;
 for(i=1;i<=n;++i)
  sum+=pow(x,i);
 cout<<"\nSum="<<sum;
return 0;
}
```

31.Write C++ program to find sum of series 1^2+3^2+5^2+.....+n^2.

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{
 int n,i;
 long sum=0;
 cout<<"1^2+3^2+5^2+.....+n^2\n\n  Enter Value of n:";
 cin>>n;
 for(i=1;i<=n;i+=2)
  sum+=(i*i);
 cout<<"\n Sum of given series is "<<sum;
 return 0;
}
```

32.Write C++ Program to print given series:1 2 4 8 16 32 64 128

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{
 int i;
 for(i=1;i<=128;i*=2)
  cout<<i<<" ";
 return 0;
}
```

33.Write C++ Program to Print following series: 1 -4 7 -10.....-40

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{
 int i,a=-1,b;
 for(i=1;i<=40;i+=3)
 {
      a*=-1;
      b=i;
      b*=a;
      cout<<b<<" ";
 }
 return 0;
}
```

34.Write C++ program to swap values of two variables using pass by reference method

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{
   int a,b;
   void swap(int &,int &);
   cout<<"Enter two values:";
   cin>>a>>b;
   cout<<"\nBefor swapping:\na="<<a<<"\tb="<<b;
   swap(a,b);
   cout<<"\n\nAfter swapping:\na="<<a<<"\tb="<<b;
   return 0;
}
void swap(int & x,int & y)
{
   int temp;
   temp=x;
   x=y;
   y=temp;
}
```

35. Write C++ program to print truth table of XY+Z.

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{
        int x,y,z;
        cout<<"X\tY\tZ\tXY+Z";
        for(x=0;x<=1;++x)
        for(y=0;y<=1;++y)
        for(z=0;z<=1;++z)
        {
                if(x*y+z==2)
                        cout<<"\n\n"<<x<<"\t"<<y<<"\t"<<z<<"\t1";
                else
                        cout<<"\n\n"<<x<<"\t"<<y<<"\t"<<z<<"\t"
<<x*y+z;
        }
   return 0;
}
```

36.Write C++ Program to find First three Pythagorian Triplet.

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{
        int x,y,z;
        cout<<"X\tY\tZ\tXY+Z";
        for(x=0;x<=1;++x)
        for(y=0;y<=1;++y)
        for(z=0;z<=1;++z)
        {
                if(x*y+z==2)
                        cout<<"\n\n"<<x<<"\t"<<y<<"\t"<<z<<"\t1";
                else
                        cout<<"\n\n"<<x<<"\t"<<y<<"\t"<<z<<"\t"
<<x*y+z;
        }
   return 0;
}
```

37.Write C++ Program to Check Whether a Number is Unique Number or Not

```
#include<iostream>
#include<stdlib.h>
using namespace std;
int main()
{
    long num;
    char str[10];
    int a[10]={0},flag=1,i=0;
    cout<<"Enter any number:";
    cin>>num;
    itoa(num,str,10);   //convert number to character array
    while(str[i]!='\0')
    {
        switch(str[i])
        {
            case '0': a[0]++;
                      break;
            case '1': a[1]++;
                      break;
            case '2': a[2]++;
                      break;
            case '3': a[3]++;
                      break;
            case '4': a[4]++;
```

```
                break;
        case '5': a[5]++;
                break;
        case '6': a[6]++;
                break;
        case '7': a[7]++;
                break;
        case '8': a[8]++;
                break;
        case '9': a[9]++;
                break;
    }
    i++;
}

for(i=0;i<10;i++)
{
    if(a[i]>1)
    {
        flag=0;
        break;
    }
}

if(flag)
    cout<<"\nNumber is Unique";
else
```

```
        cout<<"\nNumber is Not Unique";

    return 0;

}
```

38.Write a program to swap to numbers without using a third variable

```
#include <iostream.h>
int main()
{
 int a = 80;
 int b = 20;
 cout << "Value of a (before swap): " << a << endl;
 cout << "Value of b (before swap): " << b << endl;
 a = a + b;
 b = a - b;
 a = a - b;
 cout << "Value of a (after swap): " << a << endl;
 cout << "Value of b (after swap): " << b << endl;
 cin.get();
 return 0;
}
```

39.Write C++ program to calculate area of a circle,a rectangle or a triangle depending upon user's choice

```
#include<iostream>
#include<conio.h>
#include<math.h>
using namespace std;
int main()
{
    float a,b,c,s,r,area;
    int ch;
    cout<<"***Menu***\n1.Area of circle\n2.Area of Rectangle";
    cout<<"\n3.Area of triangle\nEnter your choice:";
    cin>>ch;

    switch(ch)
    {
        case 1:
        {
            cout<<"\nEnter radius of the circle:";
            cin>>r;
            area=3.14*r*r;
            break;
        }
        case 2:
        {
            cout<<"\nEnter length and breadth:";
```

```
                cin>>a>>b;
                area=a*b;
                break;
        }
        case 3:
        {
                cout<<"\nEnter three sides of the triangle:";
                cin>>a>>b>>c;
                s=(a+b+c)/2;
                area=sqrt(s*(s-a)*(s-b)*(s-c));
                break;
        }
        default: cout<<"\nWrong choice...!!!";
                 break;
    }


    cout<<"Area="<<area;
    return 0;
}
```

40.Write C++ Program to perform all arithmetic calculation using switch case

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{

 float a,b,res;
 int ch,q;
 cout<<"Arithmetic Operatios";
 cout<<"\n\n1.Addition\n2.Subtraction\n3.Multiplication\n4.Division\n5.M
 cout<<"\n  Enter your choice:";
 cin>>ch;

  switch(ch)
 {
  case 1:
  {
   cout<<"\n\nEnter two variables:";
   cin>>a>>b;
   res=a+b;
   cout<<"\n  Result="<<res;
  }
  break;
```

```
case 2:
 {
  cout<<"\n\nEnter two variables:";
  cin>>a>>b;
  res=a-b;
  cout<<"\n  Result="<<res;
 }
 break;

  case 3:
 {
  cout<<"\n\nEnter two variables:";
  cin>>a>>b;
  res=a*b;
  cout<<"\n  Result="<<res;
 }
 break;

  case 4:
 {
  cout<<"\n\nEnter two variables:";
  cin>>a>>b;
  if(a>=b)
  {
   res=a/b;
   cout<<"\n  Result="<<res;
  }
```

```
  else
   cout<<"\n\n\t1st varable should be greater than 2nd.!!!";
 }
 break;

  case 5:
 {
  cout<<"\n\nEnter two variables:";
  cin>>a>>b;
  if(a>=b)
  {
   q=a/b;
   res=a-(b*q);
   cout<<"\n  Result="<<res;
  }
  else
   cout<<"\n\n\t1st variable should be greater than 2nd..!!!";
 }
 break;
}

 return 0;
}
```

41.Write C++ Program to do arithmetic operations according to user choice using switch case

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{
 int a,b;
 char c;
 cout<<"Enter any expression(ex:3*7):";
 cin>>a>>c>>b;

  switch(c)
 {
  case'+': cout<<"\nResult:"<<a+b;
  break;

   case'-': cout<<"\nResult:"<<a-b;
  break;

   case'*': cout<<"\nResult:"<<a*b;
  break;

   case'/': cout<<"\nResult:"<<a/b;
  break;
```

```
  case'%':  cout<<"\nResult:"<<a%b;
 break;
}
 return 0; }
```

42. Write a program to check given number is multiple of number entered by user.

```
//lets say given number is 78.
#include <iostream.h>
int main()
{
 int check_num;
int num=78;
cout << Enter an integer:";
 cin >> check_num;

 // use % operator to check remainder
if(check_num%78)
    cout<<num<<"is not multiple of "<<check_num<<endl;
else
    cout<<num<<"is multiple of "<<check_num<<endl;

return 0;
}
```

43. Write a program to check given year is leap or not.

```
//conditions for leap year are as follows
//  leap years occur in years exactly divisible by four,
// except that years ending in 00 are leap years
// only if they are divisible by 400.
#include <iostream.h>
#include <conio.h>
int main()
{
  int year;
  cout << "Enter a year (e.g. 2004): ";
  cin >> year;
  if ((year % 400 == 0) || ((year %100 != 0) && (year % 4 == 0)))
    cout << "The year " << year << " is a leap year" << endl;
  else
    cout << "The year " << year << " is NOT a leap year" << endl;
  getch();
  return 0;
}
```

44. Write a program to convert gallons to liters.

```
 #include <iostream.h>
int main()
{
  float gallons, liters;
  cout << "Enter number of gallons: ";
  cin >> gallons; // Read the inputs from the user
  liters = gallons * 3.7854; // convert to liters
  cout << "Liters: " << liters << endl;
  return 0;
}
```

45. Write a C++ program to find the sum of individual digits of a positive integer.

```
#include<iostream.h>
#include<conio.h>
int main()
{
int num, reminder, sum=0;
cout<<"Enter the required number:";
cin>>num;
while(num>0)
{
reminder=num%10;
sum=sum+reminder;
num=num/10;
}
cout<<"Sum of individual digits of a positive integer is:"<< sum;
return 0;
}
```

46. Write a C++ program to the number count of letters in a given text.

```
#include<iostream>
#include<conio.h>
#include<stdio.h>
using namespace std;
int main( )
{
char str[80];
int i, c1=0,c2=0;
cout<<"Enter the text:";
gets(str);
for(i=0; str[i]!='\0'; i++)
{
c1++;
if(str[i]==' ')
c2;
}
cout<<"Total Letters present in the given text :"<< c1-c2;
return 0;
}
```

47. Write a C++ program to sort a list of numbers in ascending order.

```
#include<iostream>
#include<conio.h>
using namespace std;
int main( )
{
int a[10], n, i, j, temp;
cout<<"Enter the no. of elements:";
cin>> n;
cout<<"Enter the array elements:";
for(i=0; i< n; i++)
cin>>a[i];
for( i=0; i< n; i++)
{
for(j=i; j< n-1; j++)
{
if(a[i]> a[j+1] )
{
temp= a[i];
a[i]= a[j+1];
a[j+1]= temp;
}
}
}
cout<<"Elements after sorting:";
```

```
for( i=0; i< n; i++)
cout<< a[i]<<" ";
return 0;
}
```

48. Write a C++ program to find both the largest and smallest number in a array of integers.

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{
int a[100], max, min, i, n;
cout<<"Enter number elements in the array? :";
cin>>n;
for( i=0; i< n ; i++)
{
cout<<"Enter the numbers: ";
cin>>a[ i ];
if(i==0)
 { max=a[i ];
  min=a[i ]; }
if(a[ i]>max)
max= a[i ];
if(a[i ]< min)
min= a[i ];
}
cout<<"Maximum : "<< max<<endl;
cout<<"Minimum : "<< min;
getch( );
}
```

49. Write a program to find the largest of two numbers.

```
#include <iostream>
using namespace std;
int main()
{
  int a, b;
  cout << "Enter first number: ";
  cin >> a;
  cout << "Enter second number: ";
  cin >> b;
  if(a < b)
            cout << "First number is less than second.\n";
  return 0;
}
```

50. Write a program to generate square root of 1 to 10.

```
#include <iostream>
#include <math.h>
using namespace std;
int main()
{
  int num;
  double sqroot;
  for(num=1; num < 10; num++) {
    sqroot = sqrt((double) num); //casting num from integer to double

    cout << num << "  " << sqroot << '\n';
 }
  return 0;
}
```

51. Write a program to find out entered number.

```
#include <iostream>
using namespace std;
int main()
{
        int choice;
        cout << "Enter an integer number: 1 - 5 " ;
        cin >> choice;
        switch (choice)
        {
                case 1:
                  cout << "You entered 1.";
                  break;
                case 2:
                  cout << "You entered 2.";
                  break;
                case 3:
                  cout << "You entered 3.";
                  break;
                case 4:
                  cout << "You entered 4.";
                  break;
                case 5:
                  cout << "You entered 5.";
                  break;
                default:
```

```
                cout << "Invalid input.";
}

return 0;  }
```

52. Write a program to calculate GCD of two numbers.

```
#include<iostream>
using namespace std;
int gcd (int, int); //func. declaration.
int main( )
{
int a, b, ans;
cout<<"Enter the two integer values:";
cin>> a >>b;
ans= gcd(a, b); // calling function.
cout<<"GCD for given numbers is :" << ans;
return 0;
}
int gcd( int x, int y) //called function.
{
int z;
z=x%y;
if(z==0)
return y;
gcd(y,z); //recursive function
}
```

53. Write a program to calculate factorial of a number.

```
#include<iostream>
using namespace std;
int fact( int); // function declaration
int main( )
{
int num,result;
cout<<"Enter the required number:";
cin>>num;
result = fact( num);
cout<<"Factorial is :" << result;
return 0;
}
int fact(int n)
{
int ft;
for( ft=1; n>=1; n--)
ft=ft*n;
return ft;
}
```

54. Write a C++ program to generate all the prime numbers between 1 to n, where n is a value supplied by the user.

```
#include<iostream>
#include<conio.h>
using namespace std;
int main( )
{
int n, x, flag,ct;

cout<<"Enter the n value:";
cin>> n;
cout<<"Prime Numbers:";
for( ct=1; ct<=n; ct++)
{
x=2; flag=0;
while(x<=ct/2)
{
if(ct%x==0) { flag=1; break; }
x++;
}
if(flag==0)
cout<< ct<<" ";
}
return 0;
}
```

55. Write a C++ program to generate the first n terms of the sequence.

```
#include<iostream>
#include<conio.h>
using namespace std;
int main( )
{
int frst=0, sec=1, t, n, ct;
cout<<"Enter the no. of terms:";
cin>>n;
cout<<"Fibonacci series:";
cout<< frst <<" "<< sec<<" ";
for( ct=3; ct<=n; ct++)
{
t=frst+sec;
cout<< t<<" ";
frst=sec;
sec=t;
}
return 0;
}
```

56. Write a C++ program to sort a list of names in ascending order.

```
#include<iostream>
#include<conio.h>
#include<stdio.h>
#include<string.h>
using namespace std;
int main()
{
char st[10][10],temp[10];
int i, j, n;
cout<<"Enter the no. of names:";
cin>>n;
cout<<"Enter the different names:";
for(i=0; i< n; i++)
cin>>st[i];
for(i=0; i< n; i++)
{
for(j=i; j< n-1; j++)
{
if(strcmp(st[i], st[j+1]) >0)
{
strcpy(temp,st[i]);
strcpy(st[i],st[j+1]);
strcpy(st[j+1],temp);
}
```

```
}
}
cout<<"Given names after ascending order:";
for(i=0;i<5;i++)
cout<< st[i] <<" ";
return 0;
}
```

57. Write a program to find absolute value of the integer.

```
#include <iostream>
using namespace std;
int main()
{
        int number;
        int abs_number;
        cout << "Enter an integer (positive or negative): ";
        cin >> number;
        if(number >= 0)
        {
        abs_number = number;
        }
        else
        abs_number = -number;
        cout << "The absolute value of " << number << " is " << abs_number;
        cout << endl;
        return 0;
}
```

58. Write a program for addition of 2 matrices.

```
#include<iostream>
using namespace std;
main()
{
  int m, n, c, d, first[10][10], second[10][10], sum[10][10];
  cout << "Enter the number of rows and columns of matrix ";
  cin >> m >> n;
  cout << "Enter the elements of first matrix\n";
  for (  c = 0 ; c < m ; c++ )
    for ( d = 0 ; d < n ; d++ )
      cin >> first[c][d];
  cout << "Enter the elements of second matrix\n";
  for ( c = 0 ; c < m ;c++ )
    for ( d = 0 ; d < n ; d++ )
        cin >> second[c][d];
  for ( c = 0 ; c < m ; c++ )
    for ( d = 0 ; d < n ; d++ )
      sum[c][d] = first[c][d] + second[c][d];
  cout << "Sum of entered matrices:-\n";
  for ( c = 0 ; c < m ; c++ )
  {
    for ( d = 0 ; d < n ; d++ )
      cout << sum[c][d] << "\t";
    cout << endl;
```

```
    }
    return 0;
}
```

59. Write a program to find average of number three numbers

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{
int a,b,c,d;
cout<<"Enter the first no. "<<endl;
cin>>a;
cout<<"Enter the second no. "<<endl;
cin>>b;
cout<<"Enter the third no. "<<endl;
cin>>c;
d=(a+b+c)/3 ;
cout<<"The average of the 3 numbers is"<<d<<endl;
return 0;
}
```

60. Write a program to check whether given string is palindrome or not

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{
 int i,j,len,flag=1;
 char a[20];
 cout<<"Enter a string:";
 cin>>a;
  for(len=0;a[len]!='\0';++len);
 for(i=0,j=len-1;i<len/2;++i,--j)
 {
  if(a[j]!=a[i])
  flag=0;
 }
  if(flag==1)
 cout<<"\nThe string is Palindrome";
 else
 cout<<"\nThe string is not Palindrome";
 return 0;
}
```

61. Write a program to Print ASCII value of Digits, Uppercase and Lowercase alphabates.

```
#include<conio.h>
#include<iostream>
#include<dos.h>
#include<process.h>
using namespace std;
int main()
{
 char ch,a[]={"I just love to Learn Programming "};
 int j=0;
 cout<<"Uppercase Alphabates\n\n";
 for(int i=65;i<91;++i)
 {
  j++;
  ch=i;
  cout<<ch<<":"<<i<<"\t";
  if(j==10)
  {
   cout<<"\n";
   j=0;
  }
 }
 j=0;
 cout<<"\n\n\nLowercase Alphabates\n\n";
 for(int i=97;i<123;++i)
```

```
{
 j++;
 ch=i;
 cout<<ch<<":"<<i<<"\t";
 if(j==10)
 {
  cout<<"\n";
  j=0;
 }
}
cout<<"\n\n\nDigits\n\n";
for(int i=48;i<58;i++)
{
 ch=i;
 cout<<ch<<":"<<i<<"\t";
}
cout<<"\n\n\n\n\t\t";
for(int i=0;a[i]!='\0';++i)
{
 cout<<a[i];

}
return 0;
}
```

62. Write a C++ Program to raise any number x to a positive power n.

```
#include<iostream>
#include<conio.h>
#include<math.h>              //for  pow() function
using namespace std;
int  main()
{
 int x,n,res;
 cout<<"Enter value of x and n:";
 cin>>x>>n;
 res=pow(x,n);
 cout<<"\nResult="<<res;
return 0;
}
```

63. Write a C++ Program to convert given inches into equivalent yard, feet and inches.

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{
 int y,f,i;
 cout<<"Enter inches:";
 cin>>i;
 y=i/432;
 i=i%432;
 f=i/12;
 i=i%12;
 cout<<"Yard="<<y<<"\nFeet="<<f<<"\nInches="<<i;
 return 0;
}
```

64. Write a C++ Program to Find ASCII value of a character.

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{
 char ch,c;
 int cha;
 cout<<"Enter a character:";
 cin>>ch;
 cha=ch;
 cout<<"\nASCII value of "<<ch<<" is "<<cha;
return 0;
}
```

65. Write C++ Program to reverse all the strings stored in an array

```
#include<iostream>
#include<conio.h>
#include<string.h>
#include<stdio.h>
using namespace std;
int main()
{
 char a[3][50];
 int i,j,k,len;
 cout<<"Enter 3 strings:\n";
  for(i=0;i<3;i++)
 {
  gets(a[i]);
 }
 cout<<"\nThe list of orignal strings:\n" ;
  for(i=0;i<3;i++)
 {
  cout<<a[i]<<"\n";
 }
 cout<<"\nThe list of changed string:\n";

  for(i=0;i<3;i++)
 {
  len=strlen(a[i]);
```

```
  for(j=0,k=len-1;k>=0;j++,k--)
  {
   cout<<a[i][k];
  }
  cout<<"\n";
 }
 return 0;
}
```

66. Write C++ Program to concatenate two strings

```
#include<iostream>
#include<conio.h>
#include<stdio.h>
using namespace std;
int main()
{
 char str1[30],str2[30],str3[60];
 int i,j;
 cout<<"Enter first string:";
 gets(str1);
 cout<<"\nEnter second string:";
 gets(str2);
  for(i=0;str1[i]!='\0';++i)
  str3[i]=str1[i];
  for(j=0;str2[j]!='\0';++j)
  str3[i+j]=str2[j];
 str3[i+j]='\0';
  cout<<"\nThe concatenate string is "<<str3;
return 0;
}
```

67. Write C++ Program to convert first alphabet of every word in a string from lowercase to uppercase.

```
#include<iostream>
#include<conio.h>
#include<stdio.h>
#include<ctype.h>
using namespace std;
int main()
{
 char a[50];
 int i;
 cout<<"Enter a string:";
 gets(a);
 cout<<"\n";
 if(islower(a[0]))
 a[0]=toupper(a[0]);
 for(i=0;a[i]!='\0';++i)
 {
  if(a[i]==' ')
   if(islower(a[i+1]))
   a[i+1]=toupper(a[i+1]);
}
 cout<<"The new string is:"<<a;
 return 0;
}
```

68. Write C++ Program to reverse a string.

```
#include<iostream>
#include<conio.h>
#include<stdio.h>
using namespace std;
int main()
{
 char a[20],a1[20];
 int i,j;
 cout<<"Enter any String:"<<"\n";
 gets(a);    cout<<"Reverse of the string is: ";
  for(i=0;a[i]!='\0';++i);
 for(j=i-1;j>=0;--j)
 cout<<a[j];
 return 0;
}
```

69. Write C++ Program to find length of a string.

```
#include<iostream>
#include<conio.h>
#include<stdio.h>
using namespace std;
int main()
{
 char a[30];
 int i;
 cout<<"Enter a string:";
 gets(a);
 for(i=0;a[i]!='\0';++i);
 cout<<"\nLenth of the sting '"<<a<<"' is "<<i;
 return 0;
}
```

70. Write C++ Program to Find Substring in String (Pattern Matching)

```
#include<iostream>
#include<cstdlib>
using namespace std;
int main()
{
   int i,j,temp;
   char str[100]={"This is a pattern matching"};
   char substr[20]={"pattern"};
   for(i=0;str[i]!='\0';i++)
   {
      j=0;
      if(str[i]==substr[j])
      {
         temp=i+1;
         while(str[i]==substr[j])
         {
            i++;
            j++;
         }

         if(substr[j]=='\0')
         {
            cout<<"The substring is present in given string at position "
```

```
<<temp<<"\n";
            exit(0);
        }
        else
        {
            i=temp;
            temp=0;
        }
      }
   }

   if(temp==0)
      cout<<"The substring is not present in given string\n";
   return 0;
}
```

71. Write C++ Program to Remove Spaces From String

```
#include<iostream>
#include<stdio.h>
using namespace std;
int main()
{
 int i,j=0;
 char str[30];
 cout<<"Enter a String:\n";
 gets(str);
 for(i=0;str[i]!='\0';++i)
 {
  if(str[i]!=' ')
   str[j++]=str[i];
 }
 str[j]='\0';
 cout<<"\nString After Removing Spaces:\n"<<str;
 return 0;
}
```

72. Write a C++ Program to find Compound Interest.

```
#include<iostream>
#include<conio.h>
#include<math.h>
using namespace std;
int main()
{
 float p,r,t,ci;
cout<<"Enter Principle,Rate and Time ";
 cin>>p>>r>>t;
 ci=pow(p*(1+r/100),t);
 cout<<"\n"<<"Compound Interest = "<<ci<<"%";
 return 0;
}
```

73. Write a C++ Program to Convert given no. of days into years, weeks and days

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{
 int y,d,w;

  cout<<"Enter No. of days:";
 cin>>d;
  y=d/365;
 d=d%365;
 w=d/7;
 d=d%7;
  cout<<"\nYears: "<<y<<"\nWeeks: "<<w<<"\nDays: "<<d;
 return 0;
}
```

74. Write a C++ program to find cube of a number using macros.

```
#include<iostream>
#include<conio.h>
#define CUBE(x) (x*x*x)
using namespace std;
int main()
{
 int n,cube;
 cout<<"Enter a number:";
 cin>>n;
  cube=CUBE(n);
 cout<<"Cube="<<cube;
 return 0;
}
```

75. Write a C++ program to multiply two matrices.

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{

 int a[5][5],b[5][5],c[5][5],m,n,p,q,i,j,k;
 cout<<"Enter rows and columns of first matrix:";
 cin>>m>>n;
 cout<<"Enter rows and columns of second matrix:";
 cin>>p>>q;
 if(n==p)//condition for matrix multiplication.
 {
  cout<<"\nEnter first matrix:\n";
  for(i=0;i<m;++i)
   for(j=0;j<n;++j)
    cin>>a[i][j];
  cout<<"\nEnter second matrix:\n";
  for(i=0;i<p;++i)
   for(j=0;j<q;++j)
    cin>>b[i][j];
 cout<<"\nThe new matrix is:\n";
  for(i=0;i<m;++i)
  {
   for(j=0;j<q;++j)
```

```
   {
    c[i][j]=0;
    for(k=0;k<n;++k)
     c[i][j]=c[i][j]+(a[i][k]*b[k][j]);
    cout<<c[i][j]<<" ";
   }
   cout<<"\n";
  }
 }
 else
  cout<<"\nSorry!!!! Matrix multiplication can't be done, condition not satisfied";
return 0;
}
```

76. Write a C++ program to insert an element in an array.

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{
 int a[20],n,x,i,pos=0;
 cout<<"Enter size of array:";
 cin>>n;
 cout<<"Enter the array in ascending order:\n";
  for(i=0;i<n;++i)
  cin>>a[i];
 cout<<"\nEnter element to insert:";
 cin>>x;
 for(i=0;i<n;++i)
  if(a[i]<=x&&x<a[i+1])
  {
   pos=i+1;
   break;
  }
  for(i=n+1;i>pos;--i)
  a[i]=a[i-1];
  a[pos]=x;
 cout<<"\n\nArray after inserting element:";
  for(i=0;i<n+1;i++)
  cout<<a[i]<<" ";
```

```
return 0;
}
```

77. Write a C++ program to find largest and second largest no from a 2D array.

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{
 int a[5][5],big1,big2,n,m,i,j;
 cout<<"Enter no of rows and columns(max 5):";
 cin>>m>>n;
 cout<<"Enter the array:\n";
 for(i=0;i<m;i++)
  for(j=0;j<n;++j)
   cin>>a[i][j];
  big1=a[0][0];
 for(i=0;i<m;++i)
  for(j=0;j<n;++j)
  {
   if(a[i][j]>big1)
    big1=a[i][j];
  }
  big2=a[0][0];
 for(i=0;i<m;++i)
  for(j=0;j<n;++j)
  {
   if(a[i][j]>big2&&a[i][j]<big1)
```

```
    big2=a[i][j];
  }
  cout<<"\n\nLargest number:"<<big1;
 cout<<"\nSecond largest number:"<<big2;
return 0;
}
```

78. Write a C++ program to do linear search in Array.

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{
 int a[20],n,x,i,flag=0;
 cout<<"How many Elements?";
 cin>>n;
 cout<<"\nEnter Elements of the Array\n";
 for(i=0;i<n;++i)
  cin>>a[i];
 cout<<"\nEnter Element to search:";
 cin>>x;
 for(i=0;i<n;++i)
 {
  if(a[i]==x)
  {
   flag=1;
   break;
  }
 }
 if(flag)
  cout<<"\nElement is Found at position "<<i+1;
 else
  cout<<"\nElement not found";
```

```
 return 0;
}
```

79. Write a C++ Program to find element in Array using Binary search

```
#include<conio.h>
#include<iostream>
using namespace std;
int main()
{
int search(int [],int,int);
int n,i,a[100],e=-3,res;
cout<<"How Many Elements:";
cin>>n;
cout<<"\nEnter Elements of Array in Accending order\n";
for(i=0;i<n;++i)
{
        cin>>a[i];
}
cout<<"\nEnter element to search:";
cin>>e;
res=search(a,n,e);
if(res!=0)
        cout<<"\nElement is Founded at "<<res+1<<"st position";
else
        cout<<"\nElement is not found....!!!";
getch();
}
int search(int a[],int n,int e)
```

```
{
int f,l,m;
f=0;
l=n-1;
while(f<=l)
{
        m=(f+l)/2;
        if(e==a[m])
                return(m);
        else
                if(e>a[m])
                        f=m+1;
                else
                        l=m-1;
}
return 0;
}
```

80. Write a C++ Program to find highest and lowest element of a Matrix.

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{
 int m,n,a[10][10],i,j,high,low;
 cout<<"Enter no. of rows and coloumns:";
 cin>>m>>n;
 cout<<"\nEnter matrix:\n";
 for(i=0;i<m;++i)
 {
  for(j=0;j<n;++j)
   cin>>a[i][j];
 }

 for(i=0;i<m;++i)
 {
 high=a[0][0];
  low=a[0][0];
  for(j=0;j<n;++j)
  {
   if(a[i][j]>high)
    high=a[i][j];
   else
    if(a[i][j]<low)
```

```
    low=a[i][j];
  }
 }
  cout<<"\nHeighst Element:"<<high<<"\nLowest Element:"<<low<<"\n";
 return 0;
}
```

81. Write a C++ Program and Algorithm for Selection Sort.

```
#include<iostream>
using namespace std;
int main()
{
int i,j,n,loc,temp,min,a[30];
cout<<"Enter the number of elements:";
cin>>n;
cout<<"\nEnter the elements\n";
   for(i=0;i<n;i++)
   {
      cin>>a[i];
   }

   for(i=0;i<n-1;i++)
   {
      min=a[i];
      loc=i;
      for(j=i+1;j<n;j++)
      {
         if(min>a[j])
         {
            min=a[j];
            loc=j;
         }
      }
```

```
        temp=a[i];
        a[i]=a[loc];
        a[loc]=temp;
     }
   cout<<"\nSorted list is as follows\n";
   for(i=0;i<n;i++)
    {
        cout<<a[i]<<" ";
    }
   return 0;

}
```

82. Write a C++ Program and Algorithm for Insertion Sort

```
#include<iostream>
using namespace std;
int main()
{
   int i,j,n,temp,a[30];
   cout<<"Enter the number of elements:";
   cin>>n;
   cout<<"\nEnter the elements\n";
   for(i=0;i<n;i++)
   {
      cin>>a[i];
   }
   for(i=1;i<=n-1;i++)
   {
      temp=a[i];
      j=i-1;
      while((temp<a[j])&&(j>=0))
      {
         a[j+1]=a[j];    //moves element forward
         j=j-1;
      }

      a[j+1]=temp;    //insert element in proper place
   }
   cout<<"\nSorted list is as follows\n";
```

```
    for(i=0;i<n;i++)
    {
        cout<<a[i]<<" ";
    }
    return 0;
}
```

83. Write a C++ Program to convert a lowercase alphabet to uppercase or vice-versa.

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{

 char ch;
 cout<<"Enter any Alphabet:";
 cin>>ch;
  if(ch>='a'&&ch<='z')
 {
  cout<<"\n\tYou have entered a lowercase alphabet";
  ch=ch-32;

  cout<<"\n\nThe uppercase alphabet is "<<ch;
 }
 else
 {
  cout<<"\n\tYou have entered an Uppercase alphabet";
  ch=ch+32;
  cout<<"\n\nThe lowercase alphabet is "<<ch;
 }
 return 0;
}
```

84. Write a C++ Program to print three numbers in descending order

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{

 int a,b,c,big1,big2,big3;
 cout<<"Enter three numbers:";
 cin>>a>>b>>c;



 big1=a;
 if(b>big1)
  big1=b;
 else
  if(c>big1)
   big1=c;
 if(big1==a)
 {
  if(b>c)
  {
   big2=b;
   big3=c;
  }
```

```
 else
 {
  big2=c;
  big3=b;
 }
}
else
{
 if(big1==b)
  if(a>c)
  {
   big2=a;
   big3=c;
  }
  else
  {
   big2=c;
   big3=a;
  }
 else
 {
  if(a>b)
  {
   big2=a;
   big3=b;
  }
  else
```

```
  {
    big2=b;
    big3=a;
  }
 }
}
 cout<<"\n\n\tNumbers in descending order.....\n\t\t";
 cout<<big1<<" "<<big2<<" "<<big3;
return 0; }
```

85. Write C++ Program to find whether a square matrix is a) symmetric b) skew symmetric c) none of two.

```
# include <stdio.h>
#include<iostream>
# include <conio.h>
using namespace std;
int main( )

{

int a[10][10],i,j,m,n,c=0,c1=0;
cout<<"enter the array size";
cin>>n;
cout<<"enter the elements";
for(i=1;i<=m;i++)
for(j=1;j<=n;j++)
cin>>a[i][j];
for(i=1;i<=m;i++)
for(j=1;j<=n;j++)
{
if(a[i][j]==a[j][i])
c=1;
else
if(a[i][j]==a[j][i])
c1=1;
}
```

```
cout<<"the given matrix is \n";
for(i=1;i<=m;i++)
{
for(j=1;j<=n;j++)
cout<<"%4d"<<a[i][j];
cout<<"\n";
}
if(c==0)
cout<<"the given matrix is symmetric";
else
if(c1==0)
cout<<"the matrix is skew symmetric";
else
cout<<"none of two";
return 0;
}
```

86. Write a C++ Program to calculate roots of quadratic equation ax^2+bx+c=0

```
#include<iostream>
#include<conio.h>
#include<math.h> //to claculate square root
using namespace std;
int main()
{

 float root1,root2,a,b,c,d;
 cout<<"Quadratic Equation is ax^2=bx+c=0";
 cout<<"  Enter values of a,b and c:";
cin>>a>>b>>c;
 d=(b*b)-(4*a*c);
 if(d>0)
 {
      cout<<"\nTwo real and distinct roots";
      root1=(-b+sqrt(d))/(2*a);
      root2=(-b-sqrt(d))/(2*a);
      cout<<"\nRoots are "<<root1<<" and "<<root2;
 }
 else
  if(d==0)
  {
        cout<<"\nTwo real and equal roots";
        root1=root2=-b/(2*a);
```

```
        cout<<"\nRoots are "<<root1<<" and "<<root2;
  }
  else
      cout<<"\nRoots are COMPLEX and IMAGINARY....!!!";
 return 0;
}
```

87. Write a C++ Program to find quotient and remainder of two numbers.

```
#include<iostream>
#include<conio.h>
using namespace std;

int main()
{
 int a,b,q,r;
 cout<<"Enter two numbers:";
 cin>>a>>b;
 if(a>b)
 {
  q=a/b;
  r=a%b;
  cout<<"\nQuotient="<<q;
  cout<<"\nRemainder="<<r;
 }
 else
  cout<<"\nFirst no. should be greater than second no....!!!";
return 0;
}
```

88. Write a C++ Program to Find LCM and HCF of two numbers

```
#include<iostream>
#include<conio.h>
using namespace std;
int main()
{
 int a,b,hcf,lcm,max,min,r;
 cout<<"Enter two numbers:";
 cin>>a>>b;
 if(a>b)
 {
  max=a;
  min=b;
 }
 else
  if(b>a)
  {
   max=b;
   min=a;
  }
 if(a==b)
  hcf=a;
 else
 {
  do
```

```
 {
  r=max%min;
  max=min;
  min=r;
 }while(r!=0);
 hcf=max;
}
lcm=(a*b)/hcf;
cout<<"\nLCM="<<lcm<<"\nHCF="<<hcf;
return 0;
}
```

89. Write a c++ Program to accept a number and check the given number is Armstrong or not.

```
#include<iostream>
# include <stdio.h>
# include <conio.h>
using namespace std;
int main( )
{
int n, a, b, c, d;
cout<<" Enter a Three Digit Number: ";
cin>>n;
a=n/100;
b=((n/10)%10);
c=n%10;
d=a*a*a*+b*b*b +c*c*c;
if (n==d)
cout<<"The Given Number is Armstrong  number";
else
cout<< "The Given Number is Not Armstrong number";
return 0;
}
```

90. Write C++ Program to Count Occurrence of a Word in a Text File

```
#include<iostream>
#include<fstream.h>
#include<string.h>
 using namespace std;

int main()
{
 ifstream fin("test.txt"); //opening text file
 int count=0;
 char ch[20],c[20];
 cout<<"Enter a word to count:";
gets(c);
 while(fin)
 {
  fin>>ch;
  if(strcmp(ch,c)==0)
   count++;
 }
 cout<<"Occurrence="<<count<<"\n";
 fin.close(); //closing file
 return 0;

}
```

91. Write C++ Program to Count no. of alphabates, digits and spaces present in a file test.TXT

```
#include<fstream.h>
#include<conio.h>
int main()
{
        ifstream  fin("test.txt");
        char ch;
        int i,a=0,s=0,d=0;
        while(fin)
        {
                fin.get(ch);
                i=ch;
                if(i>63&&i<91||i>96&&i<123)
                        a++;
                else
                        if(ch==' ')
                                s++;
                        else
                                if(i>47&&i<58)
                                        d++;
        }
        cout<<"No. OF Alphabates:"<<a;
        cout<<"\nNo. Of Digits:"<<d;
        cout<<"\nNo. Of Spaces:"<<s;
        return 0;
```

```
}
```

90. Write C++ Program to read from a text file and than write in another text file.

```
#include<fstream.h>
#include<iostream>
using namespace std;
int main()
{
ofstream fout("sare1.txt"); //create a file to write
ifstream fin("sare1.txt");
fout<<"Hello....!!";
fout.close();                          //closing the file
fout.open("sare2.txt");  //create file to write
char ch;
while(fin) //loop wiill run till end of file
{
fin>>ch;       //reading data from file
fout<<ch;       //writing data to file
}
fin.close();
fout.close();
return 0;
}
```

91. Write C++ Program to Count Number of Words, Lines and Total Size of a Text File

```
#include<iostream.h>
#include<fstream.h>
int main()
{
 ifstream fin("story.txt"); //opening text file
 int line=1,word=1,size; //will not count first word and last line so initial value is 1
 char ch;
  fin.seekg(0,ios::end); //bring file pointer position to end of file
 size=fin.tellg(); //count number of bytes till current postion for file pointer
  fin.seekg(0,ios::beg); //bring position of file pointer to begining of file
  while(fin)
 {
  fin.get(ch);
  if(ch==' '||ch=='\n')
   word++;
   if(ch=='\n')
   line++;
 }

 cout<<"Lines="<<line<<"\nWords="<<word<<"\nSize="<<size<<"\n";
 fin.close(); //closing file
  return 0;
```

```
}
```

92. Write C++ Program to Remove Spaces from String

```
#include<iostream>
#include<stdio.h>
using namespace std;
int main()
{
 int i,j=0;
 char str[30];
 cout<<"Enter a String:\n";
 gets(str);
 for(i=0;str[i]!='\0';++i)
 {
  if(str[i]!=' ')
   str[j++]=str[i];
 }
 str[j]='\0';
 cout<<"\nString After Removing Spaces:\n"<<str;
 return 0;

}
```

93. Write C++ program for overloading binary operators, addition, subtraction, multiplication, division and comparison

```
#include<iostream>
#include<conio.h>
#include<process.h>
using namespace std;
class demo
{
        float a,b;
        public:
        void getdata();
        void display();
        demo operator +(demo);
        demo operator -(demo);
        demo operator *(demo);
        demo operator /(demo);
        int operator ==(demo);
};

void demo::getdata()
{
        cout<<"Enter values of a and b:";
        cin>>a>>b;
}

void demo::display()
```

```
{
        cout<<"a="<<a<<"\tb="<<b;
}

demo demo::operator +(demo d1)
{
        demo d2;
        d2.a=a+d1.a;
        d2.b=b+d1.b;
        return d2;
}

demo demo::operator -(demo d1)
{
        demo d2;
        d2.a=a-d1.a;
        d2.b=b-d1.b;
        return d2;
}

demo demo::operator *(demo d1)
{
        demo d2;
        d2.a=a*d1.a;
        d2.b=b*d1.b;
        return d2;
}
```

```
demo demo::operator /(demo d1)
{
        demo d2;
        d2.a=a/d1.a;
        d2.b=b/d1.b;
        return d2;
}

int demo::operator ==(demo d1)
{
        if((a==d1.a)&&(b==d1.b))
                return 1;
        else
                return 0;
}

int main()
{

        int ch;
        demo d1,d2,d3;

        cout<<"First Object:\n";
        d1.getdata();
        cout<<"\nSecond Object:\n";
        d2.getdata();
```

```
cout<<"\n\nOperator Overloadig Menu";

cout<<"\n\n1.Addition\n2.Subtraction\n3.Multiplication\n4.Division\n5.Compariso
cout<<"\n\nEnter your choice(1-6):";
cin>>ch;

switch(ch)
{
        case 1:  d3=d1+d2;
                cout<<"\nThird Object:\n";
                d3.display();
                break;

        case 2:  d3=d1-d2;
                cout<<"\nThird Object:\n";
                d3.display();
                break;

        case 3: d3=d1*d2;
                cout<<"\nThird Object:\n";
                d3.display();
                break;

        case 4: d3=d1/d2;
                cout<<"\nThird Object:\n";
                d3.display();
```

```
                    break;

                case 5: if(d1==d2)
                            cout<<"\nObjects are Equal";
                        else
                            cout<<"\nObjects are Not
Equal";
                        break;

                case 6: exit(0);
                        break;

                default: cout<<"Wrong Choice!!!Press any key to
exit";
                         getch();
            }
            getch();
            return 0; }
```

94. Write C++ program to swap two numbers using class

```
#include<iostream>
#include<conio.h>
using namespace std;
class swap
{
 int a,b;
 public:
 void getdata();
 void swapv();
 void display();
};

void swap::getdata()
{
 cout<<"Enter two numbers:";
 cin>>a>>b;
}

void swap::swapv()
{
 a=a+b;
 b=a-b;
 a=a-b;
}
```

```
void swap::display()
{
 cout<<"a="<<a<<"\tb="<<b;
}

int main()
{

 swap s;

  s.getdata();
 cout<<"\nBefore swap:\n";
 s.display();

  s.swapv();
 cout<<"\n\nAfter swap:\n";
 s.display();

  getch();
 return 0;
}
```

95. Write C++ program to add, subtract, multiply and divide two complex numbers using structures.

```
#include<iostream>
#include<conio.h>
#include<math.h>
using namespace std;
struct complex
{
 float rel;
 float img;
}s1,s2;

int main()
{

 float a,b;
 cout<<"Enter real and imaginary part of 1st complex number:";
 cin>>s1.rel>>s1.img;
 cout<<"Enter real and imaginary part of 2nd complex number:";
 cin>>s2.rel>>s2.img;

  //Addition
 a=(s1.rel)+(s2.rel);
 b=(s1.img)+(s2.img);
 cout<<"\nAddition: "<<"("<<a<<")"<<"+"<<"("<<b<<")"<<"i";
```

```
 //Subtraction
a=(s1.rel)-(s2.rel);
b=(s1.img)-(s2.img);
cout<<"\nSubtraction: "<<"("<<a<<")"<<"+"<<"("<<b<<")"<<"i";

 //Multiplication
a=((s1.rel)*(s2.rel))-((s1.img)*(s2.img));
b=((s1.rel)*(s2.img))+((s2.rel)*(s1.img));
cout<<"\nMultiplication: "<<"("<<a<<")"<<"+"<<"("<<b<<")"<<"i";

 //Division
a=(((s1.rel)*(s2.rel))+((s1.img)*
(s2.img)))/(pow(s2.rel,2)+pow(s2.img,2));
b=(((s2.rel)*(s1.img))-((s1.rel)*(s2.img)))/(pow(s2.rel,2)+pow(s2.img,2));
cout<<"\nDivision: "<<"("<<a<<")"<<"+"<<"("<<b<<")"<<"i";

 getch();
}
```

96.Write C++ Program to Compare Two Strings Using Pointers

```
#include<iostream>
#include<stdio.h>
using namespace std;
int main()
{
   char str1[50],str2[50];
   int str_cmp(char*,char*);
   cout<<"Enter first string:";
   gets(str1);
   cout<<"Enter second string:";
   gets(str2);

   if(str_cmp(str1,str2))
      cout<<"\nStrings are equal";
   else
      cout<<"\nStrings are not equal";

   return 0;
}

int str_cmp(char *s1,char *s2)
{
   while(*s1==*s2)
   {
```

```
        if(*s1=='\0'||*s2=='\0')
            break;

        s1++;
        s2++;
    }

    if(*s1=='\0'&&*s2=='\0')
        return 1;

    return 0;
}
```

99. Write C++ program to perform a PUSH operation on a dynamically allocated stack

```
#include<iostream>
#include<conio.h>
using namespace std;
struct Node
{
 int data;
 Node *next;
}*top,*p;

Node* newnode(int x)
{
 p=new Node;
 p->data=x;
 p->next=NULL;
 return(p);
}

void push(Node *q)
{
 if(top==NULL)
  top=q;
 else
 {
  q->next=top;
```

```
 top=q;
 }
}

void showstack(Node *q)
{
 while(q!=NULL)
 {
  cout<<q->data<<" ";
  q=q->next;
 }
}

int main()
{

 int x;
 char ch='y';
 Node *nptr;
 while(ch=='y'||ch=='Y')
 {
  cout<<"\nEnter the data(int type):";
  cin>>x;
  nptr=newnode(x);
  push(nptr);
  cout<<"\nThe stack is:";
  showstack(top);
```

```
  cout<<"\n\nWnat push more(y/n):";
  cin>>ch;
 }
return 0;
}
```

100. Write C++ Program for Linked List Representation of Linear Queue

```
#include<iostream>
#include<stdlib.h>
using namespace std;
using namespace std;

struct node
{
        int data;
        struct node *next;
}*front=NULL,*rear,*temp;


void ins()
{
        temp=new node;
        cout<<"Enter data:";
        cin>>temp->data;
        temp->next=NULL;

        if(front==NULL)
                front=rear=temp;
        else
        {
                rear->next=temp;
                rear=temp;
```

```
        }
        cout<<"Node has been inserted\n";
}


void del()
{
        if(front==NULL)
                cout<<"Queue is empty\n";
        else
        {
                temp=front;
                front=front->next;
                cout<<"Deleted node is "<<temp->data<<"\n";
                delete(temp);
        }
}


void dis()
{
        if(front==NULL)
                cout<<"Queue is empty\n";
        else
        {
                temp=front;
                while(temp->next!=NULL)
```

```
                {
                        cout<<temp->data<<"->";
                        temp=temp->next;
                }

                cout<<temp->data;
        }
}


main()
{
        int ch;
        while(1)
        {
                cout<<"\n*** Menu ***"
<<"\n1.Insert\n2.Delete\n3.Display\n4.Exit";
                cout<<"\n\nEnter your choice(1-4):";
                cin>>ch;
                cout<<"\n";

                switch(ch)
                {
                        case 1:  ins();
                                 break;
                        case 2: del();
                                 break;
```

```
                    case 3: dis();
                            break;
                    case 4: exit(0);
                            break;
                    default: cout<<"Wrong Choice!!!";
                }
            }

            return 0;
}
```