**Question No 1:**

**||CH NO 4||**

**Program No 4.13:**

**CODE:**

#include <iostream>

using namespace std;

int main(){

int kilom;

int liter;

float avg;

cout<<"Enter kilometers driven (-1 to quit) ";

cin>>kilom;

int count;

while(kilom !=-1){

count++;

cout<<"Enter liters used ";

cin>>liter;

float current\_avg = kilom / liter;

avg = current\_avg/count;

cout<<"Kms per liter this trip: "<<current\_avg<<"\n";

cout<<"Total kms per liter:"<<avg<<"\n";

cout<<"Enter kilometers driven (-1 to quit) ";

cin>>kilom;

}

return 0;

}

**Program No 4.14:**

**CODE:**

#include <iostream>

using namespace std;

int main(){

double totalChargesMonth = 0;

double totalCreditsMonth = 0;

int accountNumber;

double initialBalance;

double availableCredit;

double newBalance;

cout << "Enter account number (or -1 to quit) : ";

cin >> accountNumber;

while( accountNumber!=-1)

{

cout << "Enter beginning balance: ";

cin >> initialBalance;

cout << "Enter total charges: ";

cin >> totalChargesMonth;

cout << "Enter total credits: ";

cin >> totalCreditsMonth;

cout << "Enter credit limit: ";

cin >> availableCredit;

newBalance = (initialBalance + totalChargesMonth - totalCreditsMonth) ;

if ( newBalance > availableCredit)

{

cout << "\nNew balance is " << newBalance << endl;

cout << "Account: " << accountNumber << endl;

cout << "Credit limit: " << availableCredit << endl;

cout << "Balance: " << newBalance << endl;

cout << "Credit Limit Exceeded. " << endl;

}

else

{

cout << "\nNew balance is " << newBalance << endl;

}

cout << "Enter account number (or -1 to quit) : ";

cin >> accountNumber;

}

**Program No 4.15:**

**CODE**:

#include <iostream>

using namespace std;

int main(){

float w\_hours;

float Accrued;

cout<<"Enter number of hours worked (-1 to end): ";

cin>>w\_hours;

Accrued= 2+w\_hours\*0.1;

cout<<"Accrued leave "<<Accrued<<endl;

while ( w\_hours != -1){

cout<<"Enter number of hours worked (-1 to end): ";

cin>>w\_hours;

Accrued= 2+w\_hours\*0.1;

cout<<"Accrued leave "<<Accrued<<endl;

}return 0;}

**Program no 4.16:**

**CODE:**

#include <iostream>

using namespace std;

int main(){

float lap=1;

float srate;

cout<<"Enter lap(-1 to quit) :";

cin>>lap;

while(lap!=-1){

cout<<"Enter sponsership rate :";

cin>>srate;

float scont=lap\*srate;

cout<<"student contribution :"<<scont<<endl;

cout<<"Enter lap(-1 to quit) :";

cin>>lap;

float tfund;

tfund+=scont;

cout<<"Total funds raised :"<<tfund;

}

return 0;}

**Program No 4.19:**

**CODE:**

#include <iostream>

using namespace std;

int main(){

int c=1;

int l,l2;

int n;

while( c <=10){

cout<<"Enter NUmber :";

cin>>n;

if((n>l) && (n>l2)){ // n>l

l2=l;

l=n; // l=0 n=1,,

}

else if((n>l) && (n<l2)){

l2=n;

}

c++;

}

cout<<"First Largest Number is :"<<l<<endl;

cout<<"Second Largest Number is :"<<l2<<endl;

return 0;}

**Program No 4.23:**

**CODE:**

#include <iostream>

using namespace std;

int main()

{

int x,y;

if ( x < 10 )

{

if ( y > 10 )

cout << "\*\*\*\*\*" << endl;

}

else

{

cout << "#####" << endl;

cout << "$$$$$" << endl;

}

return 0;

}

**Program No 4.26:**

**CODE:**

#include <iostream>

using namespace std;

int main()

{

int x, square, c;

c = 1;

cout << "Enter side of a square: ";

cin >> x;

square = x \* x;

while ( c <= square ) {

cout << "\*";

if ( c % x == 0 )

cout << "\n";

c++;

}cout << endl;

return 0;

}

**Program No 4.33:**

**CODE:**

\*#include <iostream>

using namespace std;

int main(){

int a,b,c;

cout<<"Enter Three Numbers :";

cin>>a>>b>>c;

if((a\*a+b\*b == c\*c) || (b\*b+c\*c == a\*a) || (a\*a+c\*c == b\*b))

cout<<"They are the sides of a right triangle."<<endl;

else

cout<<"They are not the sides of a right triangle."<<endl;

return 0;}

**Program No 4.31:**

**CODE:**

#include <iostream>

using namespace std;

int main (){

double a,b,c;

cout<<"Enter Three Number : ";

cin>>a>>b>>c;

if ((a+b <=c) || (b+c <= a) || (c+a <= b))

cout<<"They could represent the sides of a triangle "<<endl;

else

cout<<"They could not represent the sides of a triangle "<<endl;

return 0;}

**Program No 4.30:**

**CODE:**

#include <iostream>

using namespace std;

int main (){

double radius;

double pie = 3.14159;

double diameter;

double circum;

double area;

cout<<"Enter Radius :";

cin>>radius;

diameter = radius\*2;

circum = radius \* 2 \* pie;

area = radius \* radius \* pie;

cout <<"The diameter of circle is " << diameter << endl;

cout <<"The circumference of circle is " << circum << endl;

cout <<"The area of circle is " << area << endl;

return 0;}

**|| CH NO 5 ||**

**Program No 5.5:**

**CODE:**

#include <iostream>

using namespace std;

int main(){

int a,i,j;

int total=0;

cout<<"Enter Number for sum :";

cin>>a;

for(i=1; i<=a; i++){

cout<<"Number :";

cin>>j;

total +=j;

}

cout << "\nThe sum of all " << a << " numbers is: " << total << "\n";

return 0;

}

**Program No 5:**

**CODE:**

#include <iostream>

using namespace std;

int main(){

int c=1;

int l,l2,l3;

int n;

while(c <= 10){

cout<<"Enter Number :";

cin>>n;

if((n > l) && (n> l2) && (n>l3)){

l3= l2;

l2=l;

l=n;}

else if ((n >l) && (n>l2) && (n<l3)){

l3=n;

}

else if ((n>l) && (n>l3) && (n<l2)){

l2=n;

}

c++;

}

cout<<"Largest Number is "<<l<<endl;

cout<<"Largest Number is "<<l2<<endl;

cout<<"Largest Number is "<<l3<<endl;

return 0;

}

**Program No 5.10:**

**CODE:**

#include <iostream>

using namespace std;

factorial(int n){

int fac=1;

while(n >=1){

fac = fac\*n;

n--;

}

cout<<"The Factorial of Number is = "<<fac<<"\n";

}

int main(){

int n ;

cout<<"Please Enter Number for Fcatorial and -1 to exit:";

cin>>n;

while(n != -1){

factorial(n);

cout<<"Please enter number for factorial : ";

cin>>n;

}

return 0;

}

**Program No 5.12:**

**Code:**

#include <iostream>

using namespace std;

int main (){

int n, i;

for (n=10; n>=0; n--){ // -- or changing kar ke structure ulta ho giya

for (i=1; i<=n; i++){

cout<<"\*";

}

cout<<"\n";

}

return 0;

}

b- #include <iostream>

using namespace std;

int main (){

int n, i ;

for (n=0; n<=10; n--){

for(i=1; i>=n; i--){

cout<<"\*";

}

cout<<"\n";

}}

**Program No 5.13:**

**CODE:**

#include <iostream>

using namespace std;

int main(){

int a,b,c,d,e;

cout<<"Enter five Numbers Between 1 to 30 :";

cin>>a>>b>>c>>d>>e;

for(int i=1; i<=a; i++){

cout<<"\*";

}

cout<<endl;

for(int i=1; i<=b; i++){

cout<<"\*";

}

cout<<endl;

for(int i=1; i<=c; i++){

cout<<"\*";

}

cout<<endl;

for(int i=1; i<=d; i++){

cout<<"\*";

}

cout<<endl;

for(int i=1; i<=e; i++){

cout<<"\*";

}

return 0;

}

**Program No 5.17:**

**CODE:**

#include<iostream>

using namespace std;

int main (){

int i=1;

int j=2;

int k=3;

int m=2;

cout << ( i == 1 ) << endl;

cout << ( j == 3 ) << endl;

cout << ( i >= 1 && j < 4 ) << endl;

cout << ( m <= 99 && k < m ) << endl;

cout << ( j >= i || k == m ) << endl;

cout << ( k + m < j || 3 -j >= k ) << endl;

cout << ( !m ) << endl;

cout << ( !( j - m ) ) << endl;

cout << ( !( k > m ) ) << endl;

return 0;

}

**Program No 5.19:**

**CODE:**

#include <iostream>

using namespace std;

int main(){

int c = 1;//loop start karne ke liye

float ver = 1; //jis se value dvd karni

int even\_odd=1;//

while(c<20){

// cout<<4/ver;

if(even\_odd%2==0){//agr even odd se 2 dvd karne se 0 aye to + warna -

cout<<" + "<<"4/"<<ver;

}

else{

cout<<" - "<<"4/"<<ver;

}

ver=ver +2;

c++;

even\_odd++;

}

return 0;

}

**Program No 5.9:**

**CODE:**

#include < iostream>

using namespace std;

int main()

{

int result = 1;

for( int i = 1; i <= 15; i++ )

{

if( i%2 == 1)

result \*= i;

}

cout << "result is " << result << endl;

return 0;

}

**Program No 5.10:**

**CODE:**

#include < iostream>  
using namespace std;  
int main()  
{  
int result = 1;  
for( int n = 1; n <= 5; n++ ) {  
result \*= n;  
cout << "Factorial of\t" << n << "\tis\t" << result << endl;  
}  
return 0;  
}

**|| CH NO 6 ||**

**Program No 6.34:**

**CODE:**

#include <iostream>

#include <cstdlib>

#include <ctime>

using namespace std;

int main()

{

int num, guess, tries = 0;

srand(time(0)); //seed random number generator

num = rand() % 1000 + 1; // random number between 1 and 1000

cout << "Guess My Number Game\n\n";

do

{

cout << "Enter a guess between 1 and 1000 : ";

cin >> guess;

tries++;

if (guess > num)

cout << "Too high!\n\n";

else if (guess < num)

cout << "Too low!\n\n";

else

cout << "\nCorrect! You got it in " << tries << " guesses!\n";

} while (guess != num);

return 0;

}

**Program No 6.21:**

**CODE:**

#include<iostream>

using namespace std;

bool even(int n);

int main()

{

int n;

while(n<=5)

{

cout<<"Enter a number" << std::endl;

cin >> n;

if(even(n))

{cout << n << " Is Even " << endl;}

else

{cout << n << " Is Odd " <<endl;}

}

return 0;

}

bool even(int n)

{

if(n%2 == 0)

{return true;}

else

{return false;}

}

**Program No 6.22:**

**CODE:**

#include <iostream>

using namespace std;

void square(int);

int side;

int main()

{

cout <<"Enter side: ";

cin >> side;

square(side);

return 0;

}

void square(int side)

{

for(int i=1; i<=side; i++)

{

for(int j=1; j<=side; j++)

{

cout<< "\*";

}

cout<<endl;

}

}

**Program No 6.23:**

**CODE:**

#include <iostream>

using namespace std;

void square(int);

int side;

int main()

{

cout <<"Enter side: ";

cin >> side;

square(side);

return 0;

}

void square(int side)

{

for(int i=1; i<=side; i++)

{

for(int j=1; j<=side; j++)

{

cout<<"#";

}

cout<<endl;

}

}

**Program No 6.27:**

**CODE:**

#include <iostream>

using namespace std;

double smallest(double, double, double);

int main()

{

double i, j, k;

cout <<"Enter three floating point numbers: ";

cin >>i>>j>>K;

cout <<"The smallest is"<< smallest(i, j, k);

return 0;

}

double smallest(double i, double j, double k)

{

double small;

small = i;

if( i > j)

{

if( j > k)

small = k;

else

small = j;

}

else

{

if( i > k)

small = k;

}

return small;

}

**Program No 6.30:**

**CODE:**

#include <iostream>

using namespace std;

int main()

{

int n, reversedN = 0, remainder;

cout << "Enter an integer: ";

cin >> n;

while(n != 0)

{

remainder = n%10;

reversedN = reversedN\*10 + remainder;

n /= 10;

}

cout << "Reversed Number = " << reversedN;

return 0;

}

**Program No 6.17:**

**CODE:**

#include <iostream>

#include<ctime>

using namespace std;

using std::rand;

int main()

{

srand(time( 0 ));

cout << "a) 2, 4, 6, 8, 10 : "<<endl <<"Your random is:"<<(rand() % 5 + 1) \* 2 << endl;

cout << "b) 3, 5, 7, 9, 11 : "<<endl <<"Your random is:" << (rand() % 5 + 1) \* 2 + 1 << endl;

cout << "c) 6, 10, 14, 18, 22 : " <<endl <<"Your random is:"<< ((rand() % 5 + 1) \* 2 + 1) \* 2 << endl;

return 0;

}

**Program No 6.33:**

**CODE:**

#include <cstdlib>

#include <ctime>

#include <iostream>

using namespace std;

inline bool flip( void ) { return rand() % 2; }

int main() {

int heads{ 0 };

int tails{ 0 };

srand( time( 0 ) );

for ( int i{ 1 }; i <= 100; ++i )

flip() ? heads++ : tails++;

cout << "Heads: " << heads

<< "\nTails: " << tails

<< endl;

return 0;

}

**Program No 6.13:**

**CODE:**

#include <cmath>

#include <iostream>

using namespace std;

int main() {

for ( int i{ 1 }; i <= 5; ++i ) {

double x;

cout << "Number: ";

cin >> x;

double y{ floor( x + 0.5 ) };

cout << "Nearest integer for " << x << " is " << y << '\n' << endl;

}

return 0;

}