

FOR - LOOP

HELLO WORLD TEN TIMES

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

• TABLE OF 3

```
#include <iostream>
using namespace std;
int main()
{
    // do-loop
    for(int i=1; i<=10; i++)
    {
        cout << 3 * " " << i << = >> 3 * endl;
    }
    return 0;
}
```

TABLE OF USER

CHOICE AND USER

LIMIT:-

```
#include <iostream>
using namespace std;
```

```
int main()
```

```
{
```

```
// variable declaration
```

```
int x, limit;
```

```
// input phase
```

```
cout << "Enter no. of table: ";
cin >> x;
```

```
cout << "Enter limit of table: ";
cin >> limit;
```

```
// do-loop
for (int i=1; i<limit; i++)
{
    cout << i << endl;
}

xelvin D;
```

INTEREST RATE CALCULATOR:-

```
# include <iostream>
using namespace std;
```

```
int main()
```

```
{
```

```
// variable declaration
```

```
int balance, years;
```

```
double rate;
```

```
// input phase
```

```
cout << "Enter starting balance : " ;
```

```
cin >> balance;
```

```
cout << "Enter rate of interest : " ;
```

```
cin >> rate;
```

```
cout << "Enter how many Years to"
```

```
which rate is calculated : " ;
```

```
cin >> Years;
```

// for-loop

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

{

balance = balance * rate;

}

// showing results

cout << "The balance after " << years
<< " years is " << balance << endl;

return 0;

}

WHOLE SUM

```
# include <iostream>
using namespace std;
int main()
```

```
{  
    // variable declaration  
    int x;  
    int sum;
```

```
    // variable initialization  
    sum = 0;
```

```
    // input phase  
    cout << "Enter any integer: " ;  
    cin >> x;
```

```
    // for-loop  
    for( int i=1; i<=x; i++ )
```

```
{  
    sum = sum + i;  
}
```

cout << "The sum of first "
LL * LL " numbers are " LL << = "
LL sum /& endl;

return 0;

}

ASSIGNMENT:- Q12

FACTORIAL

```
# include <iostream>
using namespace std;
```

```
int main()
```

```
{
```

```
// variable declaration
```

```
int x, product;
```

```
// variable initialization
```

```
product = 1;
```

```
// input phase
```

```
cout << "Enter an integer : ";
```

```
cin >> x;
```

```
// for-loop
```

```
for (int i=x; i>=1; (--))
```

```
{
```

```
product = product * i;
```

```
cout << i << * " , ;
```

```
}
```

// showing results

cout << "b b = " // product;

return 0;

}

ASSIGNMENT :13

FIBONACCI SERIES :-

```
#include <iostream>
using namespace std;
int main()
```

{

```
// variable declaration
```

```
int x, newterm, prevterm, sum;
```

```
// variable initialization
```

```
prevterm=0;
```

```
newterm=1;
```

```
// input phase
```

```
cout << "Enter number of elements:"
```

```
cin >> x;
```

```
cout << prevterm << ", "
```

```
// for-loop
```

```
for(i=2; i<=x; i++)
```

```
{
```

```
cout<<newterm << " ";
```

```
sum = newterm + prevterm;
```

```
prevterm = newterm;
```

```
newterm = sum;
```

```
}
```

```
return 0;
```

```
}
```

ASSIGNMENT 10

EXponential of Number using Taylor Series

```
# include <cmath>
# include <iostream>
using namespace std;
```

```
int main()
```

```
{ // variable declaration
```

```
int x, n;
```

```
double exp;
```

```
int fact;
```

```
// variable initialization
```

```
exp = 1.0;
```

```
fact = 1;
```

```
// input phase
```

```
cout << "Enter a value whose  
exponential needs to be  
evaluated: ";
```

```
cin >> x;
```

cout << "Enter number of terms
for evaluation: ";

cin >> n;

// for-loop

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

{

fact = fact * i;

exp = exp + (pow(x,i)/fact);

}

cout << "Result is : " << exp << endl;

return 0;

}

ASSIGNMENT Q-15

```
#include <iostream>
#include <cmath>
using namespace std;
int main()
```

{

```
// variable declaration
double a,b,c;
```

```
// for-loop
```

```
for (int i=1; i<=3; i++)
```

{

```
// input phase
```

```
cout << "Enter length of three sides";
cin >> a >> b >> c;
```

```
// decision making
// if-else construct
```

```
if ( Pow(a,2) == Pow(b,2) + Pow(c,2) )  
    Pow(b,2) == Pow(a,2) + Pow(c,2) )  
    Pow(c,2) == Pow(a,2) + Pow(b,2) )
```

{

cout << "The sides represent
right triangle." << endl << endl;

}

else

{

cout << "The sides don't represent
right triangle." << endl << endl;

}

}

return 0;

{

TASK:01

// HELLO WORLD TEN TIMES

```
#include <iostream>
using namespace std;
int main()
```

{

// variable declaration and initialization

```
int i=1;
```

// while loop

```
while (i <= 10)
```

{

```
cout << "Hello World" <endl;
```

```
+ i;
```

}

```
return 0;
```

}

TASK : 02

// HELLO WORLD : INFINITE

TIMES

```
#include <iostream>
using namespace std;
```

```
int main()
```

```
{
```

// variable declaration and initialization

```
int i=1;
```

// While loop

```
while (i<=5)
```

```
{
```

```
cout << "Hello World" ;
```

// no manipulation statement

```
}
```

```
return 0;
```

```
}
```

TASK :03

TABLE OF '3'

```
# include <iostream>
using namespace std;
```

```
int main()
```

```
{
```

```
// variable declaration and initialization
```

```
int i=1;
```

```
// While loop
```

```
while( i<=10 )
```

```
{ cout << "3 * " << i << "=" << 3*i << endl;
```

```
    ++i;
```

```
}
```

```
return 0;
```

```
}
```

TASK : 04

TABLE OF USER CHOICE

```
# include <iostream>
using namespace std;
int main()
```

{

```
// variable declaration and initialization
int i=1;
int x;
```

```
// input phase
```

```
cout << "Enter the no. of table" ;
cin >> x;
```

```
// While loop
```

```
While (i<=10)
```

{

```
cout << x << "*" << i << "="
// x*i << return 0%; endl;
```

```
++i;
```

}

```
    return 0;
```

```
}
```

TASK:05

TABLE OF USER CHOICE AND USER LIMIT

```
# include <iostream>
using namespace std;
int main()
```

```
{
```

```
// variable declaration and initialization
```

```
int i=1;
int x, limit;
```

```
// input phase
```

```
cout << "Enter the no. of table: ";
cin >> x;
```

```
cout << "Enter the limit of table: ";
cin >> limit;
```

// While loop

while ((i < limit)

{

cout << * i << endl;

i++;

}

return 0;

}

TASK: 06

WHOLE SUM

```
# include <iostream>
using namespace std;
int main()
```

{

```
// variable declaration and initialization
```

```
int i=1;
int sum=0;
int x;
```

```
// input phase
```

```
cout<<"Enter the number from which  
you want sum";
```

```
cin>>x;
```

```
// While loop
```

```
while(i<=x)
```

{

```
sum = sum + i;
```

```
i++;
```

}

// Showing results
cout << "The sum of first "
<< x << " numbers are " << sum
<< endl;

return 0;

}

TASK :07

FACTORIAL

```
# include <iostream>
using namespace std;
int main()
```

{

```
// variable declaration and  
initialization
```

```
int i=1;  
int x;  
int product=1;
```

```
// input phase
```

```
cout << "Enter the no. of factorial : ";  
cin >> x;
```

```
// While loop
```

```
while (i <= x)
```

{

```
product = product * i;  
i++;
```

}

// showing results
cout << "Factorial = " << product // endl;
return 0;

}

TASK : 08

INTEREST RATE CALCULATOR

```
#include <iostream>
using namespace std;
int main()
{
    // variable declaration and initialization
    double starting balance, rate;
    int i=1;
    int Years;

    // input phase
    cout << "Enter starting balance: ";
    cin >> starting balance;

    cout << "Enter rate of interest: ";
    cin >> rate;

    cout << "Enter how many Year to which
rate is calculated: ";
    cin >> Years;
```

While (i < years)

{

starting balance = starting balance * rate;
+ + i;

}

cout << "The balance after "
" years " << years was " << starting
balance << endl;

return 0;

}

TASK : 09

INTEREST RATE YEAR WISE

include <iostream>
using namespace std;
int main()

{

// variable declaration and initialization

```
int i=1;  
int Year;  
double balance;  
double rate;
```

// input phase

```
cout << "Enter starting balance: " ;  
cin >> balance;
```

```
cout << "Enter rate of interest: " ;  
cin >> rate;
```

```
cout << "Enter how many Years to which  
balance is calculated: " ;
```

```
cin >> Years;
```

// While-loop

while (i <= Years)

{

 balance = balance * rate;
 cout << i << " : " << balance << endl;
 i++;

}

cout << "The total balance after"
"Years " << Years << " was "
<< balance << endl;

return 0;

}

TASK : 10

SQRT #include <cmath>

```
#include <iostream>
using namespace std;
int main()
```

{

// variable declaration

```
int x;
```

// input phase

```
cout << "Enter an integer: " ;
```

```
cin >> x;
```

// While loop

```
while (x > 0)
```

{

```
cout << "The sqrt of " << x
```

```
<< " is " << sqrt(x) << endl;
```

cout << "Enter any positive number"

for sqrt and negative or zero

" to end program " ;

```
cin >> x;
```

{}

```
    return 0;  
}
```

Task: 11 CBRT

```
#include <iostream>  
#include <cmath>  
using namespace std;  
int main()
```

```
{
```

```
// variable declaration  
int x;
```

```
// input phase
```

```
cout << "Enter any integer for CBRT";  
cin >> x;
```

```
// While-loop
```

```
while (x > 0)
```

```
{
```

```
cout << "The cbrt of " << x  
<< " is " << cbrt(x) << endl;
```

cout << "Enter any other positive
number or zero or negative number
to exit ";

cin >> x;

}

return 0;

}

ASSIGNMENT

Q-11

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

{

```
// variable declaration
int hoursworked;
double rate, pay;
```

// input phase

```
cout<<"Enter hours worked (-1 to end) : ";
cin>> hoursworked;
```

// While-loop

```
while (hoursworked >= 0)
```

{

```
cout<<"Enter hourly rate of the employee: ";
cin>> rate;
```

// Decision making
// if-if construct

if (hoursworked \leq 40)

{ pay = hoursworked * rate;

}

if (hoursworked > 40)

{

pay = (((hoursworked) - 40) * rate * 1.5) +
40 * rate ;

}

// showing results

cout << salary is " " // fixed
// setprecision(2) // pay in Rs"
// endl // endl;

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

`cin >> hoursworked;`

`}`

`getch();`

`return 0;`

`}`

Q.14:-

```
#include <iostream>
using namespace std;
int main()
{
    // variable declaration
    double a,b,c;
    int i;
    // variable initialization
    i=1;
    // While - loop
    while (i<=3)
    {
        // input phase
        cout<< "Enter length of three sides: ";
        cin>>a>>b>>c;
        // decision making
        // if - else construct
    }
}
```

if ($a+b > c$ && $a+c > b$ && $b+c > a$)

{

cout << "They are sides of Triangle."

<< endl;

}

else

{

cout << "They are not sides of
Triangle.";

cout << endl;

}

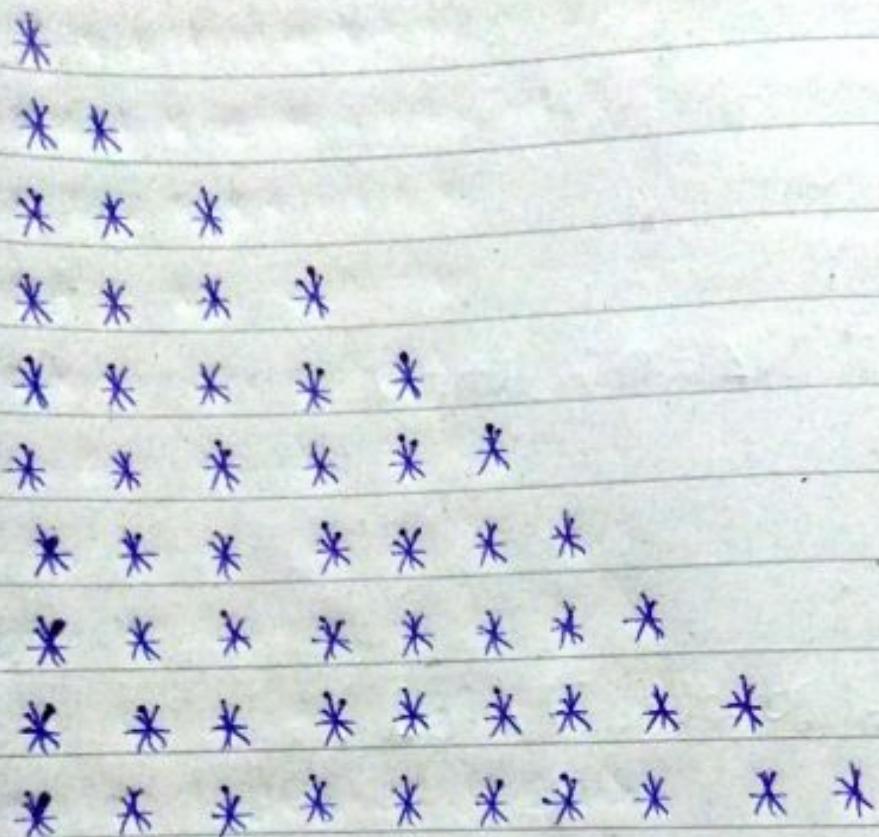
{

return 0;

}

STAR PATTERNS

Q.18 (a)



```
# include <iostream>
using namespace std;
int main()
```

{

// variable declaration and
initialization

char star = '*' ;

// nested for-loop

```
for (int i=1; i<=10; i++)
```

```
{
```

```
    for (int j=1; j<=i; j++)
```

```
{
```

```
    cout << star;
```

```
}
```

```
    cout << endl;
```

```
}
```

```
return 0;
```

```
}
```

Q. 18 (b)

A series of horizontal lines representing handwriting practice. The first line contains ten large, stylized blue asterisks. Subsequent lines contain progressively fewer asterisks, starting at nine and ending at one, demonstrating a decrease in size or frequency.

```
#include <iostream>
using namespace std;
int main()
```

۸

// variable declaration and
initialization
char str = 'e' * 9; ;

// nested for-loop

```
for (int i=10; i>=1; i--)
```

```
{
```

```
for (int j=1; j<=i; j++)
```

```
{
```

```
cout << star ;
```

```
}
```

```
cout << endl;
```

```
}
```

```
return 0;
```

```
}
```

Q.18 (c)

```
*****
 ****
 *****
 ****
 ****
 ****
 ****
 ****
 ****
 ****
```

```
#include <iostream>
using namespace std;
int main()
```

```
{
```

```
// variable declaration and  
initialization
```

```
char star = '*' ;
```

```
// nested do-loop
```

```
do { int i=10; i>=1; i-- }
```

```
for (int j=1; j<=10-i; j++)
```

```
{
```

```
cout << " " ;  
}
```

```
for (int k=1; k<=i; k++)
```

```
{
```

```
cout << star ;
```

```
}
```

```
cout << endl ;
```

```
}
```

```
return 0;
```

```
}
```

Q-18 (a)

```
*  
**  
***  
****  
*****  
*****  
*****  
*****  
*****  
*****
```

```
# include <iostream>  
using namespace std;  
int main()
```

```
{  
// variable declaration and  
// initialization  
char star = '*' ;
```

```
// nested for loop  
for (int i=1; i<=10; i++)
```

```
{
```

```
for (int j=1; j<=10-i; j++)
```

```
{
```

```
cout << " ";
```

```
}
```

```
for (int k=1; k<=i; k++)
```

```
{
```

```
cout << star;
```

```
.
```

```
cout << endl;
```

```
}
```

```
return 0;
```

```
}
```

Q.19

```
*  
 * * *  
 * * * * *  
 * * * * * * *  
 * * * * * * *  
 * * * * *  
 * * *  
 *
```

```
#include <iostream>  
using namespace std;  
int main()
```

{

```
// variable declaration and initialization  
char star = '*' ;
```

```
// nested for loop  
for (int i=1; i<=5; i++)
```

{

```
    for (int j=1; j<=9-i; j++)
```

{

```
cout << " ";
```

```
}
```

```
for (int k=1; k<=2*i-1; k++)
```

```
{
```

```
cout << star;
```

```
}
```

```
for (int i=4; i>=1; i--)
```

```
{
```

```
for (int j=1; j<=9-i; j++)
```

```
{
```

```
cout << " ";
```

```
}
```

```
for (int k=1; k<=2*i-1; k++)
```

```
{
```

```
cout << star;
```

```
}
```

cout << endl;

}

return 0;

}

CS - 2

Q.20

```
# include <iostream>
using namespace std;
```

```
int main()
```

```
{ //variable declaration
```

```
int halfrows, totalrows;
```

```
char star;
```

```
// input phase
```

```
cout << "Enter the number of rows"
```

```
of diamond an odd number range
```

```
(1-19) : " ;
```

```
cin >> totalrows;
```

```
//variable initialization
```

```
halfrows = (totalrows / 2);
```

```
star = '*';
```

```
//nested for -loop
```

```
for (int i=1; i<=halfrows; ++)
```

```
{
```

```
    for (int j=1; j<=Totalrows-i; j++)
```

```
{
```

```
    cout << " ";
```

}

for (int K=1; KL > 2*i-1; K++)

{

cout << star;

}

cout << endl;

}

for (int i = totalrows - halfrows; i >= 1; i--)

{

for (int J=1; JL > totalrows-i; J++)

{

cout << " ";

}

for (int K=1; KL > 2*i-1; K++)

{

cout << star;

}

cout << endl;

}

return 0;

}

TASK: 01


```
#include <iostream>
using namespace std;
int main()
```

{

```
//variable declaration and initialization
char star = '*' ;
```

```
// nested for-loop
```

```
for (int i=1; i<=5; i++)
```

{

```
for (int j=1 ; j<=5 ; ++j)
```

```
{
```

```
    cout << star;
```

```
}
```

```
    cout << endl;
```

```
}
```

```
return 0;
```

```
}
```

Task: 02

*
**


```
# include <iostream>
using namespace std;
int main()
```

```
{ // variable declaration and initialization
char star = '*';
```

```
// nested for-loop
for (int i=1; i<=5; i++)
```

```
{ // nested for-loop
for (int j=1; j<=i; ++j)
```

```
{ cout << star;
}
```

```
cout << endl;
```

```
}
```

```
return 0;
```

```
}
```

TASK: 03

```
*****
```

```
*****
```

```
****
```

```
***
```

```
*
```

```
#include <iostream>
```

```
using namespace std;
```

```
int main()
```

```
{
```

```
// variable declaration and initialization
```

```
char star = '*' ;
```

```
// nested for-loop
```

```
for (int i=1; i<=9; i+=2)
```

```
{
```

```
    for (int j=9; j>=i; j--)
```

```
{
```

```
cout << str1;
```

```
}
```

```
cout << endl;
```

```
}
```

```
return 0;
```

```
}
```

Task: 04

```
*
```

```
**
```

```
***
```

```
****
```

```
*****
```

```
******
```

```
***** **
```

```
***** ***
```

```
***** ****
```

```
***** *****
```

```
***** **** *
```

```
***** *** * *
```

```
#include <iostream>
using namespace std;
int main()
```

{

//variable declaration and initialization

char star = '*' ;

//nested for-loop

for (int i=1; i<=10; i++)

{

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

{

cout << star;

}

cout << endl;

}

return 0;

}

TASK :05

```
*****  
*****  
**** * ***  
***** * *  
***** *  
**** *  
*** *  
**  
*
```

```
#include <iostream>  
using namespace std;  
int main()
```

```
{
```

```
//variable declaration and initialization  
char star = '*' ;
```

```
//nested for-loop
```

```
for (int i=1; i<=10; i++)
```

```
{
```

```
    for (int j=10; j>=i; --j)
```

```
{ cout << star;
```

```
}
```

cout << endl;

}

return 0;

}

TASK : 06

```
*****  
*****  
*****  
*****  
****  
***  
**  
*
```

```
#include <iostream>  
using namespace std;  
int main()
```

```
{
```

```
//variable declaration and initialization  
char star = '*' ;
```

```
//nested for-loop
```

```
for (int i=10; i>=1; i--)
```

```
{
```

```
    for (int j=1; j<=10-i; ++j)
```

```
{
```

```
cout << re " " ;
```

```
}
```

```
for (int k = 1; k < i; k++)
```

```
{
```

```
cout << star;
```

```
}
```

```
cout << endl;
```

```
}
```

```
return 0;
```

```
}
```

TASK 07

```
*  
* * *  
* * * *  
* * * * *  
* * * * * *  
* * * * * * *  
* * * * * * * *
```

```
#include <iostream>
```

```
using namespace std;
```

```
int main()
```

```
{
```

```
// variable declaration & initialization
```

```
char star = '*';
```

```
// nested for-loop
```

```
for (int i=1; i<=10; ++i)
```

```
{
```

```
    for (int j=1; j<=10-i; ++j)
```

```
{
```

```
    cout << star;
```

```
}
```

```
for(int k=1; k<=i; k++)
```

```
{
```

```
cout<<star;
```

```
}
```

```
cout<<endl;
```

```
}
```

```
return 0;
```

```
}
```

TASK 08

```
*  
**  
***  
****  
*****  
***  
***  
***  
**  
*
```

initializing
order

decreasing
order

```
#include <iostream>  
using namespace std;  
int main()  
{  
    //variable declaration and initialization  
    char star = '*';  
  
    // nested -loop  
    for (int i=1; i<=5; i++)  
    {  
        for (int j=1; j<=i; j++)  
        {  
            cout << star;  
        }  
    }  
}
```

cout << endl;

}

for (int i=1; i<=4; i++)

{

for (int k=4; k>=i; --k)

{

cout << star;

}

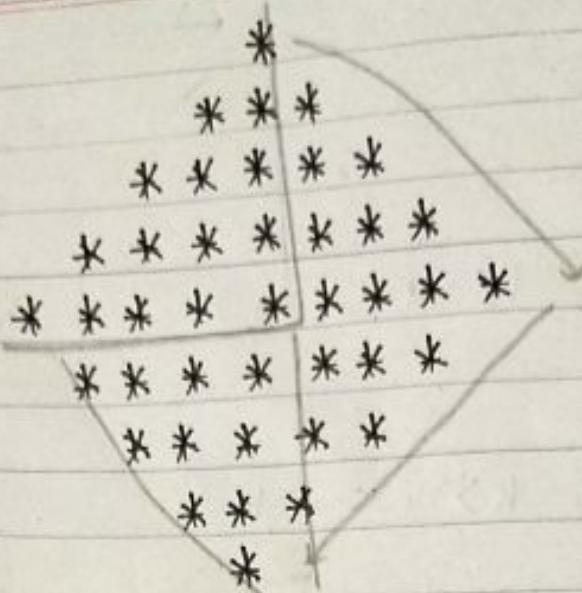
cout << endl;

}

return 0;

}

TASK : 09



```
#include <iostream>
using namespace std;
int main()
```

{

```
// variable declaration and initialization
char star = '*' ;
```

```
// nested for-loop
```

```
for (int i=1; i<=5; i++)
```

{

```
    for (int j=1; j<=9-i; j++)
```

{

```
        cout << " " ;
```

}

```
for (int k=1; k<=2*i-1; k++)
```

```
{
```

```
cout << star;
```

```
}
```

```
cout << endl;
```

```
}
```

```
for (int i=4; i>=1; i--)
```

```
{
```

```
for (int j=1; j<=9-i; j++)
```

```
{
```

```
cout << " ";
```

```
}
```

```
for (int k=1; k<=2*i-1; k++)
```

```
{
```

```
cout << star;
```

```
}
```

```
cout << endl;
```

```
{
```