**Practical Assignment-3**

**(Based on Looping- For and While)**

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**Q.1 WAP to find factorial of a number using function.**

#include<iostream>

using namespace std;

int main(){

int number,factorial=1;

cout<<"ENTER A NUMBER: ";

cin>>number;

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

factorial \*=i;

}

cout<<"Factorial of "<<number<<" is "<<factorial;

return 0;

}

**OUTPUT:**



**Q.2 Write programs for following star patterns for n rows.**

**a)**

**\***

**\* \***

**\* \* \***

**\* \* \* \***

**\* \* \* \* \***

#include<iostream>

using namespace std;

int main(){

unsigned int n;

cout<<"ENTER NUMBER OF ROWS: ";

cin>>n;

for (int row = 1; row<=n; row++){

for (int stars = 0; stars < row; stars++){

cout<<"\* ";

}

cout<<endl;

}

return 0;

}

**OUTPUT:**



**b)**

**\***

**\* \***

**\* \* \***

**\* \* \* \***

**\* \* \* \* \***

#include<iostream>

using namespace std;

int main(){

unsigned int n;

cout<<"ENTER NUMBER OF ROWS: ";

cin>>n;

for (int row = 1; row<=n; row++){

for (int space = n; space > row; space--){

cout<<" ";

}

for (int stars = 0; stars < row; stars++){

cout<<"\* ";

}

cout<<endl;

}

return 0;

}

**OUTPUT:**



**c)**

**\* \* \* \* \***

**\* \* \* \***

**\* \* \***

**\* \***

**\***

#include<iostream>

using namespace std;

int main(){

unsigned int n;

cout<<"ENTER NUMBER OF ROWS: ";

cin>>n;

for (int row = 1; row<=n; row++){

for (int stars = n; stars >= row; stars--){

cout<<"\* ";

}

cout<<endl;

}

return 0;

}

**OUTPUT:**



**d)**

**\***

**\* \***

**\* \* \***

**\* \* \* \***

**\* \* \* \* \***

#include<iostream>

using namespace std;

int main(){

unsigned int n;

cout<<"ENTER NUMBER OF ROWS: ";

cin>>n;

for (int row = 1; row<=n; row++){

for (int space = n; space > row; space--){

cout<<" ";

}

for (int stars = 0; stars < row; stars++){

cout<<"\* ";

}

cout<<endl;

}

return 0;

}

**OUTPUT:**



**e)**

**\***

**\*\*\***

**\*\*\*\*\***

**\*\*\*\*\*\*\***

#include<iostream>

using namespace std;

int main(){

unsigned int n;

cout<<"ENTER NUMBER OF ROWS: ";

cin>>n;

for (int row = 1; row<=n; row++){

for (int space = n-row; space>0; space--){

cout<<" ";

}

for (int stars = 0; stars < row\*2-1; stars++){

cout<<"\*";

}

cout<<endl;

}

return 0;

}

**OUTPUT**:



**Q.3 WAP to print the following number pyramids for n rows:**

**a) 1**

**22**

**333**

**4444**

**55555**

#include<iostream>

using namespace std;

int main(){

unsigned int n;

cout<<"ENTER NUMBER OF ROWS: ";

cin>>n;

for (int row = 1; row <= n; row++){

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

cout<<row;

}

cout<<endl;

}

return 0;

}

**OUTPUT:**



**b) 1**

**1 2**

**1 2 3**

**1 2 3 4**

**1 2 3 4 5**

**….**

#include<iostream>

using namespace std;

int main(){

unsigned int n;

cout<<"ENTER NUMBER OF ROWS: ";

cin>>n;

for (int row = 1; row <= n; row++){

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

cout<<i<<" ";

}

cout<<endl;

}

return 0;

}

**OUTPUT:**



**c) …**

**1 2 3 4 5**

**1 2 3 4**

**1 2 3**

**1 2**

**1**

#include<iostream>

using namespace std;

int main(){

unsigned int n;

cout<<"ENTER NUMBER OF ROWS: ";

cin>>n;

for (int rows=n; rows <= n; rows--){

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

cout<<i<<" ";

}

cout<<endl;

}

return 0;

}

**OUTPUT:**



**d)**

**1**

**1 2 1**

**1 2 3 2 1**

**1 2 3 4 3 2 1**

#include<iostream>

using namespace std;

int main(){

unsigned int n;

cout<<"ENTER NUMBER OF ROWS: ";

cin>>n;

for (int row = 1; row<=n; row++){

for (int space = n; space>row; space--){

cout<<" ";

}

for (int i = 1; i <= row\*2-1; i++){

if (i>row){

cout<<row-(i-row);

}

else cout<<i;

cout<<" ";

}

cout<<endl;

}

return 0;

}

**OUTPUT:**



**e)**

**1**

**2 3 2**

**3 4 5 4 3**

**4 5 6 7 6 5 4**

**5 6 7 8 9 8 7 6 5**

**6 7 8 9 0 1 0 9 8 7 6**

**Where 10 is taken as 0, 11 as 1 , 12 as 2,…**

#include<iostream>

using namespace std;

int main(){

unsigned int n;

cout<<"ENTER NUMBER OF ROWS: ";

cin>>n;

for (int row = 1; row<=n; row++){

for (int space = n; space > row; space--){

cout<<" ";

}

int row\_odd= row\*2-1;

for (int i = 0; i < row\_odd; i++){

if (row+i > row\_odd){

cout<<((row\_odd)-(i - row)-1)%10;

}

else cout<<(row+i)%10;

cout<<" ";

}

cout<<endl;

}

return 0;

}

**OUTPUT:**

