half pyramid

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

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

int main()
{
   int rows;

   cout << "Enter number of rows: ";
   cin >> rows;

   for(int i = 1; i <= rows; ++i)
   {
      for(int j = 1; j <= i; ++j)
      {
         cout << "* ";
      }
      cout << "\n";
   }
   return 0;
}
```

half pyramid a using numbers

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

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

int main()
{
   int rows;

   cout << "Enter number of rows: ";
   cin >> rows;

   for(int i = 1; i <= rows; ++i)
   {
      for(int j = 1; j <= i; ++j)
      {
         cout << j << " ";
      }
      cout << "\n";
   }
   return 0;
}
```


SD

half pyramid using alphabets

```
A
B B
C C C
D D D D
E E E E E
```

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

int main()
{
   char input, alphabet = 'A';

   cout << "Enter the uppercase character you want to
print in the last row: ";
   cin >> input;

   for(int i = 1; i <= (input-'A'+1); ++i)
   {
      for(int j = 1; j <= i; ++j)
      {
         cout << alphabet << " ";
      }
      ++alphabet;

      cout << endl;
   }
   return 0;
}
```

inverted half pyramid using * and numbers

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

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

int main()
{
   int rows;

   cout << "Enter number of rows: ";
   cin >> rows;

   for(int i = rows; i >= 1; --i)
   {
      for(int j = 1; j <= i; ++j)
      {
         cout << "* ";
      }
      cout << endl;
   }

   return 0;
}
```

Inverted half pyramid using numbers

```
1 2 3 4 5
1 2 3 4
1 2 3
1 2
1
```

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

int main()
{
  int rows;

  cout << "Enter number of rows: ";
  cin >> rows;

  for(int i = rows; i >= 1; --i)
  {
    for(int j = 1; j <= i; ++j)
    {
      cout << j << " ";
    }
    cout << endl;
  }

  return 0;
}
```

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

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

int main()
{
  int space, rows;

  cout <<"Enter number of rows: ";
  cin >> rows;

  for(int i = 1, k = 0; i <= rows; ++i, k = 0)
  {
    for(space = 1; space <= rows-i; ++space)
    {
      cout <<"  ";
    }

    while(k != 2*i-1)
    {
      cout << "* ";
      ++k;
    }
    cout << endl;
  } return 0;}
```



```
    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
```

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

int main()
{
  int rows, count = 0, count1 = 0, k = 0;

  cout << "Enter number of rows: ";
  cin >> rows;

  for(int i = 1; i <= rows; ++i)
  {
    for(int space = 1; space <= rows-i; ++space)
    {
      cout << "  ";
      ++count;
    }

    while(k != 2*i-1)
    {
      if (count <= rows-1)
      {
        cout << i+k << " ";
        ++count;
      }
      else
      {
        ++count1;
        cout << i+k-2*count1 << " ";
      }
      ++k;
    }
    count1 = count = k = 0;

    cout << endl;
  }
  return 0;
```

Inverted full pyramid using *

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

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

int main()
{
  int rows;

  cout << "Enter number of rows: ";
  cin >> rows;

  for(int i = rows; i >= 1; --i)
  {
```

```
 for(int space = 0; space < rows-i; ++space)
        cout << "  ";

     for(int j = i; j <= 2*i-1; ++j)
        cout << "* ";

     for(int j = 0; j < i-1; ++j)
        cout << "* ";

     cout << endl;
   }

   return 0;
}
```

Pascal's triangle

```
      1
     1 1
    1 2 1
   1 3 3 1
  1 4 6 4 1
 1 5 10 10 5 1
```

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

int main()
{
   int rows, coef = 1;

   cout << "Enter number of rows: ";
   cin >> rows;

   for(int i = 0; i < rows; i++)
   {
      for(int space = 1; space <= rows-i; space++)
         cout <<"  ";

      for(int j = 0; j <= i; j++)
      {
         if (j == 0 || i == 0)
            coef = 1;
         else
            coef = coef*(i-j+1)/j;

         cout << coef << "   ";
      }
      cout << endl;
   }

   return 0;
}
```

Floyd's Triangle.

```
1
2 3
4 5 6
7 8 9 10
```



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

int main()
{
   int rows, number = 1;

   cout << "Enter number of rows: ";
   cin >> rows;

   for(int i = 1; i <= rows; i++)
   {
      for(int j = 1; j <= i; ++j)
      {
         cout << number << " ";
         ++number;
      }

      cout << endl;
   }

   return 0;
}
```

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

void main()
{
 int i, j, k;
for(i=1;i<=5;i++)
{
for(j=i;j<5;j++)
{
cout<<" ";
}
for(k=1;k<(i*2);k++)
{
cout<<"*";
}
cout<<"\n";
}
for(i=4;i>=1;i--)
{
for(j=5;j>i;j--)
{
cout<<" ";
}
for(k=1;k<(i*2);k++)
{
cout<<"*";
}
cout<<"\n";}getch();}
```

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

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

void main()
{
 int i, j;
  for(i=1;i<=5;i++)
  {
     for(j=1;j<=i;j++)
     {
        cout<<i;
     }
     cout<<"\n";
  }

getch();
}
```

```
1
2 2
3 3 3
4 4 4 4
5 5 5 5 5
```

```
1
23
456
78910
#include<iostream.h>
#include<conio.h>

void main()
{
int i,j, k=1;
clrscr();
for(i=1;i<=5;i++)
{
for(j=1;j<i;j++)
{
cout<<k;
k++
}
cout<<"\n";
}
getch();
}
```

```
A
BC
DEF
GHIJ
KLMNO
#include<conio.h>
#include<iostream.h>
void main()
{
 int i,j,n;
 char c;
 clrscr();
```



```
cout<<"Eneter the no of lines to be printed: ";
 cin>>n;
 c='A';
 for(i=0;i<n;i++)
 {
 for(j=0;j<=i;j++)
 {
 if(c=='Z')
 break;
 cout<<c;
 c++;
 }
 cout<<endl;
 }
 getch();
}
```

```
I
IN
IND
INDI
INDIA
#include<iostream.h>
#include<conio.h>

void main()
{
char s[]="india";
int i,j;
clrscr();
for(i=0;s[i];i++)
{
for(j=0;j<=i;j++)
cout<<s[j];
cout<<"\n";
}
getch();
}
```

```
*
*A*
*A*A*
*A*A*A*
#include<iostream.h>
#include<conio.h>

void main()
{
int i, j;
for(i=1;i<=5;i++)
{
for(j=1;j<=i;j++)
{
if(j%2==0)
cout<<"A";
else
cout<<"*";
}
cout<<"\n";}getch();}
```

Page 9

C++ Program to Print Heart Shape

```
#include<iostream>
#include<cmath>

using namespace std;

int main()
{
   double x, y,
   size=10;
   char ch=3;
   string message(" Happy Birth  Day ");
   int print_line = 4;

   if(message.length() % 2 != 0)
      message += " ";

   for(x=0;x<size;x++)
   {
      for(y=0;y<=4*size;y++)
      {
         double dist1 = sqrt( pow(x-size,2) + pow(y-size,2) );
         double dist2 = sqrt( pow(x-size,2) + pow(y-3*size,2)
);

         if (dist1 < size + 0.5 || dist2 < size + 0.5 ) {
            cout<< ch;
         }
         else
            cout<< " ";
      }

      cout<<"\n";
   }

   for(x=1;x<2*size;x++)
   {
      for(y=0;y<x;y++)
         cout << " ";

      for (y=0;y<4*size + 1 - 2*x; y++)
      {
         if (x>= print_line - 1 && x <= print_line + 1) {
            int idx = y - (4*size - 2*x - message.length()) / 2;
            if(idx < message.length() && idx >= 0) {
               if (x == print_line)
                  cout<<message[idx];
               else cout << " ";
            }
            else
               cout << ch;
         }
         else
            cout<< ch;
      }
      cout<<endl;
   }

   return 0;
}
```


Page 10

```
      *
    * * *
      *
    * * *
  * * * * *
      *
    * * *
  * * * * *
* * * * * * *
      | |
      | |
```

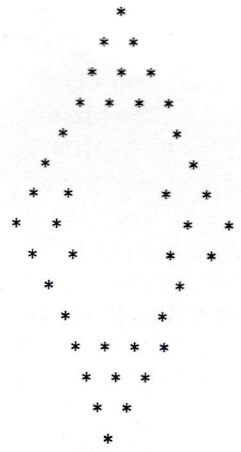
```
#include<iostream>
using namespace std;
int drawTreeLevels(int n, int space)
{
int i,j,s;
for(i=1; i<=n; i++)
{
s=n-i+space;
while(s!=0)
{
cout<<" ";
s--;
}
for(j=1; j<=i*2-1; j++)
{
cout<<"* ";
}
cout<<"\n";
}
}
int main()
{
int i,n,s,l=2;
cout<<"Enter the number of tree levels
programology content ";
cin>>n;
cout<<"The Tree programology content";
while(l<=n+1)
{
 s=n-l+1;
 drawTreeLevels(l,s);
 l++;
}
for(i=1;i<n;i++)
{
 s=n*2-1;
 while(s!=0)
 {
 cout<<" ";
 s--; }cout<<"| |"<<endl;}}
```

```
1 3 5 7 9
1 3 5 7
1 3 5
1 3
1
1 3
1 3 5
1 3 5 7
1 3 5 7 9
#include <iostream>
using namespace std;
int main()
{
int n,i,j;
cout<<"Enter the number of rows : ";
cin>>n;
for(i=n;i>=1;i--)
{
for(j=1;j<=i*2;j=j+2)
{
cout<<j<<" ";
}
cout<<endl;//programology COntent
}
for(i=2;i<=n;i++)
{
for(j=1;j<=i*2;j=j+2)
{ProgramologyContent
cout<<j<<" ";
}
cout<<endl;
}
return 0;
}
```

```
1*******
12*****
123****
1234***
12345**
123456*
1234567
#include<iostream>
using namespace std;
int main()
{
int i,j;
for(i=1;i<=7;i++)
{
for(j=1;j<=7;j++)
{
if(j<=i)
cout<<j;
else//programology content
cout<<"*";
}cout<<endl;
}return 0;}
```



```
    * *
   ** **
  *** ***
 **** ****
***** *****
***** *****
 **** ****
  *** ***
   ** **
    * *
#include<iostream>
using namespace std;
int main()
{
int i,j,n,s,c;
cout<<"Enter number of rows programology
content ";
cin>>n;
cout<<"The star triangle programology
content"<<endl;
for(i=1; i<=n; i++)
{
s=n-i;
while(s>0)
{
cout<<" ";
s--;
}
for(j=1; j<=i*2; j++)
{
if(j==i+1)
cout<<" ";
cout<<"*";
}
cout<<endl;
}
for(i=n; i>=1; i--)
{
s=n-i;
while(s>0)
{
cout<<" ";
s--;
}
for(j=1; j<=i*2; j++)
{
if(j==i+1)
cout<<" ";
out<<"*";
}
cout<<endl;}return 0;}
```



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

int i,j,n,s;
cout<<"Enter number of rows : ";
cin>>n;
//programology content
cout<<"The Star is "<<endl;
for(i=1; i<=n; i++)
{
s=(2*n-1)+n-i;
while(s!=0)
{
cout<<" ";
s--;
}
for(j=1; j<=i*2-1; j++)
{
if(j%2!=0)
cout<<"*";
else
cout<<" ";
}
cout<<endl;
}
for(i=1; i<=n; i++)
{
s=n-i;
while(s>0)
{
cout<<" ";
s--;
}
for(j=1; j<=i; j++)
{
if(i%2!=0)
 (j%2!=0) ? cout<<"*" : cout<<" ";
else if(i%2==0)
 (j%2==0) ? cout<<" " : cout<<"*";
}
```



```
 if(i!=1) cout<<" ";
 s=2*n-1;
 while(s>0)
 {
 cout<<" ";
 s--;
 }
 for(j=1; j<=i; j++)
 {
 if(i%2!=0)
  (j%2!=0) ? cout<<" *" : cout<<" ";
 else if(i%2==0)
  (j%2==0) ? cout<<" *" : cout<<" ";
 }
 cout<<endl;
 }
 for(i=n-1; i>=1; i--)
 {
 s=n-i;
 while(s>0)
 {
 cout<<" ";
 s--;
 }
 for(j=1; j<=i; j++)
 {
 if(i%2!=0)
  (j%2!=0) ? cout<<"*" : cout<<" ";
 else if(i%2==0)
  (j%2==0) ? cout<<" " : cout<<"*";
 }
 if(i!=1) cout<<" ";
 s=2*n-1;
 while(s>0)
 {
 cout<<" ";
 s--;
 }
 for(j=1; j<=i; j++)
 {
 if(i%2!=0)
  (j%2!=0) ? cout<<" *" : cout<<" ";
 else if(i%2==0)
  (j%2==0) ? cout<<" *" : cout<<" ";
 }
 cout<<endl;
 }
 for(i=n; i>=1; i--)
 {
 s=(2*n-1)+n-i;
 while(s!=0)
 {
 cout<<" ";
 s--;
 }
 for(j=1; j<=i*2-1; j++)
```

```
{
if(j%2!=0)
cout<<"*";
else
cout<<" ";}cout<<endl;}return 0;}
```

```
A B C D E F
 A B C D E
 A B C D
  A B C
   A B
    A
   A B
  A B C
 A B C D
A B C D E
A B C D E F
```

```
#include<iostream>
using namespace std;
int main()
{
int i,j,n,s;
char ch;
cout<<"Enter the last character (A-Z) : ";
cin>>ch;
n=ch-64;
for(i=n; i>=1; i--)
{
s=n-i;
while(s>0)
{
cout<<" ";
s--;
}
ch='A';
for(j=i; j>=1; j--)
{
cout<<ch<<" ";
ch++;
}
cout<<endl;
}
for(i=2; i<=n; i++)
{
s=n-i;
while(s>0)
{
cout<<" ";
s--;
}
ch='A';
for(j=i; j>=1; j--)
{
```



```
cout<<ch<<" ";
ch++;
}
cout<<endl;
}
return 0;}
```

```
      &
     & &
    &   &
   &     &
  &&&&&&&&&
```

```
#include<iostream>
using namespace std;
int main()
{
int i,j,k,n;
cout<<"Enter number of rows of the triangle
programology content:"<<endl;
cin>>n;
for(i=1; i<=n; i++)
{
for(j=1; j<=n-i; j++)
{
cout<<" ";
}
for(k=1; k<=(2*i)-1; k++)
{
if(i<n)
if(k==1 || k==(2*i)-1)
cout<<"&";
else
cout<<" ";
else if(i==n)
cout<<"&";
}
cout<<endl;
}
return 0;
}
```

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

```
#include<iostream>
using namespace std;
int printX(int x)
{
char *chars;
```

```
for (int i = 0; i < x; i++)
{
chars = new char[x];
chars[i] = '*';
chars[x - 1 - i] = '*';
for (int j = 0; j < x; j++)
{
if (j == i || j == (x - 1 - i))
{
continue;
}
chars[j] = ' ';
}
for(int k=0; k<x; k++)
{
if(i==0 || i==x-1)
{
chars[k]='*';
}
if(k==0 || k==x-1)
{
chars[k]='*';
}
cout<<chars[k];
}
cout<<endl;
}
}
int main()
{
int n;
cout<<"Enter the number of rows : ";
cin>>n;
printX(n);
return 0;
}
```

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



```
int i,j,a=1,b,n,s,c;//programology content
cout<<"Enter number of rows programology
content "<<endl;
cin>>n;
for(i=1; i<=n; i++)
{
if(i<=3)
{
 c=i*2-1;
 s=(n-3)*2+n-i;
}
else
{
 c=5+6*a;
 a++;
 s=(n-i)*3;
}
while(s!=0)
{
 cout<<" ";
 s--;
}
for(j=1; j<=c; j++)
{
cout<<"*";
}
cout<<"\n";//programology content
}
a--;
for(i=n-1; i>=1; i--)
{
if(i<=3)
{
 c=i*2-1;
 s=(n-3)*2+n-i;
}
else
{
 a--;
 c=5+6*a;
 s=(n-i)*3;
}
while(s!=0)
{
 cout<<" ";
 s--;
}
for(j=1; j<=c; j++)
{
cout<<"*";
}cout<<endl;}return 0;}
```

```
for (int i = 0; i < x; i++)
{
chars = new char[x];
chars[i] = '*';
chars[x - 1 - i] = '*';
for (int j = 0; j < x; j++)
{
if (j == i || j == (x - 1 - i))
{
continue;
}
chars[j] = ' ';
}
for(int k=0; k<x; k++)
{
if(i==0 || i==x-1)
{
chars[k]='*';
}
if(k==0 || k==x-1)
{
chars[k]='*';
}
cout<<chars[k];
}
cout<<endl;
}
}
int main()
{
int n;
cout<<"Enter the number of rows : ";
cin>>n;
printX(n);
return 0;
}
```

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

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



```
int i,j,a=1,b,n,s,c;//programology content
cout<<"Enter number of rows programology
content "<<endl;
cin>>n;
for(i=1; i<=n; i++)
{
if(i<=3)
{
 c=i*2-1;
 s=(n-3)*2+n-i;
}
else
{
 c=5+6*a;
 a++;
 s=(n-i)*3;
}
while(s!=0)
{
 cout<<" ";
 s--;
}
for(j=1; j<=c; j++)
{
cout<<"*";
}
cout<<"\n";//programology content
}
a--;
for(i=n-1; i>=1; i--)
{
if(i<=3)
{
 c=i*2-1;
 s=(n-3)*2+n-i;
}
else
{
 a--;
 c=5+6*a;
 s=(n-i)*3;
}
while(s!=0)
{
 cout<<" ";
 s--;
}
for(j=1; j<=c; j++)
{
cout<<"*";
}cout<<endl;}return 0;}
```