PATTERN PRINTING – 2

Q1. Print the following pattern

Input: n = 5

Output:

```
    1
   123
  12345
 1234567
```

```cpp
#include<iostream>
using namespace std;
int main(){
    int n,m;
    cout<<"Enter a number : "<<endl;
    cin>>n;
    cout<<"Hello"<<endl;
    m=n-1;
    for(int i=1;i<=m;i++){
        for(int j=1;j<=m-i;j++){
            cout<<" ";
        }
        for(int k=1;k<=2*i-1;k++){
            cout<<k;
        }
        cout<<endl;
    }
}
```

```
PS C:\Users\ITC\OneDrive\Desktop\C++WITH DSA\PRACTICE c++with DS> cd "c:\Users\ITC\OneDrive\Desktop\C++
WITH DSA\PRACTICE c++with DSA\" ; if ($?) { g++ assignmentprint2.cpp -o assignmentprint2 } ; if ($?) {
.\assignmentprint2 }
Enter a number :
5
Hello
    1
   123
  12345
 1234567
```

Q2. Print the following pattern

Input: n = 4

Output:

```
   A
  ABC
 ABCDE
ABCDEFG
```

```cpp
#include<iostream>
using namespace std;
int main(){
    int n,m;
    cout<<"Enter a number : "<<endl;
    cin>>n;
    cout<<"Hello"<<endl;
    for(int i=1;i<=n;i++){
        for(int j=1;j<=n-i;j++){
            cout<<" ";
        }
        for(int k=1;k<=2*i-1;k++){
            cout<<char(k+64);
        }
        cout<<endl;
    }
}
```

```
PS C:\Users\ITC\OneDrive\Desktop\C++WITH DSA\PRACTICE c++with DSA> cd "c:\Users\ITC\OneDrive\Desktop\C+
+WITH DSA\PRACTICE c++with DSA\" ; if ($?) { g++ assignmentprint2.cpp -o assignmentprint2 } ; if ($?) {
 .\assignmentprint2 }
Enter a number :
4
Hello
   A
  ABC
 ABCDE
ABCDEFG
```

Q3. Print the following pattern

Input: n = 4

Output:

```
   A
  BAB
 CBABC
DCBABCD
```

```cpp
#include<iostream>
using namespace std;
int main(){
    int n;
    cout<<"Enter a number ";
    cin>>n;
    for(int i=1;i<=n;i++){
        for(int j=1;j<=n-i;j++){
            cout<<" ";
            }
        for(int k=i;k>0;k--){
            cout<<char(64+k);
        }
        for(int l=1;l<=i-1;l++){
            cout<<char(65+l);
        }
        cout<<endl;
    }
}
```

```
PS C:\Users\ITC\OneDrive\Desktop\C++WITH DSA\PRACTICE c++with DSA> cd "c:\Users\ITC\OneDrive\Desktop\C++WITH DSA\PRACTICE c++with DSA\" ; if ($?) { g++ assignmentprint2.cpp -o assignmentprint2 } ; if ($?) { .\assignmentprint2 }
Enter a number 4
   A
  BAB
 CBABC
DCBABCD
```

Q4. Print the following pattern

Input: n = 4

Output:

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

```cpp
#include <iostream>
using namespace std;
int main()
{
    int n;
    cout << "Enter a number : ";
    cin >> n;
    for (int i = 1; i <= n; i++)
    {
        for (int j = 1; j <= 2 * n - 1; j++)
        {
            if (j >= (n - i + 2) && j <= (n + i - 2))
                cout << " ";
            else
                cout << char(64 + j);
        }
        cout << endl;
    }
}
```

```
PS C:\Users\ITC\OneDrive\Desktop\C++WITH DSA\PRAC> cd "c:\Users\ITC\OneDrive\Desktop\C++WITH DSA\PRACTICE c++with DSA\" ; if ($?) { g++ assignmentprint2.cpp -o assignmentprint2 } ; if ($?) { .\assignmentprint2 }
Enter a number : 4
ABCDEFG
ABC EFG
AB   FG
A     G
```

Q5. Print the following pattern

Input: n = 4

Output:

```
1234321
123  321
12    21
1      1
```

```cpp
#include<iostream>
using namespace std;
int main(){
        int n;
    cout<<"Enter a number : ";
    cin>>n;
    for(int i=1;i<=n;i++){
            bool flag = true ;
            for(int j=1;j<=2*n-1;j++){
                if(j>=(n-i+2)&&j<=(n+i-2)) {
                    cout<<" ";
                    flag = false ;
                    }
                else if(flag ==false||(i==1&&j>n)){
                    cout<<j-(2*(j-n));
                }
                else {cout<<j;
                }
            }
            cout<<endl;
    }
}
```

```
PS C:\Users\ITC\OneDrive\Desktop\C++WITH DSA\PRACTICE c++with DSA> cd "c:\Users\ITC\OneDrive
\Desktop\C++WITH DSA\PRACTICE c++with DSA\" ; if ($?) { g++ assignmentprint2.cpp -o assignme
ntprint2 } ; if ($?) { .\assignmentprint2 }
Enter a number : 4
1234321
123 321
12   21
1     1
```

Q6. Print the following pattern

Input : n = 5

Output:

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

```cpp
#include<iostream>
using namespace std;
int main(){
    int n;
    cout<<"Enter a number : ";
    cin>>n;
    for(int i=1;i<=n;i++){
        for(int j=1;j<=2*n-1;j++){
            if(i==j||i+j==2*n){
                cout<<"*";
            }
            else cout<<" ";
        }
        cout<<endl;
    }
}
```

```
PS C:\Users\ITC\OneDrive\Desktop\C++WITH DSA\PRACTICE c++with DSA> cd
\Desktop\C++WITH DSA\PRACTICE c++with DSA\" ; if ($?) { g++ assignment
ntprint2 } ; if ($?) { .\assignmentprint2 }
Enter a number : 5
*         *
 *       *
  *     *
   *   *
    * *
     *
```

Q9. Print the following pattern

Sample Input : n = 5

Output :

```
#include<iostream>
 using namespace std;
 int main(){
          int n;
      cout<<"Enter a number : ";
      cin>>n;
       for(int i=1;i<=2*n+1;i++){
          for(int j=1;j<=2*n+1;j++){
              int a,b;
              if(i>n )  a=i-n;
              if(j>n )  b=j-n;
              if(j==n+1||i+j==n+2||i+j==3*n+2||i==n+1||a==j||b==i)
              cout<<"*";
              else cout<<" ";
          }
          cout<<endl;
      }
 }
```

```
PS C:\Users\ITC\OneDrive\Desktop\C++WITH DSA\PRACTICE c++with DSA> cd "c:\Users\ITC\OneDrive\Desktop\C++WITH DSA\PRACTICE c++with DSA\" ; if ($?) { g++ assignmentprint2.cpp -o assignmentprint2 } ; if ($?) { .\assignmentprint2 }
Enter a number : 5
      *
     ***
    * * *
   *  *  *
  *   *   *
***********
  *   *   *
   *  *  *
    * * *
     ***
      *
```

Q10. Print the following pattern

Input : n = 4

Output :

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

```cpp
#include<iostream>
using namespace std;
int main(){
    int n;
    cout<<"Enter n : ";
    cin>>n;
    for(int i=1;i<= n-1;i++){
        for(int j=1;j<=i;j++) cout<<"*";
        for(int k=1;k<=2*(n-i)-1;k++) cout<<" ";
        for(int j=1;j<=i;j++)  cout<<"*";
        cout<<endl;
    }
    for(int i=1;i<=(4*n-2);i++){
        cout<<"*";
        if(i==2*n-1) cout<<endl;
    }
    cout<<endl;
    for(int i=1;i<= n-1;i++){
        for(int j=1;j<=n-i;j++)  cout<<"*";
        for(int k=1;k<=2*i-1;k++)  cout<<" ";
        for(int j=1;j<=n-i;j++)  cout<<"*";
        cout<<endl;
    }
}
```

```
PS C:\Users\ITC\OneDrive\Desktop\C++WITH DSA\PRACTICE c++with DSA> cd "c:\Users\ITC\OneDrive\Desktop\C++WITH DSA\PRACTICE c++with DSA\" ; if ($?) { g++ assignmentprint2.cpp -o assignmentprint2 } ; if ($?) { .\assignmentprint2 }
Enter n : 4
*     *
**   **
*** ***
*******
*******
*** ***
**   **
*     *
```

Q11. Print the following pattern

Input: n = 4

Output:

****

*** ***

** **

* *

** **

*** ***

****

```cpp
#include <iostream>
using namespace std;
int main()
{
    int n;
    cout << "Enter n = : ";
    cin >> n;
    for (int i = 1; i <= 2 * n - 1; i++)
    {
        if (i == 1 || i == 2 * n - 1)
        {
            for (int t = 1; t <= 2 * n - 1; t++)
            {
                cout << "*";
            }
        }
        else
        {
            int p;
            if (i > n)   p = i - 2 * (i - n);
            else   p = i;
            for (int j = 1; j <= n - p + 1; j++)    cout << "*";
            for (int k = 1; k <= 2 * (p - 1) - 1; k++)  cout << " ";
            for (int j = 1; j <= n - p + 1; j++)    cout << "*";
        }
        cout << endl;
    }
}
```

```
PS C:\Users\ITC\OneDrive\Desktop\C++WITH DSA\PRACTICE c++with DSA> cd "c:\Users\ITC\OneDrive
\Desktop\C++WITH DSA\PRACTICE c++with DSA\" ; if ($?) { g++ assignmentprint2.cpp -o assignme
ntprint2 } ; if ($?) { .\assignmentprint2 }
Enter n = : 4
*******
***  ***
**    **
*      *
**    **
***  ***
*******
```

Q7. Print the following pattern

Sample Input : m = 4, n = 6

Sample Output :

Q8. Print the following pattern

Sample Input : m = 4, n = 6

Sample Output :

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