IRC_Java_D5_Java Looping2_DC_COD

Test Summary

- No. of Sections: 1
- No. of Questions: 4
- Total Duration: 180 min

Section 1 - CODING

Section Summary

- No. of Questions: 4
- Duration: 180 min

Additional Instructions:

None

Q1. ***Problem statement**

create a hollow square pattern in Java

Input

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

Input Format

The first line of input consists of an integer N.

Output Format

Display the pattern as shown in the sample output.

Sample Input

```
5
```

Sample Output

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

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q2. **Problem statement**

Write a program to print the following pattern.

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

Input Format

The first line of input consists of an integer N.

Output Format

The output displays the pattern as shown in the sample output.

Sample Input

```
5
```

Sample Output

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

Sample Input

```
11
```

Sample Output

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

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q3. Q2. **Problem statement**

Write a program to print the following pattern.

```
      1
    1   1
  1   2   1
1   3   3   1
1   4   6   4   1
```

Input Format

The first line of input consists of an integer N.

Output Format

The output displays the pattern as shown in the sample output.

Sample Input

```
5
```

Sample Output

```
      1
    1   1
  1   2   1
```

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q4. Q2. **Problem statement**

Write a program to print the following pattern.

Example:

input: 5

output:

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

Input Format

The first line of input consists of an integer N.

Output Format

The output displays the pattern as shown in the sample output.

Sample Input

```
5
```

Sample Output

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

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Answer Key & Solution

Section 1 - CODING

Q1

Test Case

Input

```
7
```

Output

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

Weightage - 20

Input

```
11
```

Output

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

Weightage - 20

Input

```
9
```

Output

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

Weightage - 20

Input

```
14
```

Output

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

Weightage - 20

Input

```
12
```

Output

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

Weightage - 20

Sample Input

```
5
```

Sample Output

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

Solution

```
import java.util.*;
class Main
{
    public static void main(String[] args)
    {

        int size;
        Scanner s=  new Scanner(System.in);
        size=s.nextInt();
         for (int i = 0; i < size; i++) {
```

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

void pattern(string str, int n)
{

   for (int i = 0; i < n; i++)
   {
      int j = n-1- i;
      for (int k = 0; k < n; k++)
```

```
      // inner loop
      for (int j = 0; j < size; j++) {
        // print only star in first and last row
        if (i == 0 || i == size - 1) {
          System.out.print("*");
        }
        else {
          // print star only at first and last position row
          if (j == 0 || j == size - 1) {
            System.out.print("*");
          }
          else {
            System.out.print(" ");
          }
        }
      }
      System.out.println();
    }
  }
}
```

```
    {
       if (k == i || k == j)
          cout << str[k];
       else
          cout << " ";
    }
    cout << endl;
  }
}
int main()
{
    string str;
    cin>>str;
    int len = str.length();
    pattern(str, len);
    return 0;
}
```

Q2

Test Case

Input

```
8
```

Output

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

Weightage - 20

Input

```
9
```

Output

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

Weightage - 20

Input

```
6
```

Output

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

Weightage - 10

Input

```
3
```

Output

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

Weightage - 10

Input

```
16
```

Output

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

Weightage - 40

Sample Input

```
5
```

Sample Output

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

Sample Input

```
11
```

Sample Output

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

Solution

```
import java.util.Scanner;
class Main
{
    public static void main(String[] args) {
        int i,j,n;
        Scanner in=new Scanner(System.in);
        n=in.nextInt();
        for(i=0; i<n; i++) //outer loop for number of rows(n)
        { for(j=2*(n-i); j>=0; j--) // inner loop for spaces
            {
                System.out.print(" "); // printing space
            }
            for(j=0; j<=i; j++) //  inner loop for columns
            {
                System.out.print("* "); // print star
            }
            System.out.println(); // ending line after each row
        }
    }
}
```

```
#include <stdio.h>
int main()
{
        int i,j,num;
        scanf("%d",&num);
        for(i=1;i<=num;i++)
        {
            for(j=1;j<=i;j++)
            {
                if((i+j)%2==0)
                    printf("1 ");
                else
                 printf("0 ");
            }
            printf("\n");
         }
        return 0;
}
```

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

int main()
{
        int i,j,num;
        cin>>num;
        for(i=1;i<=num;i++)
        {
            for(j=1;j<=i;j++)
            {
                if((i+j)%2==0)
                    cout<<"1 ";
                else
                 cout<<"0 ";
            }
            cout<<"\n";
         }
        return 0;
}
```

Q3

Test Case

Input

```
4
```

Output

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

Weightage - 20

Input

```
2
```

Output

```
  1
1   1
```

Weightage - 10

Input

```
10
```

Output

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

Weightage - 20

Input

```
4
```

Output

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

Weightage - 20

Input

```
11
```

Output

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

Weightage - 20

Input

```
1
```

Output

```
1
```

Weightage - 10

Sample Input

```
5
```

Sample Output

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

Solution

```
import java.util.*;
class Main
{
    public static void main(String[] args)
    {

        int n;
        Scanner s=  new Scanner(System.in);
        n=s.nextInt();
        for (int i = 0; i < n; i++) {
            int number = 1;
            System.out.printf("%" + (n - i) * 2 + "s", "");
            for (int j = 0; j <= i; j++) {
```

```
                System.out.printf("%4d", number);
                number = number * (i - j) / (j + 1);
            }
            System.out.println();
        }

    }
}
```

Q4

Test Case

Input

```
2
```

Output

```
1  2
  2
1  2
```

Weightage - 15

Input

```
7
```

Output

```
1  2  3  4  5  6  7
  2  3  4  5  6  7
    3  4  5  6  7
      4  5  6  7
```

Weightage - 15

Input

```
9
```

Output

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

Weightage - 15

Input

```
13
```

Output

```
1  2  3  4  5  6  7  8  9  10  11  12  13
  2  3  4  5  6  7  8  9  10  11  12  13
    3  4  5  6  7  8  9  10  11  12  13
      4  5  6  7  8  9  10  11  12  13
```

Weightage - 15

Input

```
3
```

Output

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

Weightage - 15

Input

```
1
```

Output

```
1
```

Weightage - 10

Input

```
8
```

Output

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

Weightage - 15

Sample Input

```
5
```

Sample Output

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

Solution

```
import java.util.*;
class Main
{
    public static void main(String[] args)
    {

        int n;
 Scanner s=  new Scanner(System.in);
 n=s.nextInt();
for (int i = 1; i <= n; i++)
 {
     for (int j = 1; j < i; j++)
     {
         System.out.print(" ");
     }

     for (int k = i; k <= n; k++) { System.out.print(k+" "); } System.out.println(); } for (int i = n-1; i >= 1; i--)
 {
      for (int j = 1; j < i; j++)
     {
         System.out.print(" ");
     }
     for (int k = i; k <= n; k++)
     {
         System.out.print(k+" ");
     }

     System.out.println();
 }
    }
}
```

```
#include <stdio.h>
int main()
{
        int rows;
        scanf("%d",&rows);
        int i,j,col=(rows*2)-1;
        for(i=rows;i>=1;i--)
        {
            for(j=1;j<=col;j++)
            {
                if(j<=i)
                {
                    printf("* ");
                }
                else if(j>col-i)
                {
                    printf("* ");
```

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

int main()
{
int rows;
        cin>>rows;
        int i,j,col=(rows*2)-1;
        for(i=rows;i>=1;i--)
        {
            for(j=1;j<=col;j++)
            {
                if(j<=i)
                {
                    cout<<"* ";
                }
                else if(j>col-i)
                {
```

```
        }
        else
        {
           printf("  ");

        }
        printf(" ");
    }
    printf("\n");
}
for(i=2;i<=rows;i++)
{
    for(j=1;j<=col;j++)
    {
        if(j<=i)
        {
            printf("* ");

        }
        else if(j>col-i)
        {
            printf("* ");
            }
            else
            {
                printf("  ");

            }
            printf(" ");
        }
        printf("\n");
    }
return 0;
}
```

```
            cout<<"* ";

        }
        else
        {
           cout<<"  ";

        }
        cout<<" ";
    }
    cout<<"\n";
}
for(i=2;i<=rows;i++)
{
    for(j=1;j<=col;j++)
    {
        if(j<=i)
        {
            cout<<"* ";

        }
        else if(j>col-i)
        {
            cout<<"* ";

        }
        else
        {
            cout<<"  ";

        }
        cout<<" ";
    }
    cout<<("\n");
}
return 0;
}
```