ASSIGNMENT 03

1) Write a Java program to display the following pattern.

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

```java
import java.util.*;
class P1{
    public static void main(String args[]){
        int n;
        Scanner in = new Scanner(System.in);
        System.out.println("Enter the row size");
        n = in.nextInt();

        for(int i = 1; i<=n; i++){
            for(int j = 1; j<=i; j++){
                System.out.print("* ");
            }
            System.out.println("");
        }
    }
}
```
OUTPUT:
```
Enter the row size

5

*

* *

* * *

* * * *

* * * * *
```

2) Write a Java program to display the following pattern.

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

```java
public class P2 {

    public static void main(String[] args) {
        for (int i = 1; i <= 5; i++) {
            for (int j = 4; j >= i; j--)
                System.out.print(" ");
            for (int k = i; k >= 1; k--)
                System.out.print(k);
            System.out.println();
        }
        for (int x = 4; x >= 1; x--) {
            for(int space=5-x;space>0;space--)
                System.out.print(" ");
            for (int y = x; y > 0; y--)
                System.out.print(y);
            System.out.println();
        }
    }
}
```

OUTPUT:

```
    1
   21
  321
 4321
54321
 4321
  321
   21
    1
```

3) Write a Java program to display the following pattern.

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

```java
public class P3{
    public static void main(String[] args){
        int n = 5;
        // Scanner in = new Scanner(System.in);
        int i, j, k, l;
        //Syste.out.println("Enter the number of row");
        for(i=1;i<=n;i++) {
            for(j=i;j<=n-1;j++) {
                System.out.print(" ");
                System.out.print(" ");
```

```java
            }
            for(j=1;j<=i;j++) {
                System.out.print(j);
                System.out.print(" ");
            }
            for(j=i-1;j>=1;j--) {
                System.out.print(j);
                System.out.print(" ");
            }
            System.out.println();
        }
        k=1;
        for(i=4;i>=n-k && k<=4 ;i--,k++) {
            for(j=i;j<=n-1;j++) {
                System.out.print(" ");
                System.out.print(" ");
            }
            for(j=1;j<=i;j++) {
                System.out.print(j);
                System.out.print(" ");
            }
            for(j=i-1;j>=1;j--) {
                System.out.print(j);
                System.out.print(" ");
            }
            System.out.println();
        }
    }
}
```
OUTPUT:
```
          1
        1 2 1
      1 2 3 2 1
    1 2 3 4 3 2 1
  1 2 3 4 5 4 3 2 1
    1 2 3 4 3 2 1
      1 2 3 2 1
        1 2 1
          1
```
4) Write a Java program to display the following pattern.
```
      *
    *   *
   *       *
  *           *
 *               *
  *           *
   *       *
    *   *
      *
```

```java
import java.util.Scanner;
public class P4
{
    public static void main(String[] args)
{
    Scanner sc = new Scanner(System.in);

    System.out.println("Enter the number of rows: ");

    int rows = sc.nextInt();
    for (int i=1; i<= rows ; i++) { for (int j = rows; j > i ; j--) {
            System.out.print(" ");
        }
        System.out.print("*");
        for (int k = 1; k < 2*(i -1) ;k++) { System.out.print(" "); } if( i==1) {
System.out.println(""); } else { System.out.println("*"); } } for (int i=rows-1; i>= 1 ;
i--)
        {
        for (int j = rows; j > i ; j--) {
            System.out.print(" ");
        }
        System.out.print("*");
        for (int k = 1; k < 2*(i -1) ;k++) {
            System.out.print(" ");
        }
        if( i==1)
            System.out.println("");
        else
            System.out.println("*");
    }
    sc.close();
}
}
```

OUTPUT:
Enter the number of rows:
5
```
    *
   * *
  *   *
 *     *
*       *
 *     *
  *   *
   * *
    *
```

5) Write a Java program to display the following pattern.

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

```java
import java.util.*;

class P5
{
    public static void main(String args[])
    {
        int i,j,n;
        Scanner sc = new Scanner(System.in);
            System.out.println("Enter the no of lines");
        n=sc.nextInt();
            for(i=1;i<=n;i++)
            {

                for(j=1;j<=n-i;j++)
                {
                    System.out.printf("  ");
                }
                for(j=i;j>0;j--)
                {
                    System.out.printf(" "+(char)(j+64));
                }
                for(j=2;j<=i;j++)
                {
                    System.out.printf(" "+(char)(j+64));
                }
                System.out.println();
            }
    }
}
```

OUTPUT:
```
Enter the no of lines
5
        A
      B A B
    C B A B C
  D C B A B C D
E D C B A B C D E
```

6) Write a Java program to display the following pattern.

1
2 3
6 5 4
7 8 9 10
15 14 13 12 11

```java
class P6{
    public static void main(String[] args){
        int i, j, k=1, n = 5, s=0;
        for(i=1; i<=n; i++){
            if(i%2!=0){
                for(j=1; j<=i;j++,k++){
                    s = k;
                }
                for(j=1; j<=i;j++, s--){
                    System.out.print(s);
                    System.out.print(" ");
                }
            }
            else{
                for(j=1; j<=i;j++,k++){
                    System.out.print(k);
                    System.out.print(" ");
                }
            }
            System.out.println();
        }
    }
}
```

OUTPUT:
```
1
2 3
6 5 4
7 8 9 10
15 14 13 12 11
```

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