Question 3:
Write a java program that displays the following pattern. Use \textit{for loops} to generate the pattern. All asterisks (*) should be printed by a single statement of the form \texttt{System.out.print("*")}. A statement of the form \texttt{System.out.println()} can be used to move to next line. A statement of the form \texttt{System.out.print(" ")} can be used to display a space.

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Solution:

```java
public class stars {

    public static void main(String[] args) {
        for(int i=1; i<=10; i++) {
            for(int j=1; j<i; j++)
                System.out.print(" ");
            for(int k=i; k<=10; k++)
                System.out.print("*");
            System.out.println();
        }
    }
}
```

Question 4:
Write a program for a grocery that reads products data and determine and display the product that has the highest price and the average price. A product has three pieces of data: id (int), name (String) and price (double).
Your program should continue reading new products until user enters -1 as id of a product.

Solution:

Class (Product.java)

```java
public class Product {
    public int id;
    public String name;
    public double price;
}
```

Class (Test.java)

```java
import java.util.Scanner;
public class Test {
    public static void main(String[] args) {
        Scanner s = new Scanner(System.in);
        Product p = new Product();
        Product max = new Product();
        int numberOfItems = 0;
        double sumOfPrices = 0;
        do {
            System.out.print("Enter product id:");
            p.id = s.nextInt();
            if(p.id != -1){
                System.out.print("Enter product name:");
                p.name = s.next();
                System.out.print("Enter product price:");
                p.price = s.nextDouble();
                sumOfPrices += p.price;
                numberOfItems++;
                if(p.price > max.price){
                    max = p;
                    p = new Product();
                }
            }
        }while(p.id != -1);
        System.out.println("---------------------------");
        System.out.println("The most expensive product is:");
        System.out.println("Id: "+max.id+" Name: "+max.name+" Price: "
        +max.price+" S.R.");
        System.out.println("Average price = " +(sumOfPrices/numberOfItems));
    }
}
```