**QUESTİON 1**

I created two classes named **Circle** and **CircleTest**.  
**CircleTest** is the class that tests the **Circle** class and prints the outputs to the screen.  
I defined a variable called radius of type **double**.  
Since it is declared **private**, it can only be accessed within this class.

If the user creates an object like Circle(), the radius is automatically set to **10.0**.  
The statement this(10.0) calls the constructor, so there is no need to rewrite the code.  
This is called the **default constructor**.

In the **smart constructor**, if the user gives a value like Circle(5.0), that constructor is called, and the radius is set to that value.

The method calculateArea() calculates the area of the circle.  
The method calculateCircumference() calculates the circumference of the circle.

The **main method** is the part where the program starts running.  
I created two objects named **circle1** and **circle2**, and calculated the area and circumference for both of them.

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| **Feature** | Description |
| **Circle class** | Defines the circle object, stores the radius, and calculates area & circumference |
| **Default constructor** | Sets the circle's radius to 10 by default |
| **Parameterized constructor** | Uses the radius value provided by the user |
| **calculateArea()** | Calculates the area |
| **calculateCircumference()** | Calculates the circumference |
| **CircleTest class** | Tests the Circle class and prints the results to the screen |

**QUESTİON2**

I created a class named **Questions2**  
I declared an integer variable n and assigned the value **10** to it.  
This value represents the **number of rows** in the pyramid.

The **outer for loop** with variable i tells us **which row** we are currently on.  
The **inner for loop** adds **spaces** at the beginning of each row.  
The number of spaces decreases as we go down the rows.  
The purpose of this is to **center the stars** to create a pyramid shape.

The **innermost for loop** with variable k is responsible for printing the **stars (\*)**.  
The expression (2 \* i) - 1 increases the number of stars in each row.

The System.out.println() at the end is used to move to the **next line** after completing each row.

**QUESTİON 3**

The purpose of this code is to generate a Fibonacci series with as many elements as the number entered by the user.  
For this, I first imported the **Scanner** class.  
Then, I created the class named **Question3**.  
After that, I created the **scan** object.  
Next, I defined four variables of type **int**: number, s1, s2, and temp.

The **number** variable represents the value entered by the user and indicates how many elements the Fibonacci series will have.  
**s1** is the first term of the series with an initial value of 0,  
and **s2** is the second term of the series with an initial value of 1.  
**temp** is a temporary variable used to store the sum of two numbers.

With the **print** command, the program asks the user to enter the number of elements.

Then:

* s1 is printed on the screen.
* temp = s1 + s2: Calculates the next term in the Fibonacci series.
* S1=s2 s1 now takes the value oft he previous s2
* S2= temp s2 takes the newly calculated value

**QUESTİON 4**

A-)

1-) mod adında bir metod oluşturdum içine 2 tane int türünde değişken atadım. Sonunda return ile değerleri döndürdüm. Main metodunda da calculator.mod ile çağırdım degerleri atadım.

Power adında bir metod oluşturdum.İnt türünde 2 değişken atadım. First değiskeni taban second değişkeni üs. Metodun içinde result adında bir değişken oluşturup sonucunu 1 e eşitledim çünkü çarpmada etkisiz eleman. For döngüsünde i adında bir değişken olusturdum. Second üs olduğu için seconda kadar birer birer artıyor ve result firstle çarpılıyor.En sonda returnle değer döndürülüyor.Mainde calculator.power ile çağırdım metodu.

Factoriel adında bir metod oluşturdum.first adında bir değişken verdim. Metodun içinde result değişkeni oluşturup 1e eşitledim.Çünkü 1 çarpmada etkisiz eleman for döngüsünde i değişkeni oluşturup first değişkenine kadar her adımda result ile çarpılıyor. En sonda result döndürülüyor.Calculator.factorial ile mainde çağrılıyor.

B-) In this program, the user is asked to choose a mathematical operation, and based on that operation, two numbers are taken and the result is printed on the screen.  
I imported the **Scanner** class to get input from the user.  
I created a class named **CalculationApp** and defined the main method.  
To receive input, I created a **scan** object.  
Then, I created an object named **calculator** from the **Calculator** class, which is used to perform the calculations.  
With a print statement, I asked the user which operation they want to perform and stored that in the **operator** variable.  
Then, using an **if** statement:

* If the user does not choose the factorial operation, two numbers are requested.
* If the factorial operation is chosen, only one number is asked, because factorial works with a single value.

I used a **switch** statement with **cases** to perform the appropriate operation based on the user's input.  
At the end, I used **default** to display an error message if the user makes an invalid choice.