JAVA PROGRAMMING LANGUAGE
Assignment 3

1. The game of Pig is a simple two-player dice game in which the first player to reach 100 or more points wins. Players take turns. On each turn, a player rolls a six-sided die:
   - If the player rolls a 1, then the player gets no new points and it becomes the other player's turn.
   - If the player rolls 2 through 6, then he or she can either ROLL AGAIN or HOLD.

At this point, the sum of all rolls is added to the player's score and it becomes the other player's turn.

Write a program that plays the game of Pig, where one player is a human and the other is the computer. When it is the human's turn, the program should show the score of both players and the previous roll. Allow the human to input "r" to roll again or "h" to hold.

The computer program should play according to the following rule: Keep rolling when it is the computer's turn until it has accumulated 20 or more points, then hold.

If the computer wins or rolls a 1, then the turn ends immediately. Allow the human to roll first.

2. Write a class Sphere with the following properties:

   Private attributes:
   - X,Y, Z coordinates of the center
   - Radius

   Accessor and mutator methods to
   - Set and get the X,Y, and Z coordinates
   - Set and get the radius
   - Get the volume and surface area of a sphere.

   For a sphere,
   volume = $4\Pi r^3 / 3$
   surface area = $4\Pi r^2$

   Write a *SphereTester* class to test the Sphere class.

2. Create a class named *Pizza* that stores information about a single pizza. It should contain the following:
   - Private instance variables to store the size of the pizza (either small, medium, or large), the number of cheese toppings, the number of pepperoni toppings, and the number of ham toppings.
   - Constructor(s) that set all of the instance variables.
   - Public methods to get and set the instance variables.
   - A public method named *calcCost( )* that returns a double that is the cost of the pizza. Pizza cost is determined by: Small: $10 + $2 per topping Medium: $12 + $2 per topping Large: $14 + $2 per topping
   - A public method named *getDescription( )* that returns a String containing the pizza size, quantity of each topping, and the pizza cost as calculated by *calcCost()*.

Write test code to create several pizzas and output their descriptions. For example, a large pizza with one cheese, one pepperoni and two ham toppings should cost a total of $22.