Java Roshambo

Time required: 90 minutes

Please read the directions carefully before beginning the assignment.

- Comment your code as shown in the tutorials and other code examples.
- Follow all directions carefully and accurately.
- Think of the directions as minimum requirements.

Pseudocode or TODO

1. Write pseudocode or TODO for the exercise.
1. Comment your code to show evidence of understanding.

Here's What I Want You to Do

Rock, paper, scissors, also known as Roshambo, is a simple child's game that is frequently used to settle disputes. We are going to create a Roshambo game to play against the computer.

In the game, a rock breaks the scissors, the scissors cut the paper, and the paper covers the rock. Each option is equally likely to prevail over another. If the players choose the same object a draw is declared, and the game is repeated until someone prevails.

There are other variants of Rock, Paper, Scissors, you may want to try instead. Rock, Paper, Scissors, Lizard, Spock is a popular variant.

Starter Pseudocode

```
# TODO: Get 1, 2 or 3 from human (Rock, Paper, Scissors)

# TODO: Generate random 1, 2 or 3 for computer turn (Rock, Paper, Scissors)
# TODO: Use the decision matrix to develop the decision structure
if human == 1
      human chooses Rock
      if computer == 1
            computer chooses Rock
            Tie
      else if computer == 2
            etc.
else if human == 2
      If computer == 1
            etc.
```

Decision Matrix for Rock Paper Scissors

Player's choice	**Computer's choice**	**Outcome**
Rock	Rock	Tie
	Paper	Computer wins because paper covers rock
	Scissors	Player wins because rock breaks scissors
Paper	Rock	Player wins because paper covers rock
	Paper	Tie
	Scissors	Computer wins because scissors cut paper
Scissors	Rock	Computer wins because rock breaks scissors
	Paper	Player wins because scissors cut paper
	Scissors	Tie

Here's Why I Want You to Do It

Demonstrate understanding of:

Variables, Constants, Input, Decisions

Minimum Requirements

You can create this program as a CLI or JOptionPane.

In the game Rock Paper Scissors, two players simultaneously choose one of three options: rock, paper, or scissors. If both players choose the same option, then the result is a tie. However, if they choose differently, the winner is determined as follows:

- Rock beats scissors because a rock can break a pair of scissors.
- Scissors beats paper because scissors can cut paper.
- Paper beats rock because a piece of paper can cover a rock.

Create a game

1. The computer randomly chooses rock, paper, or scissors.
2. Let the user enter a number 1, 2, or 3, each representing one of the three choices.
3. Determine and display the winner.
4. Have the computer taunt (make fun of) the user.
5. Provide user feedback, who chose what, and why they won.
6. It is better to divide the decisions by using nested if statements.
    a. Decide for one player
    b. Inside of that if statement, decide the other player.
    c. Otherwise, you end up with 9 seemingly unrelated decisions that are harder to follow and troubleshoot.

Challenge

- Create the Rock, Paper, Scissors, Lizard, Spock variant from the Big Bang Theory.
- Create another variation of Roshambo.

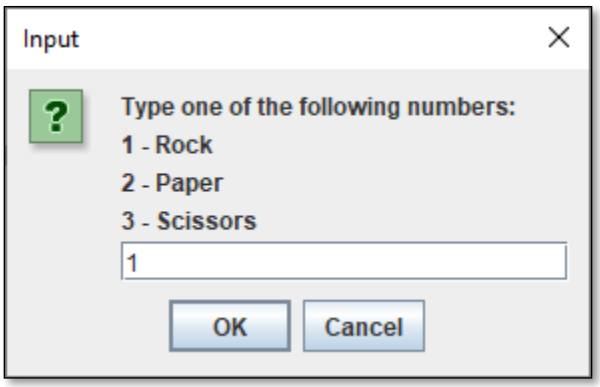
Save the application as **Roshambo.java**

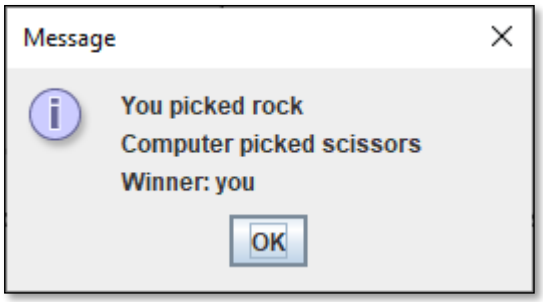
Example CLI:

```
Welcome to Rock, Paper, Scissors!
Enter 1 for Rock, 2 for Paper, or 3 for Scissors.
Enter your choice: 2
Computer chose: Scissors
It's a tie!
```

```
Enter your choice: 2
Computer chose: Rock
Computer wins!
Bow to your computer overlord.
```

Example JOptionPane:





Student example variations

```
??????????????????????????????????????

Roshambo vs HAL 9000! Rock, Paper, Scissors Game

??????????????????????????????????????
---I--------------------------------------------------------------------------
Good day, gentlemen.
This is a prerecorded briefing made prior to your departure.
For security reasons of the highest importance
are known on board during the mission only by your H-A-L 9000 computer.
--------------------------------------------------------------------------------
+---------------------------------+
|        Rules of Roshambo:       |
|    Rock vs Paper = Paper Wins   |
|    Rock vs Scissors = Rock Wins |
|  Paper vs Scissors = Scissors Win|
Enter your name: Bill
Bill
How many rounds do you want to play?1
Make a choice
 1 - Rock
 2 - Paper
 3 - Scissors

Choose 1. (Rock), 2. (Paper), 3. (Scissor)s: 1
The user choice is
 Rock
Now its HAL 9000's Turn....
HAL chooses
 scissors
Rock VS scissors
Bill You chose rock, computer chose scissors,
You Win.
Thanks for Playing.
```

```
+-----------------------------------------------------+
|            Rock, Lizard, and Spock                  |
|        Here are the Higly Logical Vulcan Rules:     |
|          Rock versus Lizard ==> Lizard Wins         |
|      Lizard versus Spock ==> Spock Wins             |
|       Scissors versus Rock ==> Rock Wins            |
| Select the number of games you want to play when    |
|                     prompted:                       |
| Choose when prompted 1 of following for your choice: |
|           To select Rock, Enter "1"                 |
|          To select Lizard, Enter "2"                |
|       To select Spock, Enter "3"                    |
|  Your choice (Human) and the Computer's choice will |
|        be compared to determine the winner.         |
|Good Luck, Don't be Highly Illogical, Live Long and  |
|       Prosper! That would make Mr. Spock Content... |
| You want Mr. Spock to be Content, Don't You?!?!?!?  |
+-----------------------------------------------------+

How many games would you like to play: 1
Please input a choice of Rock (1), Lizard (2),
or Spock (3): 2
Game Number: 1 of 1
The Human chose Lizard.
The Computer chose Spock.
The Computer wins because Spock performs telepathy on Lizard.
Human Wins: 0   Computer Wins: 1
Live Long and Prosper! Don't be highly Illogical!
```

```
+-------------------------------------+
|  How to play Rashambo:              |
|                                     |
|  Rock vs Paper -> Paper Wins        |
|  Rock vs Scissors -> Scissors Wins  |
|  Paper vs Scissors -> Paper Wins    |
|  Lizard vs Paper -> Lizard Wins     |
|  Lizard vs Rock -> Rock Wins        |
|  Lizard vs Scissors -> Scissors Wins|
|  Spock vs Lizard -> Lizard Wins     |
|  Spock vs Scissors -> Spock Wins    |
|  Spock vs Rock -> Spock Wins        |
|  Spock vs Paper -> Paper Wins       |
+-------------------------------------+
Please enter your name: Bill

How many rounds would you like to play Bill?: 1
Enter a choice
1. Rock
2. Paper
3. Scissors
4. Lizard
5. Spock

Enter the correlating number for your choice: 5
Bill chose: Spock

Computer's turn to choose...
The computer chose: Spock

It's a tie this round

Bill has won: 0         computer has won: 0

Its a tie! So, neither you nor the computer wins or loses.
```

Assignment Submission

1. Use pseudocode or TODO.
2. Comment your code to show evidence of understanding.
3. Attach the program files.
4. Attach screenshots showing the successful operation of the program.
5. Submit in Blackboard.