Solution #1

```
public class Pig1 {
        public static void main(String[] args) {
                int p1OVERALL_SCORE = 0, p2OVERALL_SCORE = 0, TURN_SCORE = 0, playerTurn = 1;
                Random a = new Random();
                while (p1OVERALL_SCORE < 100 && p2OVERALL_SCORE < 100) {
                        while (playerTurn == 1 && p1OVERALL_SCORE < 100) {
                                String response = JOptionPane.showInputDialog("Roll or Hold");

                                if (response.equals("Roll")) {
                                        TURN_SCORE = doTurn(TURN_SCORE);
                                        p1OVERALL_SCORE += TURN_SCORE;
                                        if (checkPig(TURN_SCORE) == true && p1OVERALL_SCORE < 100) {
                                                playerTurn = 2;
                                                System.out.println("Player 2's turn is next.");
                                        }

                                        System.out.println("Player 1's score: " + p1OVERALL_SCORE);
                                        TURN_SCORE = 0;
                                } else if (response.equals("Hold")) {
                                        playerTurn = 2;
                                        System.out.println("Player 1 holds. Player 2's turn is next.");
                                }
                        }
                        while (playerTurn == 2 && p2OVERALL_SCORE < 100) {
                                int computerChoose = a.nextInt(2) + 1;

                                if (computerChoose == 1) {
                                        TURN_SCORE = doTurn(TURN_SCORE);
                                        p2OVERALL_SCORE += TURN_SCORE;
                                        if (checkPig(TURN_SCORE) == true && p2OVERALL_SCORE < 100) {
                                                playerTurn = 1;
                                                System.out.println("Player 1's turn is next.");
                                        }
                                        TURN_SCORE = 0;
                                        System.out.println("Player 2 score: " + p2OVERALL_SCORE);
                                } else if (computerChoose == 2) {
                                        playerTurn = 1;
                                        System.out.println("Player 2 holds. Player 1's turn is next.");
                                }
                        }
                }
                if (p1OVERALL_SCORE >= 100) {
                        System.out.println("Player 1 wins!");
                } else if (p2OVERALL_SCORE >= 100) {
                        System.out.println("Player 2 wins!");
                }
        }
```

(More code on back).

```java
        public static int doTurn(int TURN_SCORE) {
                Random die = new Random();
                int die1 = die.nextInt(6) + 1;
                int die2 = die.nextInt(6) + 1;
                if (die1 != 1 && die2 != 1 && die1 != die2) {
                        return die1 + die2;
                } else if ((die1 == 1 && die2 != 1) || (die1 != 1 && die2 == 1)) {
                        return 1;
                } else if (die1 == die2 && die1 != 1) {
                        return (die1 + die2) * 2;
                }
                return 0;

        }

        public static boolean checkPig(int TURN_SCORE) {
                return TURN_SCORE == 0 || TURN_SCORE == 1;

        }
}
```

Solution #2

```
public class Pig1 {
    static int[] playerOverallScore = new int[2];
    static int[] playerTurnScore = new int[2];
    static int playerTurn = 0;
    static boolean endturn = false;
    static Random g = new Random();
    static Scanner userIn = new Scanner(System.in);
    static int die1, die2;

    public static void main(String[] args) {
        do {
            printPlayerTurn();
            rollDice();
            printDice();
            checkDice(die1, die2);

            if (endturn) {
                System.out.println("It is now the other Player's turn\n\n");
                turnEnded();
            } else {
                System.out.println("Do you want to roll again?\nyou have a turn score of "
                                + getPlayerTurnScore(pTurn())
                                + " and with an Overall score of "
                                + getPlayerOverScore(pTurn()));

                if (userInputEqualsNo()) {
                    turnEnded();
                }
            }
        } while (noWinner());

        System.out.println("CONGRATS Player " + (pTurn() + 1) + " you have WON");
    }

    public static void printPlayerTurn() {
        System.out.println("Player" + ((pTurn()) + 1));
    }
(more code on back)
```

```java
public static void printDice() {
        System.out.println("your dice sum is " + (die1 + die2)
                        + " with a roll of " + die1 + " and " + die2);
}

public static boolean userInputEqualsNo() {
        if (userIn.next().equals("no")) {
                return true;
        }
        return false;
}

public static void rollDice() {
        die1 = rollDie();
        die2 = rollDie();
}

public static void turnEnded() {
        addToPlayerOverScore(pTurn(), getPlayerTurnScore(pTurn()));
        playerTurn++;
        endturn = false;
        resetPlayerTurnScore(pTurn());
}

public static int pTurn() {
        return playerTurn % 2;
}

public static void checkDice(int die1, int die2) {
        if (die1 == 1 || die2 == 1) {

                playerTurnScore[pTurn()] += 1;
                if (die1 == die2) {
                        playerTurnScore[pTurn()] = 0;
                }
                endturn = true;
        } else if (die1 == die2) {
                playerTurnScore[pTurn()] += (die1 + die2) * 2;
        } else {
            playerTurnScore[pTurn()] += die1 + die2;
        }
    }

    public static void resetPlayerTurnScore(int player) {
        playerTurnScore[player] = 0;
    }

    public static int getPlayerOverScore(int player) {
        return playerOverallScore[player];
    }

    public static void addToPlayerOverScore(int player, int score) {
        playerOverallScore[player] += score;
    }

    public static int getPlayerTurnScore(int player) {
        return playerTurnScore[player];
    }

    public static void addToPlayerTurnScore(int player, int score) {
        playerTurnScore[player] += score;
    }

    public static boolean noWinner() {
        if (playerOverallScore[0] >= 100 || playerOverallScore[1] >= 100) {
            playerTurn--;
            return false;
        }
        return true;
    }

    public static int rollDie() {
        return g.nextInt(6) + 1;
    }
}
```

Solution #3

```
public class Pig1 {
    static int playerTurn = 1, roundScore = 0;
    static int player1Score = 0, player2Score = 0;

    public static void main(String[] args) {
        String response;
        int die1, die2;

        while (player1Score < 100 && player2Score < 100) {
            do {
                response = JOptionPane
                        .showInputDialog("Player "
                                + playerTurn
                                + " would you like to roll or hold? Press 1 to hold and 2 to
                                   roll. \nPlayer 1 Score: "
                                + player1Score + "\nPlayer 2 Score: "
                                + player2Score + "\nCurrent Round Score: "
                                + roundScore);
                if (Integer.parseInt(response) == 1) {
                    addToPlayerScore(playerTurn, roundScore);
                    roundScore = 0;
                    switchPlayerTurn();
                    break;
                } else if (Integer.parseInt(response) == 2) {
                    die1 = rollDie();
                    die2 = rollDie();
                    JOptionPane.showMessageDialog(null, "You rolled a " + die1
                            + " and a " + die2);
                    checkRollPossibilities(die1, die2);
                }

            } while (Integer.parseInt(response) == 2);
        }
    }
(more code on back).
    public static void checkRollPossibilities(int die1, int die2) {
        if (die1 == 1 && die2 == 1) {
            addToPlayerScore(playerTurn, 0);
            roundScore = 0;
            switchPlayerTurn();
        }
        if (die1 == 1 || die2 == 1) {
            addToPlayerScore(playerTurn, roundScore + 1);
            roundScore = 0;
            switchPlayerTurn();
        }
        if (die1 != die2 && die1 != 1)
            roundScore += die1 + die2;
        if (die1 == die2 && die1 != 1)
            roundScore += 2 * (die1 + die2);

    }

    public static int rollDie() {
        Random rand = new Random();
        return rand.nextInt(6) + 1; // + 1 shifts range of values from 0-5 to
                                    // 1-6
    }

    public static void addToPlayerScore(int player, int roundScore) {
        if (player == 1)  player1Score += roundScore;
        if (player == 2)  player2Score += roundScore
    }

    public static void switchPlayerTurn() {
        if (playerTurn == 1)   playerTurn = 2;
        if (playerTurn == 2)   playerTurn = 1;
    }

}
```