**PJ 11 Report Your Name: Francisco Valadez**

**A. The following is my Java program:**

**// Please copy your Java program into here from your Eclipse window. The code must be colored.**

**// You must not copy Java program from your .java file since the code over there is not colored at all.**

**// You must not show screen prints here.**

// Author: Francisco Valadez  
// Date: 6/6/2021  
// Purpose: This program checks you have a winning sudoku game!  
  
public class sudokuCheck   
{  
 //Below are the 4 preloaded games  
 public static int S1[][] =  
 {  
 {1, 2, 3, 4, 5, 6, 7, 8, 9},  
 {2, 3, 4, 5, 6, 7, 8, 9, 1},  
 {3, 4, 5, 6, 7, 8, 9, 1, 2},  
 {4, 5, 6, 7, 8, 9, 1, 2, 3},  
 {5, 6, 7, 8, 9, 1, 2, 3, 4},  
 {6, 7, 8, 9, 1, 2, 3, 4, 5},  
 {7, 8, 9, 1, 2, 3, 4, 5, 6},  
 {8, 9, 1, 2, 3, 4, 5, 6, 7},  
 {9, 1, 2, 3, 4, 5, 6, 7, 8},  
 };  
  
 public static int S2[][] =  
 {  
 {1, 2, 3, 4, 5, 6, 7, 8, 9},  
 {4, 5, 6, 7, 8, 9, 1, 2, 3},  
 {7, 8, 9, 1, 2, 3, 4, 5, 6},  
 {2, 3, 4, 5, 6, 7, 8, 9, 1},  
 {5, 6, 7, 8, 9, 1, 2, 3, 4},  
 {8, 9, 1, 2, 3, 4, 5, 6, 7},  
 {3, 4, 5, 6, 7, 8, 9, 1, 2},  
 {6, 7, 8, 9, 1, 2, 3, 4, 5},  
 {9, 1, 2, 3, 4, 5, 6, 7, 8}  
 };  
  
 public static int S3[][] =  
 {  
 {1, 2, 3, 4, 5 ,6 ,7, 8, 2},  
 {4, 5, 6, 7, 8 ,9 ,1 ,2 ,3},  
 {7, 8, 9, 1, 2, 3, 4, 5, 6},  
 {2, 3, 4, 5, 6, 7, 8, 9, 1},  
 {5, 6, 7, 8, 9, 1, 2, 3, 4},  
 {8, 9, 1, 2, 3, 4, 5, 6, 7},  
 {3, 4, 5, 6, 7, 8, 9, 1 ,2},  
 {6, 7, 8, 9, 1, 2, 3 ,4 ,5},  
 {9, 1, 2, 3, 4, 5, 6, 7, 8}  
 };  
  
 public static int S4[][] =  
 {  
 {1, 2, 3, 4, 5, 6, 7 ,8, 9},  
 {4, 5, 6, 7, 8, 9, 1, 2, 3},  
 {7, 8, 9, 1, 2, 3, 4, 5, 6},  
 {2, 3, 4, 5, 6, 7, 8, 9, 1},  
 {5, 6, 7, 8, 9, 1, 2, 3, 4},  
 {8, 9, 1, 2, 3, 4, 5, 6, 7},  
 {3, 4, 5, 6, 7, 8, 9, 1 ,2},  
 {6, 7, 8, 9, 1, 8, 3, 4, 5},  
 {9, 1, 2, 3, 4, 5, 6, 7, 8}  
 };  
   
 //This function prints the array  
 public static void print(int[][] array)   
 {   
 for (int x = 0; x < 9; x++)  
 {  
 for (int y = 0; y < 9; y++)  
 {  
 System.out.print(array[x][y]);  
 }  
 System.out.println();  
 }  
 /\* to print the game board 9x9 \*/   
 }  
  
 //This function checks the rows and columns  
 public static void check(int[][] game)  
 {  
 int countProblems = 0;  
 //if an error is found the error is printed and   
 //the value added to the varialbe countProblems  
 for (int row = 0; row <= 8; ++row)   
 countProblems += checkRow(game, row);  
 for (int column = 0; column <= 8; ++column)   
 countProblems += checkColumn(game, column);  
 for (int square = 0; square <= 8; ++square)   
 countProblems += checkSquare(game, square);  
 if (countProblems == 0)  
 System.out.println("Congratulations! You won the game!");  
 }  
  
 //This function checks the rows for errors  
 public static int checkRow(int[][] S, int row)  
 {  
 boolean counter1 = false;  
 boolean counter2 = false;  
 boolean counter3 = false;  
 boolean counter4 = false;  
 boolean counter5 = false;  
 boolean counter6 = false;  
 boolean counter7 = false;  
 boolean counter8 = false;  
 boolean counter9 = false;  
  
 for (int x = 0; x < 9; x++)  
 {  
   
 if (S[row][x] == 1)  
 {  
 counter1 = true;  
 }  
 if (S[row][x] == 2)  
 {  
 counter2 = true;  
 }  
 if (S[row][x] == 3)  
 {  
 counter3 = true;  
 }  
 if (S[row][x] == 4)  
 {  
 counter4 = true;  
 }  
 if (S[row][x] == 5)  
 {  
 counter5 = true;  
 }  
 if (S[row][x] == 6)  
 {  
 counter6 = true;  
 }  
 if (S[row][x] == 7)  
 {  
 counter7 = true;  
 }  
 if (S[row][x] == 8)  
 {  
 counter8 = true;  
 }  
 if (S[row][x] == 9)  
 {  
 counter9 = true;  
 }  
 }  
 //Prints an error is something wrong is found  
 if ((counter9 == false) || (counter8 == false) || (counter7 == false) || (counter6 == false) || (counter5 == false) ||   
 (counter4 == false) || (counter3 == false) || (counter2 == false) || (counter1 == false))  
 {  
 System.out.print(" Row " + (row+1) + " has a problem. ");  
 return 1;  
 }  
 else   
 return 0;  
 }  
  
 //This function checks the columns for errors  
 public static int checkColumn(int[][] S, int column)   
 {   
 boolean counter1 = false;  
 boolean counter2 = false;  
 boolean counter3 = false;  
 boolean counter4 = false;  
 boolean counter5 = false;  
 boolean counter6 = false;  
 boolean counter7 = false;  
 boolean counter8 = false;  
 boolean counter9 = false;  
  
 for (int x = 0; x < 9; x++)  
 {  
 if (S[x][column] == 1)  
 {  
 counter1 = true;  
 }  
 if (S[x][column] == 2)  
 {  
 counter2 = true;  
 }  
 if (S[x][column] == 3)  
 {  
 counter3 = true;  
 }  
 if (S[x][column] == 4)  
 {  
 counter4 = true;  
 }  
 if (S[x][column] == 5)  
 {  
 counter5 = true;  
 }  
 if (S[x][column] == 6)  
 {  
 counter6 = true;  
 }  
 if (S[x][column] == 7)  
 {  
 counter7 = true;  
 }  
 if (S[x][column] == 8)  
 {  
 counter8 = true;  
 }  
 if (S[x][column] == 9)  
 {  
 counter9 = true;  
 }  
 }  
 //checks if any number is missing in the column  
 if ((counter9 == false) || (counter8 == false) || (counter7 == false) || (counter6 == false) || (counter5 == false) ||   
 (counter4 == false) || (counter3 == false) || (counter2 == false) || (counter1 == false))  
 {  
 System.out.print(" Column " + (column + 1) + " has a problem. ");  
 return 1;  
 }  
 else  
 return 0;  
 }  
  
 //This function checks each square for errors  
 public static int checkSquare(int[][] S, int square)  
 {   
 int num1, num2, num3, num4, num5, num6, num7, num8, num9;  
 int errors = 0;  
 if (square == 0)  
 {  
 int[] D = { S[0][0], S[0][1], S[0][2],   
 S[1][0], S[1][1], S[1][2],   
 S[2][0], S[2][1], S[2][2]};  
 ;  
 if (unique9numbers(D) == false)  
 {  
 System.out.print(" Square 1 has a problem. ");  
 errors += 1;  
 }  
 //System.out.println("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Square one is " << unique9numbers(D));  
 }  
 if (square == 1)  
 {  
 int[] D = { S[0][3], S[0][4], S[0][5],  
 S[1][3], S[1][4], S[1][5],  
 S[2][3], S[2][4], S[2][5] };  
 ;  
 if (unique9numbers(D) == false)  
 {  
 System.out.print(" Square 2 has a problem. ");  
 errors += 1;  
 }  
 }  
 if (square == 2)  
 {  
 int[] D = { S[0][6], S[0][7], S[0][8],  
 S[1][6], S[1][7], S[1][8],  
 S[2][6], S[2][7], S[2][8] };  
 ;  
 if (unique9numbers(D) == false)  
 {  
 System.out.print(" Square 3 has a problem. ");  
 errors += 1;  
 }  
 }  
 if (square == 3)  
 {  
 int[] D = { S[3][0], S[3][1], S[3][2],  
 S[4][0], S[4][1], S[4][2],  
 S[5][0], S[5][1], S[5][2] };  
 ;  
 if (unique9numbers(D) == false)  
 {  
 System.out.print(" Square 4 has a problem. \n");  
 errors += 1;  
 }  
 }  
 if (square == 4)  
 {  
 int[] D = { S[3][3], S[3][4], S[3][5],  
 S[4][3], S[4][4], S[4][5],  
 S[5][3], S[5][4], S[5][5] };  
 ;  
 if (unique9numbers(D) == false)  
 {  
 System.out.print(" Square 5 has a problem. ");  
 errors += 1;  
 }  
 }  
 if (square == 5)  
 {  
 int[] D = { S[3][6], S[3][7], S[3][8],  
 S[4][6], S[4][7], S[4][8],  
 S[5][6], S[5][7], S[5][8] };  
 ;  
 if (unique9numbers(D) == false)  
 {  
 System.out.print(" Square 6 has a problem. ");  
 errors += 1;  
 }  
 }  
 if (square == 6)  
 {  
 int[] D = { S[6][0], S[6][1], S[6][2],  
 S[7][0], S[7][1], S[7][2],  
 S[8][0], S[8][1], S[8][2] };  
 ;  
 if (unique9numbers(D) == false)  
 {  
 System.out.print("Square 7 has a problem.");  
 errors += 1;  
 }  
 }  
 if (square == 7)  
 {  
 int[] D = { S[6][3], S[6][4], S[6][5],  
 S[7][3], S[7][4], S[7][5],  
 S[8][3], S[8][4], S[8][5] };  
 ;  
 if (unique9numbers(D) == false)  
 {  
 System.out.print(" Square 8 has a problem. ");  
 errors += 1;  
 }  
 }  
 if (square == 8)  
 {  
 int[] D = { S[6][6], S[6][7], S[6][8],  
 S[7][6], S[7][7], S[7][8],  
 S[8][6], S[8][7], S[8][8] };  
 ;  
 if (unique9numbers(D) == false)  
 {  
 System.out.print(" Square 9 has a problem. ");  
 errors += 1;  
 }  
 }  
 if (errors == 0)  
 return 0;  
 else  
 return errors;  
 }  
  
 //This function checks if each square has 9 unique numbers  
 public static boolean unique9numbers(int[] D)  
 {   
 boolean squareValid = true;  
  
 boolean counter1 = false;  
 boolean counter2 = false;  
 boolean counter3 = false;  
 boolean counter4 = false;  
 boolean counter5 = false;  
 boolean counter6 = false;  
 boolean counter7 = false;  
 boolean counter8 = false;  
 boolean counter9 = false;  
  
 for (int x = 0; x < 9; x++)  
 {  
 if (D[x]== 1)  
 {  
 counter1 = true;  
 }  
 if (D[x] == 2)  
 {  
 counter2 = true;  
 }  
 if (D[x] == 3)  
 {  
 counter3 = true;  
 }  
 if (D[x] == 4)  
 {  
 counter4 = true;  
 }  
 if (D[x] == 5)  
 {  
 counter5 = true;  
 }  
 if (D[x] == 6)  
 {  
 counter6 = true;  
 }  
 if (D[x] == 7)  
 {  
 counter7 = true;  
 }  
 if (D[x] == 8)  
 {  
 counter8 = true;  
 }  
 if (D[x] == 9)  
 {  
 counter9 = true;  
 }  
 }  
   
 if ((counter9 == false) || (counter8 == false) || (counter7 == false) || (counter6 == false) || (counter5 == false) ||  
 (counter4 == false) || (counter3 == false) || (counter2 == false) || (counter1 == false))  
 {  
 squareValid = false;  
 }  
 return squareValid;  
 }  
  
 public static void main(String[] args)  
 {  
 System.out.println("Welcome to play the Sudoku game check designed by Francisco Valadez!");  
 System.out.println("1===================================================");  
 System.out.println("Your game 1 is as follows:");  
 print(S1);  
 System.out.print("Your game 1: ");  
 check(S1);  
 System.out.println("\n2===================================================");  
 print(S2);  
 System.out.println("Your game 2:");  
 check(S2);  
 System.out.println("3===================================================");  
 print(S3);  
 System.out.print("Your game 3: ");  
 check(S3);  
 System.out.println("\n4===================================================");  
 print(S4);  
 System.out.print("Your game 4: ");  
 check(S4);  
 System.out.println("\n5===================================================");  
 System.out.println("Thank you for playing the Sudoku Game Check of Francisco Valadez!");  
 System.out.println("6===================================================");  
 }  
}

**B. The following is the complete testing output of 4 games: [You must show 4 games.]**

**// Please copy your Eclipse console output into here.**

