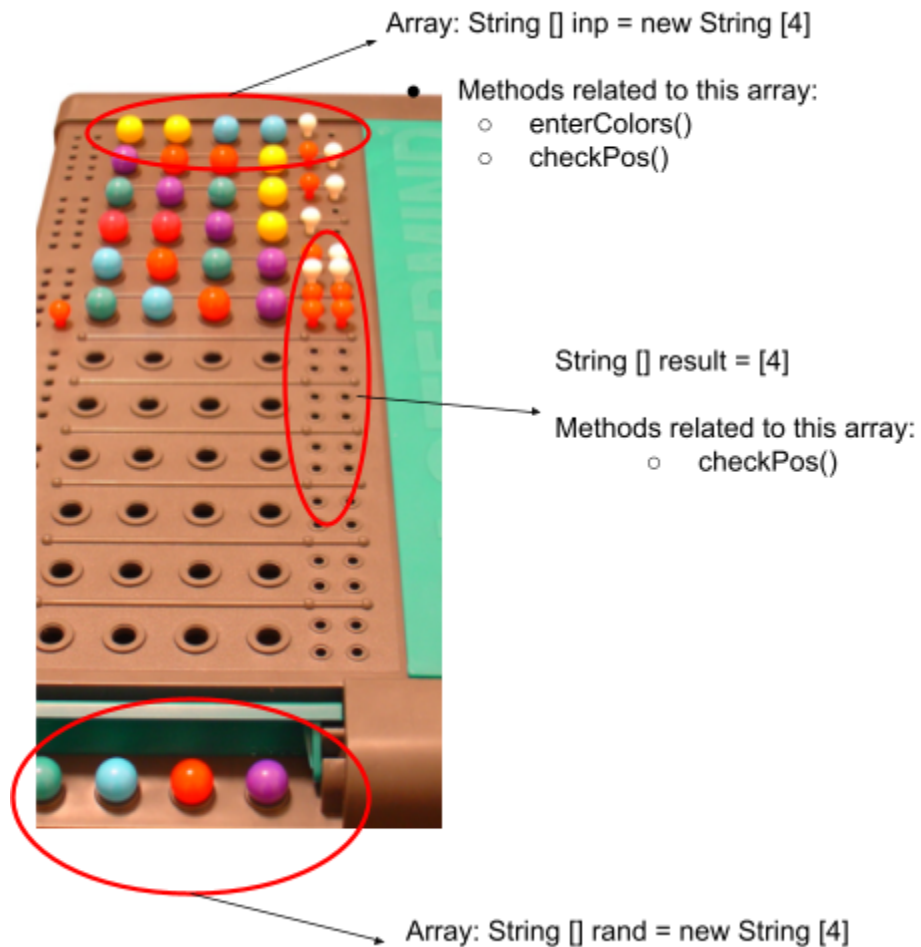


## Mastermind Game Planning Java



### Basics:

- Colors:
  - Green
  - Red
  - Yellow
  - Blue
  - Brown
  - Black
- Imports:
  - import java.util.\*
    - For the scanner class.
- Arrays:
  - **inp**
    - The user inputs the guesses in this string array.
  - **rand**
    - Takes 4 random colors provided above and puts them into this array. This array stays constant until the game ends or a new game starts. Duplicates *will be* allowed.

- Methods:
  - **enterColors()**
    - Method to enter the values for the array **inp**. This method loops ten times, which is the number of guesses allowed.
    - The scanner asks for user input here, which has to be a color.
      - The checkPos() is called after each value is added.
    - Nested for loop will take place here.
      - After the first loop or guess finishes, the printGuess method would be called.
  - **checkPos()**
    - Checks if values of **rand** and **inp** match up by comparing their values using the ".equals" method.
    - Three if conditions to check:
      - if (inp[i] equals any value in rand, using a for loop){
        - if(inp[i].equals(rand[i]){
          - Red++;
        - else{
          - white++;
      - Blank = 4 - red - white;
    - Now if the entire array of results is equal to correct, return a statement declaring a win.

### **Code Development:**

```
import java.util.*;

public class MasterMind {
    public static void main(String[] args) {

        //inp, rand declarations.
        String [] inp = new String[4];
        String [] rand = //change this to select from the 6 different colors.
        Scanner console = new Scanner(System.in);

        //add welcome statements to introduce the viewer to the game.
    }

    public static void enterColors(String[] inp){
        //for loop to enter each guess.
        for(int k = 0; k<=9; k++){
            //10 guesses limit
            for(int i=0; i<inp.length-1; i++){
                System.out.print("Enter value " + i);
                inp += console.next();
            }
        }
    }
}
```

```

        System.out.println("");
    }

    System.out.println(checkPos(rand, inp));
    //checks the user inputted guesses after each guess.
}

}

public static int checkPos(String[] rand, String[] inp){
    boolean x = false;
    for(int k=0; k<rand.length-1; k++){
        for(int i =0; i<inp.length-1; i++){
            if inp[i].equals(rand[k]){ // checks if ONE color exists
anywhere in the Answer (rand)
                x= true
                break;
            }
        }
    }

    if(x=true){ //if some color exists somewhere in the answer, then go
through this condition.
        for(int p = 0; p<rand.length-1; p++){
            if(inp[i].equals(rand[i])){
                white++

                else{
                    red++;
                }
            }
        }

        blank = 4 - red - white; += " "; //if not even right
color, just prints blank
    }

    for(int f=0; f<inp.length-1; f++){ //checks if rand is equal to
inp, and prints if a win occurs.
        if(inp[f].equals(rand[f])){
            System.out.println("YOU WIN!");

```

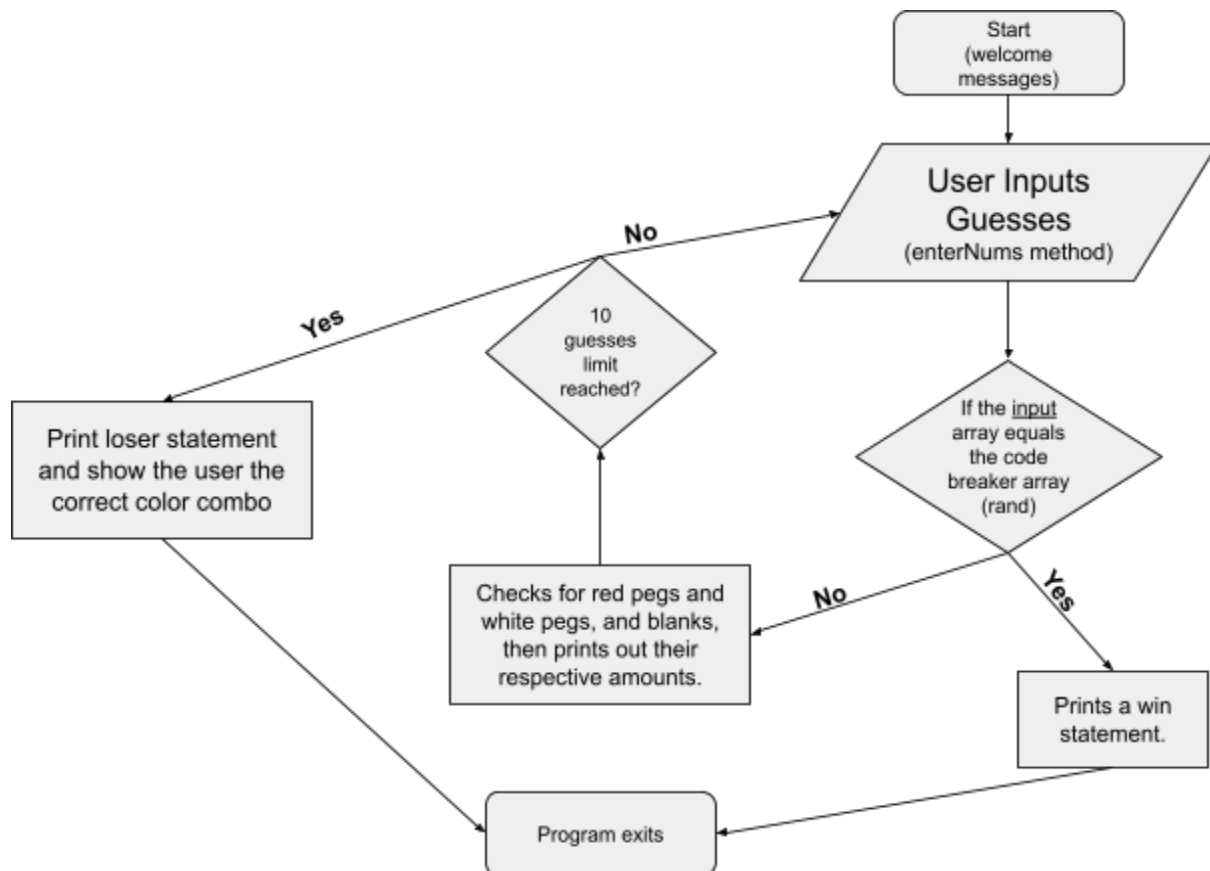
```

    }
    }
    }
    }
    }
}
}
}

```

Next steps:

- Place method calls appropriately.
- Fill in the rand array with color generations.
- Debug
- 



Final Code of Working Game

/\*

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APCSA - Period 3  
Mastermind game  
\*/

```
import java.util.*;
public class MasterMind {
    public static void main(String[] args) {

        //inp and rand declarations.
        String[] colors = {"r","y","b","g","w","o"};
        String[] inp = new String[4];
        String[] rand = new String[4];
        //populate the rand array with random colors from colors.
        for (int i = 0; i < rand.length; i++) {
            int val = new Random().nextInt(colors.length);
            rand[i] = colors[val];
        }

        //new scanner declaration.
        Scanner console = new Scanner(System.in);

        //welcome messages
        System.out.println("Welcome to the Mastermind game!");
        System.out.println("You have 10 guesses to guess the randomly
generated combination of the following six colors: \n red(r) yellow(y)
blue(b) green(g) white(w) orange(o)");

        //method call that starts the entire game.
        enterColors(inp, rand, console);

    }

    public static void enterColors(String[] inp, String[] rand, Scanner
console) {
        //for loop to enter each guess; 10 guess limit.
        int guess = 1;
        System.out.print("This is guess " + guess + " out of 10" + "\n");
        while (guess <= 10) {
            for (int i = 0; i < inp.length; i++) {
                System.out.print("Enter value " + (i + 1) + ": ");
                inp[i] = console.next();
                System.out.println("");
            }
        }
    }
}
```

```

    }
    guess++;
    checkPos(rand, inp); //method that checks the guesses

    //Loser sequence initiates if user does not win in the guess
limit; and correct values are printed.
    if (guess > 10) {
        System.out.println("");
        System.out.print("you lose" + " here is the right answer: "
+ Arrays.toString(rand));
        System.exit(0);
    }

    //prints after each guess to remind them of the options and the
amount of guesses taken.
    System.out.println("This is guess " + (guess) + " out of 10" +
"\n" + "red(r) yellow(y) blue(b) green(g) white(w) orange(o)" + "\n");
}

}

```

```

public static void checkPos(String[] rand, String[] inp) {

```

```

    //red pegs, white pegs, and blank variable declarations
    int red = 0;
    int white = 0;
    int blank = 0;
    int count = 0;
    boolean x = false;

```

```

    //win statement
    if (Arrays.equals(rand, inp)) {
        System.out.println("YOU WIN!");
        System.exit(0); //exit statement after game is won
    }

```

```

    //red and white pegs calculations
    for (int i = 0; i < inp.length; i++) {
        if (inp[i].equals(rand[i])) {
            red++;
        }
    }

```

```

        else {
            for (int y = 0; y < rand.length; y++) {
                if (inp[i].equals(rand[y])) {
                    white++;
                    break;
                }
            }
        }
    }

    blank = 4 - red - white; //blank pegs calculation

    System.out.println("");
    //tells the user information about their guess. After these print,
the next try will appear.
    System.out.println(red + " red pegs, " + white + " white pegs, and "
        + blank + " blank spaces.");

}
}

```

## **GAME OUTPUT**

Welcome to the Mastermind game!

You have 10 guesses to guess the randomly generated combination of the following six colors:

red(r) yellow(y) blue(b) green(g) white(w) orange(o)

This is guess 1 out of 10

Enter value 1: r

Enter value 2: y

Enter value 3: b

Enter value 4: g

0 red pegs, 1 white pegs, and 3 blank spaces.

This is guess 2 out of 10

red(r) yellow(y) blue(b) green(g) white(w) orange(o)

Enter value 1: r

Enter value 2: y

Enter value 3: y

Enter value 4: o

0 red pegs, 1 white pegs, and 3 blank spaces.

This is guess 3 out of 10

red(r) yellow(y) blue(b) green(g) white(w) orange(o)

Enter value 1: y  
Enter value 2: g  
Enter value 3: r  
Enter value 4: w  
2 red pegs, 0 white pegs, and 2 blank spaces.  
This is guess 4 out of 10  
red(r) yellow(y) blue(b) green(g) white(w) orange(o)

Enter value 1: y  
Enter value 2: b  
Enter value 3: r  
Enter value 4: r  
0 red pegs, 0 white pegs, and 4 blank spaces.  
This is guess 5 out of 10  
red(r) yellow(y) blue(b) green(g) white(w) orange(o)

Enter value 1: o  
Enter value 2: g  
Enter value 3: r  
Enter value 4: w  
2 red pegs, 1 white pegs, and 1 blank spaces.  
This is guess 6 out of 10  
red(r) yellow(y) blue(b) green(g) white(w) orange(o)

Enter value 1: o  
Enter value 2: o  
Enter value 3: r  
Enter value 4: g  
0 red pegs, 3 white pegs, and 1 blank spaces.  
This is guess 7 out of 10  
red(r) yellow(y) blue(b) green(g) white(w) orange(o)

Enter value 1: o  
Enter value 2: g  
Enter value 3: r  
Enter value 4: w  
2 red pegs, 1 white pegs, and 1 blank spaces.  
This is guess 8 out of 10  
red(r) yellow(y) blue(b) green(g) white(w) orange(o)

Enter value 1: o  
Enter value 2: r  
Enter value 3: w  
Enter value 4: g



0 red pegs, 3 white pegs, and 1 blank spaces.

This is guess 9 out of 10

red(r) yellow(y) blue(b) green(g) white(w) orange(o)

Enter value 1: y

Enter value 2: g

Enter value 3: r

Enter value 4: o

1 red pegs, 1 white pegs, and 2 blank spaces.

This is guess 10 out of 10

red(r) yellow(y) blue(b) green(g) white(w) orange(o)

Enter value 1: y

Enter value 2: g

Enter value 3: r

Enter value 4: w

2 red pegs, 0 white pegs, and 2 blank spaces.

you lose here is the right answer: [w, g, o, w]