

Name _____ Role (circle one) programmer/computer/project manager

Name _____ Role (circle one) programmer/computer/project manager

Name _____ Role (circle one) programmer/computer/project manager

Name _____ Role (circle one) quality control

Blob Hunter

Your Tasks (Mark these off as you go)

- ☐ Practice with recursion
- ☐ Have Ms. Pluska check off practice with recursion
- ☐ Write the getBlob method for one-dimension
- ☐ Have Ms. Pluska check off your getBlob method
- ☐ Write the getBlob method for two-dimensions
- ☐ Have Ms. Pluska check off your getBlob method for two-dimensions
- ☐ Receive credit for the group portion of this lab
- ☐ Receive credit for the individual portion of this lab

☐ Practice with recursion

Trace the following code segments. Indicate the stack and the output for each.

Code	Stack	Output
<pre>public static void showMe(int arg) { if (arg < 10) { showMe(arg + 1); } else { System.out.print(arg + " "); } } public static void main(String args[]){ showMe(0) }</pre>		

Code	Stack	Output
<pre>public static void whatsItDo(String str) { int len = str.length(); if (len > 1) { String temp = str.substring(0, len - 1); System.out.println(temp); whatsItDo(temp); } } public static void main(String args[]){ whatsItDo("WATCH") }</pre>		

Code	Stack	Output
<pre> public static void puf(int n) { if(n == 1) { System.out.print("x"); } else if(n%2 == 0) //n is even { System.out.print("{"); puf(n-1); System.out.print("}"); } else //n is odd { System.out.print("<"); puf(n-1); System.out.print(">"); } } public static void main(String args[]){ puf(5); } </pre>		

Code	Stack	Output
<pre> public static void sort(int[] data) { for (int j = 0; j < data.length - 1; j++) { int m = j; for (int k = j + 1; k < data.length; k++) { if (data[k] < data[m]) /* Compare values */ { m = k; } } int temp = data[m]; /* Assign to temp */ data[m] = data[j]; data[j] = temp; /* End of outer loop */ } } public static void main(String args[]){ int[] iArr = {1, 5, 3}; sort(iArr); } </pre>		

□ Have Ms. Pluska check off practice with recursion



Before you continue, have Ms. Pluska check off practice with recursion

Do not continue until you have Ms. Pluska's (or her designated TA's) signature

□ Write the getBlob Method for one-dimension

The getBlob() method recursively searches for areas on a grid that do not contain mines. For example if a user clicks on index 2 in the 1-dimensional grid below, buttons 2 and 3 will change color as shown.

If a user clicks on indices 1 or 4 however, they lose.

Likewise, if a user clicks on index 6, buttons 5, 6, and 7 will change color.

0	1	2	3	4	5	6	7	8	9
	M	User clicked		M		User clicked		M	

To get started on this method, think about the base cases:

- If a mine is found
- If a user goes out of bounds
- If a button is visited

In other words, if a user clicks on a button that does not contain a mine and is within the boundaries of the grid and has not been visited, we can call the recursive method, otherwise we will not.

Another way to state this, is as follows,

```
if (b >= 0 && b < gridDimensions && mines[b] == false && visited[b] == false) {  
    //run the recursion portion  
}
```

Write the getBlob method for one dimension on the paper provided. Your method should accept one parameter with represents the x location (or index) of the button clicked.

In the body of the if statement,

- set the visited location to true
- call getBlob for each adjacent button
- Set the background of all buttons in the block to orange -
tiles[b].setBackground(Color.orange);

□ **Have Ms. Pluska check off your getBlob method for one-dimension**



Before you continue, have Ms. Pluska check off your getBlob method for one-dimension

Do not continue until you have Ms. Pluska's (or her designated TA's) signature

□ **Write the getBlob method for two-dimensions**

Now that you have figured out the logic for a one-dimensional getBlob method, you can expand it to two dimensions. To do this you will need to think about the additional boundary cases. You will also need to think about the additional recursive calls.

Write the getBlob method for two-dimensions on the paper provided.

Have Ms. Pluska check off your getBlob method for two-dimensions



Before you continue, have Ms. Pluska check off your getBlob method for two-dimensions

Do not continue until you have Ms. Pluska's (or her designated TA's) signature

□ **Receive Credit for the group portion of this lab**

Make sure to indicate the names of all group members, then submit this lab to the needs to be graded folder to receive credit for the group portion of this lab.

□ **Receive Credit for the individual portion of this lab**

Implement the getBlob method for two-dimensions on your computer. Show Ms. Pluska your completed method to receive credit for the individual portion of this lab.