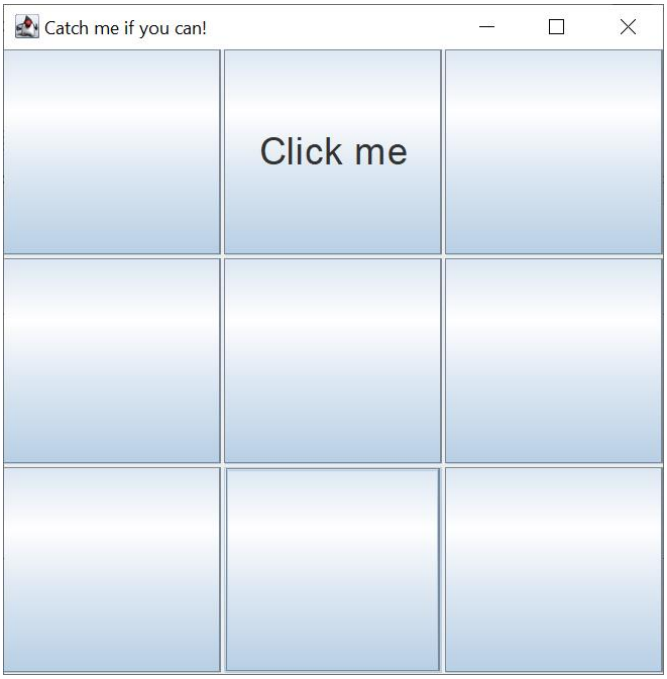
Introductory Java Programming

Queen Mary University of London
School of Electronic Engineering and Computer Science

Course Code: EBU4201

Lab Sheet 6: Basic GUI

1. Write a simple Java application that creates the GUI (Graphical User Interface) on the right[1], so that it exhibits the following behaviour:



   i) Upon initialisation, the application should randomly choose where to locate the button containing the text **`"Click me"`**.

   ii) When the user attempts to follow the instruction on the labelled button (i.e., to click it!), the application should detect the mouse movement in the display area of the labelled button and randomly relocate the button text to another location (i.e., another button) on the screen. The user should never actually be able to successfully click the button containing the **`"Click me"`** text.

   iii) Clicking on any other button[2] should produce no result.

   Name this program **`CatchButtonGameV1.java`**.

[1] **Note**: The screenshot shows that the button currently showing the **`"Click me"`** text is on the top right hand corner and the user has just moved the mouse into the middle button in the bottom row of the grid (which can be seen by the slightly different edges of that button).

[2] **Note**: The exception to this is: if the user clicks the *close* button (i.e., the red button on the application window's top right-hand corner), the application is terminated.

2. Modify the Java application you wrote in *Q1* such that the number of buttons to be displayed by the game is an argument on the command line. For example, running the application with the command **`java CatchButtonGame 16`** would result in a window displaying buttons in a **`4*4`** grid[3].

   Name this program **`CatchButtonGameV2.java`**.

Ensure that all your programs contain both internal comments and *Javadoc* comments.

[3] **Hint**: You can assume that the grid is always a "square" and only perfect square numbers of buttons are passed to the program i.e., **`4`**, **`9`**, **`16`**, **`25`**, etc.