

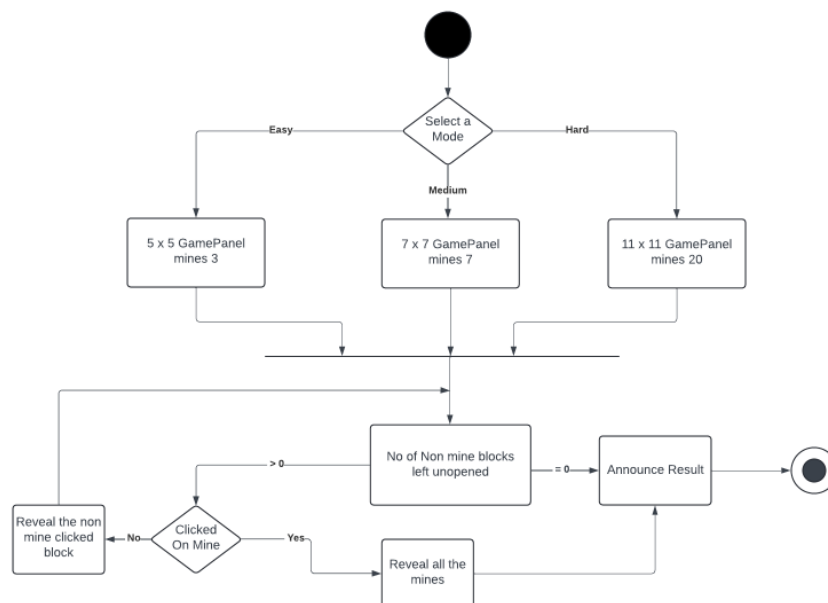
# CSCI 5003 Team Project - New Feature

## Project Title: Minesweeper

### New Feature Description

The Minesweeper game has a new design that features three difficulty modes—easy, medium, and hard—allowing players to choose the level of challenge they want before creating a game. Comprehension modes exist that will adjust the game board's squares and mines to best fit the player's ability level, from easy to hard. In particular, the "MineField.java" class has its board initialized and the mines are distributed according to the difficulty level chosen. Meanwhile, existing classes such as "GamePanel.java" and "GameGUI.java" have been updated to support the selection of different difficulty levels and continuously modify the view. With that, the gameplay is lively and enhanced, and the player can have a custom and easy-to-use environment for new and experienced ones.

### Activity Diagram



## Design Changes

To support the new difficulty modes feature in the Minesweeper game, modifications are required across several classes in both the model and view layers. Below is a detailed description of the changes to these classes and the specific methods that will be changed or added:

### MineField.java (Model)

Based on the updated feature set for the Minesweeper game, the game.java got updated to the MineField.java.

**public MineField(int rows, int columns):** Replaces the previous constructor, initializing the game board with a dynamic number of rows and columns based on the selected difficulty, rather than a preset size and mine count.

**public void revealMines():** To enhance the visual appeal of the Minesweeper game, particularly during the reveal of mines, we can update the revealMines() method in the MineField.java class to include a bomb image instead of a simple text or color change.

### Block.java (Model)

Given the update where the class name was changed from Blocks to Block, and retaining all other properties and functionalities as before.

### GameGUI.java (View)

To expand upon the previous description of the GameGUI.java class for the Minesweeper game and integrate new functionalities such as difficulty mode selection and dynamically updating the game panel, we have updated the class definition and methods to include action listeners for difficulty buttons and a method to replace the game panel based on the selected difficulty.

**public void run():** Continuing to the previous implementation, we have added action Listeners to the difficulty modes.

**private static void replacePanel(JPanel containerPanel, JPanel newPanel):** It replaces the current ContainerPanel with a new panel, ensuring the UI is updated correctly.

## GamePanel.java (View)

The GamePanel class is a crucial component of the view in the MVC architecture for the Minesweeper game. In this deliverable modifications made in the GamePanel class constructor and the createPanel method, focusing on the integration of MouseListener and the handling of mouse events for a more interactive gameplay experience in the Minesweeper game.

**public GamePanel():** We have rewritten the constructor GamePanel according the game.

**public JPanel createPanel(String mode, Game game):** A MouseListener is added to each block to handle interactive gameplay, allowing users to click to reveal mines or right-click to flag potential mines. This method effectively manages the display and interaction of the game's minefield, enhancing user engagement by responding to user actions in real time and updating the mine count and game status visually.