**MARMARA UNIVERSITY**

**COMPUTER SCIENCE AND ENGINEERING**

**CSE1142 TERM PROJECT**

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**Problem Definition**

Implementing a box clicking game on a grid using the JavaFX Framework according to rules of the game; displaying the levels, actions and scores. Then, proceeding to the next levels of the game if you never clicked the button that including bomb.

The game has three levels and its getting harder level by level. In first move, the player will click on a random box and luckily, there may be a bomb in the box or a number will be written in the box. This number is the bomb number around the box.

A timer and scoreboard will be shown to the player during the game.

**Implementation Details**

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| HelloApplication |
| -TILE\_SIZE: int  -WIDTH: int  -HEIGHT: int  -startScene: Scene  -gameScene: Scene  -X\_TILES: int  -Y\_TILES: int |
| -grid: Tile[][]  -a: Alert  -createContent(): Pane  -getNeighbors(Tile): List<Tile>  -open() |

1. **HelloApplication**

This class is the main application and it is a subclass of javafx.application.Application. It builds the stage, the scene and the panes to place labels and boxes in them.

It contains the level and score values along with the components of the stage in first block of code.

It can seen the definition of variables HEIGHT and WIDTH as dimensions of game board. With TILE\_SIZE variable we arranged all board dimensions to final keyword and fixed it.

For showing boxes in stage we used two dimensional grid array object.

It is shown an Alert object to give bomb warning.

After that, we wrote a pane the createContent to determine game board and boxes situation when clicking. In getNeighbors array list, seems some bombs and empty space around clicking button after clicking if it is the button except any bomb button.

At the open() method, when the boxes are clicked it determines what boxes will be open up to show the user.So, user can see how many bombs around the box just clicked.

|  |
| --- |
| Tile |
| +start(Stage):void  +main(String[]):void |

1. **Tile**

This class has the pane where the boxes are placed and it is also a subclass of StackPane. This is depends on HelloApplication class.

It contains: Some events of the game provides with hasBomb and isOpen boolean variables, box shown as border the Rectangle object, text the Text object as determine levels and situations of the game with text.

The Tile constructor declares the x, y and hasBomb variables and process them. In additionally, there is an i object of Image for shown of empty and bomb buttons differences according to users move on boxes.

There is a start method here for setting stage for game board, labelsfor our texts, panes for box creation, and button events for moves on boxes.

**Opening**



**Levels(Wining Cases)**

Level 1



Level 2



Level 3



**Test Case(Losing Case)**

