

# Minesweeper

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# Chapter 1

## Class Index

### 1.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

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## Chapter 2

# Class Documentation

### 2.1 Minesweeper.Board Class Reference

#### Public Member Functions

- `def __init__ (self, root, size_x, size_y, bombs)`
- `def onObjectLeftClick (self, event)`
- `def onObjectRightClick (self, event)`
- `def check_game (self)`
- `def place_bombs (self, bombs)`
- `def addFlag (self, x, y)`
- `def reveal (self, x, y)`
- `def show_board (self)`
- `def __str__ (self)`

#### Public Attributes

- `canv`
- `size_x`
- `size_y`
- `flag_count`
- `board`
- `bombs`

#### 2.1.1 Detailed Description

Board stores references to all the Cells and has functions to play the game.

Attributes:

`canv (Canvas)`: The canvas the board should be drawn onto.

`size_x (int)`: The size of how many cells there should be in a column.

`size_y (int)`: The size of how many cells there should be in a row.

`flag_count (int)`: How many flags are on the board.

`board (Cell[][])`: The 2D array to store the cells.

`bombs ((int, int)[])`: x and y coordinates of the bombs locations.

## 2.1.2 Constructor & Destructor Documentation

### 2.1.2.1 `__init__()`

```
def Minesweeper.Board.__init__ (
    self,
    root,
    size_x,
    size_y,
    bombs )
```

Board setup.

This setup just creates the board then sets random cells to contain bombs.

Args:

- `root (Panel)`: Where the Canvas should be created.
- `size_x (int)`: The size of how many cells there should be in a column.
- `size_y (int)`: The size of how many cells there should be in a row.
- `bombs (int)`: Amount of bombs to be placed.

## 2.1.3 Member Function Documentation

### 2.1.3.1 `addFlag()`

```
def Minesweeper.Board.addFlag (
    self,
    x,
    y )
```

Adds a flag to the relevant Cell.

Adds a flag to the cell then updates the drawing, after then checks gamestate to see if the user won.

Args:

- `x (int)`: x coordinate of Cell targeted.
- `y (int)`: y coordinate of Cell targeted.

### 2.1.3.2 `check_game()`

```
def Minesweeper.Board.check_game (
    self )
```

Checks if game state is complete.

Checks list of bombs to see if they have been flagged, and also checks there isnt any extra flags.

Returns:

- True if complete, False otherwise.



### 2.1.3.3 onObjectLeftClick()

```
def Minesweeper.Board.onObjectLeftClick (
    self,
    event )
```

Left click event onto a cell.

Handles the event of clicking onto a cell.

Args:  
    event (Event): Details of the event that triggered.

### 2.1.3.4 onObjectRightClick()

```
def Minesweeper.Board.onObjectRightClick (
    self,
    event )
```

Right click event onto a cell.

Handles the event of right clicking onto a cell.

Args:  
    event (Event): Details of the event that triggered.

### 2.1.3.5 place\_bombs()

```
def Minesweeper.Board.place_bombs (
    self,
    bombs )
```

Places bombs on random cells.

Randomly picks new spots to place bombs.

Args:  
    bombs (int): amount of bombs to place

### 2.1.3.6 reveal()

```
def Minesweeper.Board.reveal (
    self,
    x,
    y )
```

Recursive method to reveal Cells.

Recursively reaveals a cell then if that cell has 0 neighbouring bombs it calls the Recursive method on each neighbour that isnt revealed.

Args:

```
x (int): x coordinate of Cell to be revealed.
y (int): y coordinate of Cell to be revealed.
```

### 2.1.3.7 show\_board()

```
def Minesweeper.Board.show_board (
    self )
```

Shows board state for debugging.

Returns:

```
output (str): Board view.
```

The documentation for this class was generated from the following file:

- Minesweeper.py

## 2.2 Minesweeper.Cell Class Reference

### Public Member Functions

- `def __init__(self, canv, x, y)`

### Public Attributes

- **bomb**
- **covered**
- **flag**
- **colour**
- **number**
- **x**
- **y**
- **rec**
- **text**

### 2.2.1 Detailed Description

Cell stores the relevant information about each cell tile.

Attributes:

- bomb (bool): Stores if the cell contains a bomb.
- covered (bool): Stores if the cell is revealed or covered from user.
- flag (bool): Stores if the cell is marked with a flag.
- colour (str): The colour of the tile.
- number (int): The number of neighbouring bombs.
- x (int): x coordinate ID used for drawing relative.
- y (int): y coordinate ID used for drawing relative.
- rec (Rectangle): Canvas Rectangle used in drawing.
- text (Text): Canvas Text used in drawing number of neighbouring bombs.

### 2.2.2 Constructor & Destructor Documentation

#### 2.2.2.1 \_\_init\_\_()

```
def Minesweeper.Cell.__init__ (
    self,
    canv,
    x,
    y )
```

Cell Setup call.

The default setup is that there is no bomb, the cell is covered and there is no flag. Also the colour is default white and x, y coordinates are set. The drawing objects are also created at this point.

Args:

- canv (Canvas): The canvas the cell should be drawn on.
- x (int): x coordinate.
- y (int): y coordinate.

The documentation for this class was generated from the following file:

- Minesweeper.py



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