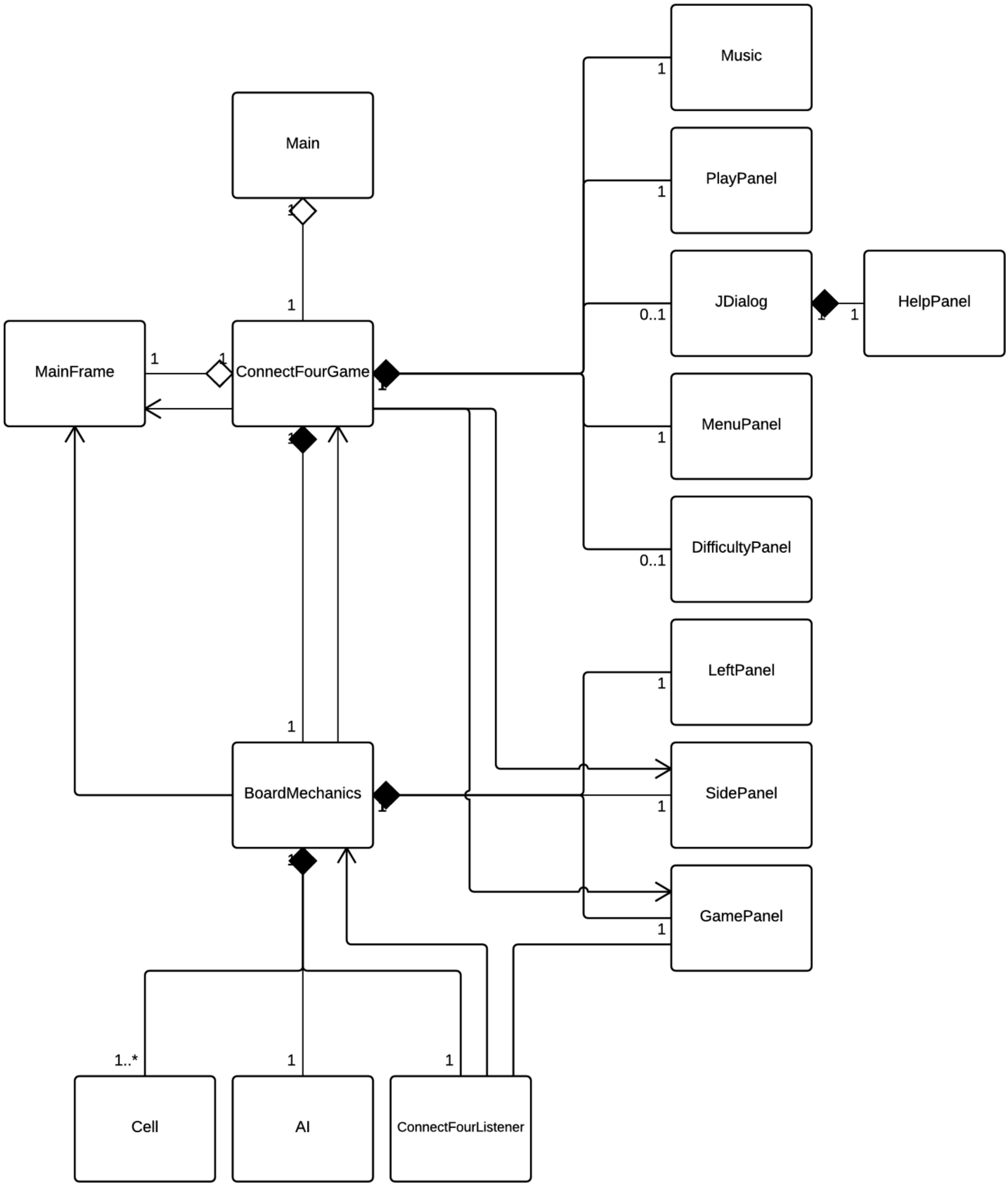
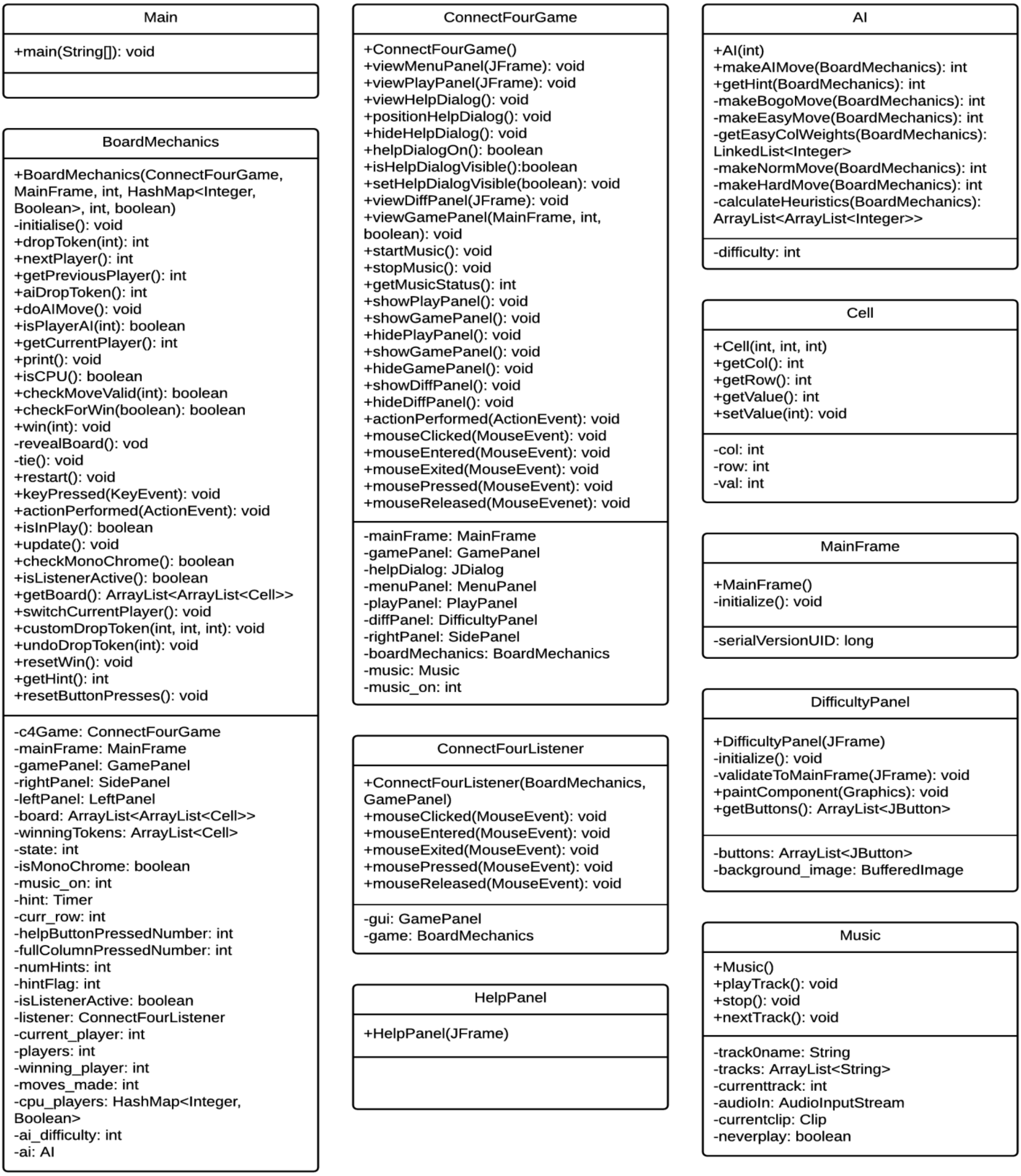
UML Diagram of CuteConnect4





Main

- +main(String[]): void

BoardMechanics

- +BoardMechanics(ConnectFourGame, MainFrame, int, HashMap<Integer, Boolean>, int, boolean)
- -initialise(): void
- +dropToken(int): int
- +nextPlayer(): int
- +getPreviousPlayer(): int
- +aiDropToken(): int
- +doAIMove(): void
- +isPlayerAI(int): boolean
- +getCurrentPlayer(): int
- +print(): void
- +isCPU(): boolean
- +checkMoveValid(int): boolean
- +checkForWin(boolean): boolean
- +win(int): void
- -revealBoard(): vod
- -tie(): void
- +restart(): void
- +keyPressed(KeyEvent): void
- +actionPerformed(ActionEvent): void
- +isInPlay(): boolean
- +update(): void
- +checkMonoChrome(): boolean
- +isListenerActive(): boolean
- +getBoard(): ArrayList<ArrayList<Cell>>
- +switchCurrentPlayer(): void
- +customDropToken(int, int, int): void
- +undoDropToken(int): void
- +resetWin(): void
- +getHint(): int
- +resetButtonPresses(): void

- -c4Game: ConnectFourGame
- -mainFrame: MainFrame
- -gamePanel: GamePanel
- -rightPanel: SidePanel
- -leftPanel: LeftPanel
- -board: ArrayList<ArrayList<Cell>>
- -winningTokens: ArrayList<Cell>
- -state: int
- -isMonoChrome: boolean
- -music_on: int
- -hint: Timer
- -curr_row: int
- -helpButtonPressedNumber: int
- -fullColumnPressedNumber: int
- -numHints: int
- -hintFlag: int
- -isListenerActive: boolean
- -listener: ConnectFourListener
- -current_player: int
- -players: int
- -winning_player: int
- -moves_made: int
- -cpu_players: HashMap<Integer, Boolean>
- -ai_difficulty: int
- -ai: AI

ConnectFourGame

- +ConnectFourGame()
- +viewMenuPanel(JFrame): void
- +viewPlayPanel(JFrame): void
- +viewHelpDialog(): void
- +positionHelpDialog(): void
- +hideHelpDialog(): void
- +helpDialogOn(): boolean
- +isHelpDialogVisible():boolean
- +setHelpDialogVisible(boolean): void
- +viewDiffPanel(JFrame): void
- +viewGamePanel(MainFrame, int, boolean): void
- +startMusic(): void
- +stopMusic(): void
- +getMusicStatus(): int
- +showPlayPanel(): void
- +showGamePanel(): void
- +hidePlayPanel(): void
- +showGamePanel(): void
- +hideGamePanel(): void
- +showDiffPanel(): void
- +hideDiffPanel(): void
- +actionPerformed(ActionEvent): void
- +mouseClicked(MouseEvent): void
- +mouseEntered(MouseEvent): void
- +mouseExited(MouseEvent): void
- +mousePressed(MouseEvent): void
- +mouseReleased(MouseEvenet): void

- -mainFrame: MainFrame
- -gamePanel: GamePanel
- -helpDialog: JDialog
- -menuPanel: MenuPanel
- -playPanel: PlayPanel
- -diffPanel: DifficultyPanel
- -rightPanel: SidePanel
- -boardMechanics: BoardMechanics
- -music: Music
- -music_on: int

ConnectFourListener

- +ConnectFourListener(BoardMechanics, GamePanel)
- +mouseClicked(MouseEvent): void
- +mouseEntered(MouseEvent): void
- +mouseExited(MouseEvent): void
- +mousePressed(MouseEvent): void
- +mouseReleased(MouseEvent): void

- -gui: GamePanel
- -game: BoardMechanics

HelpPanel

- +HelpPanel(JFrame)

AI

- +AI(int)
- +makeAIMove(BoardMechanics): int
- +getHint(BoardMechanics): int
- -makeBogoMove(BoardMechanics): int
- -makeEasyMove(BoardMechanics): int
- -getEasyColWeights(BoardMechanics): LinkedList<Integer>
- -makeNormMove(BoardMechanics): int
- -makeHardMove(BoardMechanics): int
- -calculateHeuristics(BoardMechanics): ArrayList<ArrayList<Integer>>

- -difficulty: int

Cell

- +Cell(int, int, int)
- +getCol(): int
- +getRow(): int
- +getValue(): int
- +setValue(int): void

- -col: int
- -row: int
- -val: int

MainFrame

- +MainFrame()
- -initialize(): void

- -serialVersionUID: long

DifficultyPanel

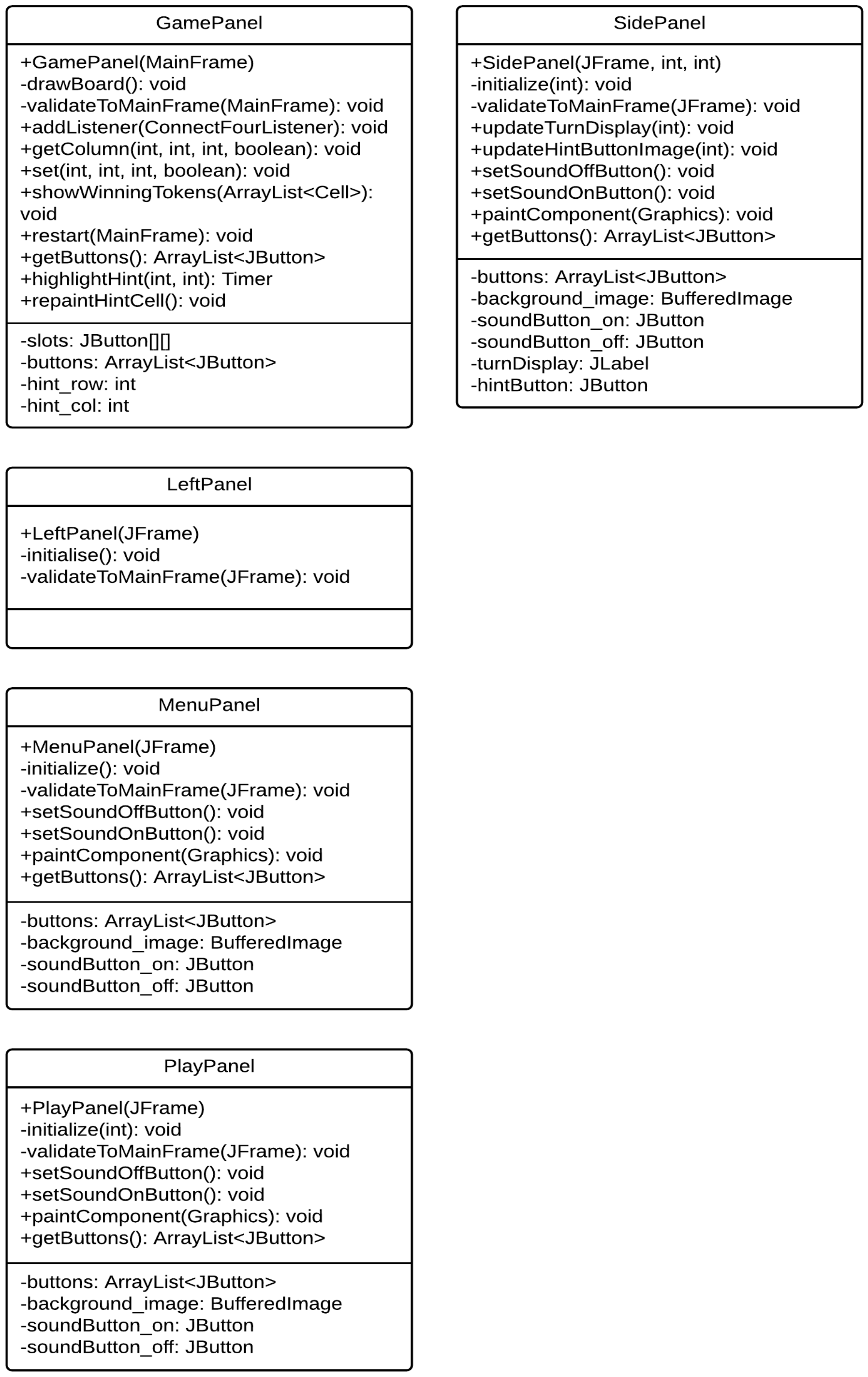
- +DifficultyPanel(JFrame)
- -initialize(): void
- -validateToMainFrame(JFrame): void
- +paintComponent(Graphics): void
- +getButtons(): ArrayList<JButton>

- -buttons: ArrayList<JButton>
- -background_image: BufferedImage

Music

- +Music()
- +playTrack(): void
- +stop(): void
- +nextTrack(): void

- -track0name: String
- -tracks: ArrayList<String>
- -currenttrack: int
- -audioIn: AudioInputStream
- -currentclip: Clip
- -neverplay: boolean



```
GamePanel
+GamePanel(MainFrame)
-drawBoard(): void
-validateToMainFrame(MainFrame): void
+addListener(ConnectFourListener): void
+getColumn(int, int, int, boolean): void
+set(int, int, int, boolean): void
+showWinningTokens(ArrayList<Cell>): void
+restart(MainFrame): void
+getButtons(): ArrayList<JButton>
+highlightHint(int, int): Timer
+repaintHintCell(): void
-slots: JButton[][]
-buttons: ArrayList<JButton>
-hint_row: int
-hint_col: int
```

```
SidePanel
+SidePanel(JFrame, int, int)
-initialize(int): void
-validateToMainFrame(JFrame): void
+updateTurnDisplay(int): void
+updateHintButtonImage(int): void
+setSoundOffButton(): void
+setSoundOnButton(): void
+paintComponent(Graphics): void
+getButtons(): ArrayList<JButton>
-buttons: ArrayList<JButton>
-background_image: BufferedImage
-soundButton_on: JButton
-soundButton_off: JButton
-turnDisplay: JLabel
-hintButton: JButton
```

```
LeftPanel
+LeftPanel(JFrame)
-initialise(): void
-validateToMainFrame(JFrame): void
```

```
MenuPanel
+MenuPanel(JFrame)
-initialize(): void
-validateToMainFrame(JFrame): void
+setSoundOffButton(): void
+setSoundOnButton(): void
+paintComponent(Graphics): void
+getButtons(): ArrayList<JButton>
-buttons: ArrayList<JButton>
-background_image: BufferedImage
-soundButton_on: JButton
-soundButton_off: JButton
```

```
PlayPanel
+PlayPanel(JFrame)
-initialize(int): void
-validateToMainFrame(JFrame): void
+setSoundOffButton(): void
+setSoundOnButton(): void
+paintComponent(Graphics): void
+getButtons(): ArrayList<JButton>
-buttons: ArrayList<JButton>
-background_image: BufferedImage
-soundButton_on: JButton
-soundButton_off: JButton
```

Disclaimer:

The faces of the coins used in the project is based on a game called Taiko: Drum Master.