

StarPlatinum

Created by

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Game : A 4 Christmas Present

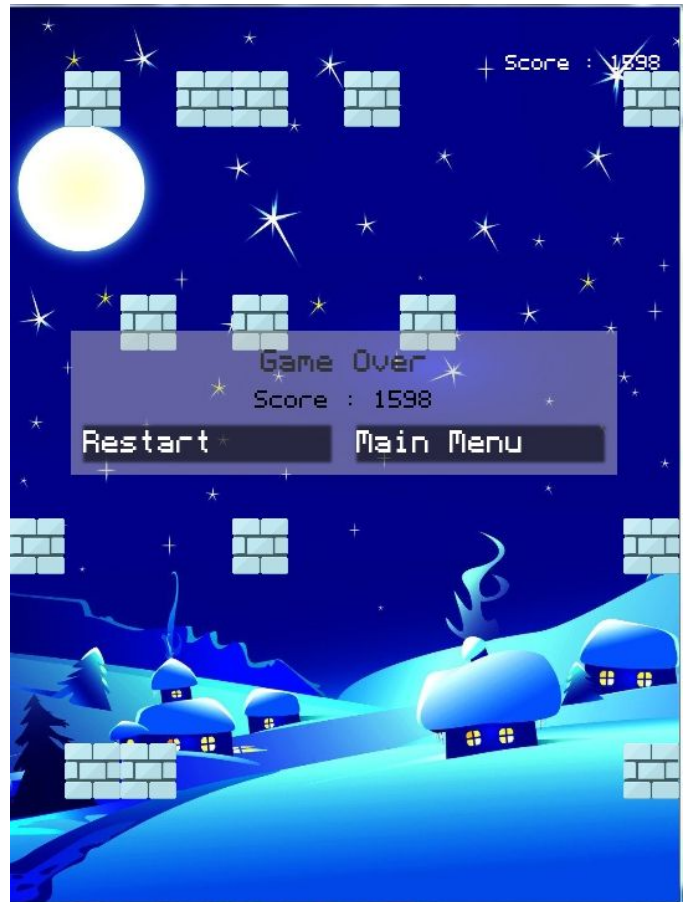
Introduction:

This game is inspired by Doodle Jump, but we recreated it in Christmas theme. It's objective is to jump on obstacles and get as much scores as you can.

Rules:

The rule is easy just jump on obstacles and try not to fall.

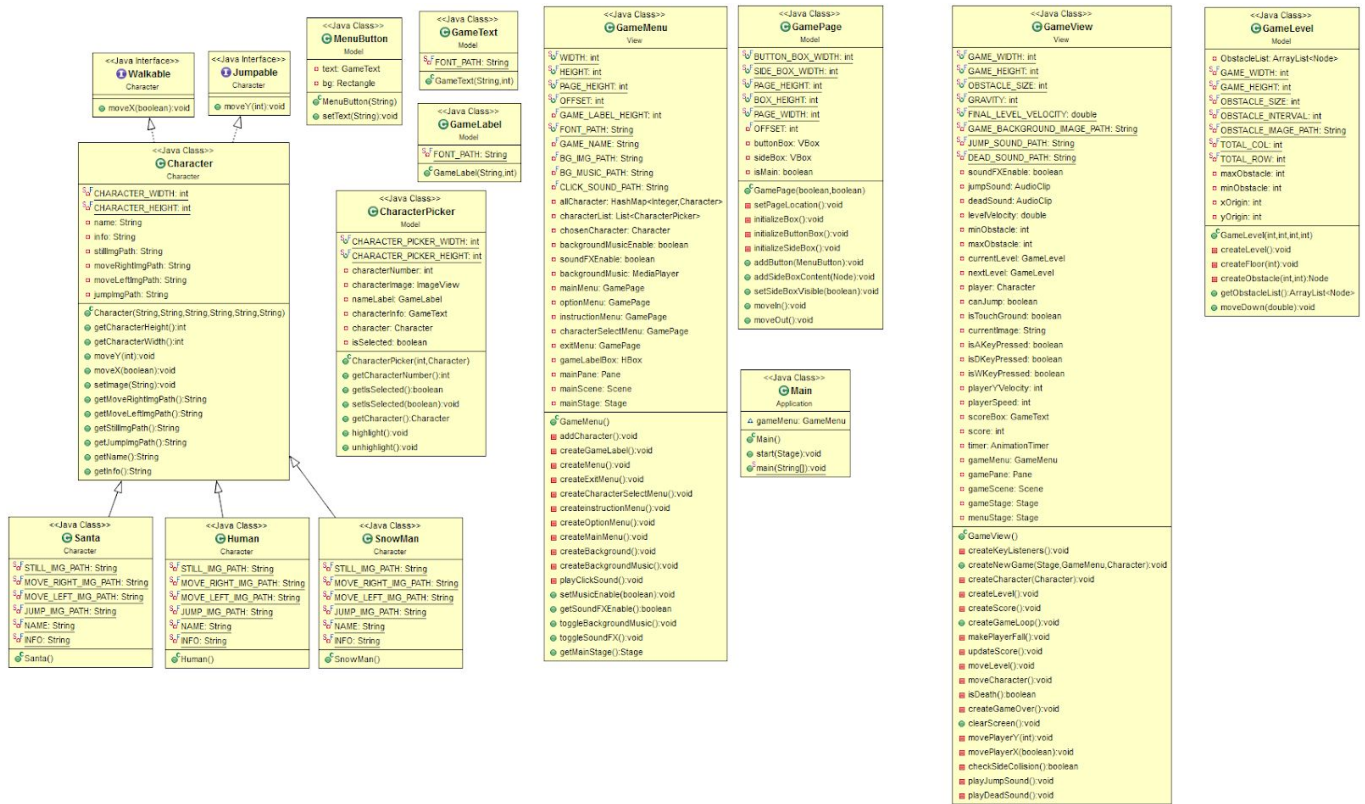
Example:



Main Menu Scene:



Class Diagram:



* Noted that Access Modifier Notations can be listed below

+ (public)

(protected)

- (private)

BOLD for final variable

ITALIA for static variable

1. Package Application

1.1 Class Main

- extends Application

1.1.1 Fields

- GameMenu gameMenu	- Contain Game Menu
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1.1.2 Methods

+ void start(Stage primaryStage)	<ul style="list-style-type: none">- Initialize gameMenu- Get main stage from GameMenu- Set resizable to false
+ void <i>main</i> (String[] args)	<ul style="list-style-type: none">- Launch application

2. Package Character

2.1 Interface Jumpable

+ void moveY(int y)	- Make player move on Y Axis
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2.2 Interface Walkable

+ void moveX(boolean movingRight)	- Make player move on X Axis
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2.3 Class Character

- extends ImageView
- implements Jumpable, Walkable

2.3.1 Fields

- int CHARACTER_WIDTH	- Contains width for character
- int CHARACTER_HEIGHT	- Contains height for character
- String name	- Contains name for character
- String info	- Description for character
- String stillImgPath	- Path to image of character staying still
- String moveRightImgPath	- Path to image of character moving right
- String moveLeftImgPath	- Path to image of character moving right
- String jumpImgPath	- Path to image of character jumping

2.3.2 Constructor

+ Character(String name, String stillImgPath, String moveRightImgPath, String moveLeftImgPath, String jumpImgPath, String info)	- Set height with CHARACTER_HEIGHT - Set width with CHARACTER_WIDTH - Initialize all fields
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2.3.3 Methods

+ void setImage(String path)	- Set image to specified path
+ void moveX(boolean movingRight)	- Move player in X Axis
+ void moveY(int y)	- Move player in Y Axis
+ Getters for every fields	- returns fields

2.4 Class Santa

- extends Character

2.4.1 Fields

- String <i>STILL_IMG_PATH</i>	- Path to character staying still image
- String <i>MOVE_IMG_PATH</i>	- Path to character moving image
- String <i>JUMP_IMG_PATH</i>	- Path to character jumping image
- String <i>NAME</i>	- Contains name
- String <i>INFO</i>	- Description

2.4.2 Constructor

+ Santa()	- Call parent's constructor
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2.5 Class Human

- extends Character

2.5.1 Fields

- String <i>STILL_IMG_PATH</i>	- Path to character staying still image
- String <i>MOVE_IMG_PATH</i>	- Path to character moving image
- String <i>JUMP_IMG_PATH</i>	- Path to character jumping image
- String <i>NAME</i>	- Contains name
- String <i>INFO</i>	- Description

2.5.2 Constructor

+ Human()	- Call parent's constructor
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2.6 Class SnowMan

- extends Character

2.6.1 Fields

- String <i>STILL_IMG_PATH</i>	- Path to character staying still image
- String <i>MOVE_RIGHT_IMG_PATH</i>	- Path to character moving right image
- String <i>MOVE_LEFT_IMG_PATH</i>	- Path to character left image
- String <i>JUMP_IMG_PATH</i>	- Path to character jumping image

- String NAME	- Contains name
- String INFO	- Description

2.6.2 Constructor

+ SnowMan()	- Call parent's constructor
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3. Package Model

3.1 Class CharacterPicker

- extends VBox

3.1.1 Fields

+ int CHARACTER_PICKER_WIDTH	- Width of character picker box
+ int CHARACTER_PICKER_HEIGHT	- Height of character picker box
- int characterNumber	- Number of character
- ImageView characterImage	- Image of character
- GameLabel nameLabel	- Name of character
- GameText characterInfo	- Character's description
- Character character	- Character object
- boolean isSelected	- True if character is selected else False

3.1.2 Constuctor

+ CharacterPicker(int num, Character character)	<ul style="list-style-type: none"> - Set background color to Dark Grey - Set alignment to center - Set spacing 20 - Set size with WIDTH and HEGIHT
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	<ul style="list-style-type: none"> - Initialize nameLabel with character's name, 28 font size and 56 height - Initialize characterImage with proper width and 168 height - Initialize characterInfo with character's info and 16 font size - Add nameLabel, characterImage and characterInfo to VBox
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3.1.3 Methods

+ int getCharacterNumber()	- returns characterNumber
+ boolean getIsSelected()	- returns isSelected
+ void setIsSelected(boolean isSelected)	- Set isSelected to given value
+ Character getCharacter()	- returns character
+ void highlight()	- Set border's color to LightYellow
+ void unhighlight()	- Set border's color to Black

3.2 Class GameLabel

- extends Label

3.2.1 Fields

- String <i>FONT_PATH</i>	- Path to specified font
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3.2.2 Constructor

+ GameLabel(String text, int size)	- Initialize label with given text, font type and font size
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3.3 Class GameLevel

- extends Pane

3.3.1 Fields

- ArrayList<Node> ObstacleList	- Contains all obstacles on the screen
- int GAME_WIDTH	- Width of the screen
- int GAME_HEIGHT	- Height of the screen
- int OBSTACLE_SIZE	- Size of obstacles
- int OBSTACLE_INTERVAL	- Space between each row of obstacles
- String OBSTACLE_IMAGE_PATH	- Obstacle's image path
- int TOTAL_COL	- Total column of the screen
- int TOTAL_ROW	- Total row of the screen
- int maxObstacle	- Maximum obstacles in a row
- int minObstacle	- Minimum obstacles in a row
- int xOrigin	- X coordinate of top left screen
- int yOrigin	- Y coordinate of top left screen

3.3.2 Constructor

+ GameLevel(int x, int y, int min, int max)	<ul style="list-style-type: none">- Initialize every field- Set (x, y) with (xOrigin, yOrigin)- Set size with GAME_HEIGHT and GAME_WIDTH- call createLevel()
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3.3.3 Methods

- void createLevel()	- Create obstacles every 4 row by calling these methods - Call method createObstacle() - Call method createFloor()
- void createObstacle(int col, int row)	- Create obstacle at given column and row of the screen
- void createFloor(int row)	- Create obstacles for every column in a given row
+ ArrayList<Node> getObstacleList()	- returns obstacleList
+ void moveDown(double y)	- Move screen down for amount of "y"

3.4 Class GamePage

- extends HBox

3.4.1 Fields

+ int <i>BUTTON_BOX_WIDTH</i>	- Width of the box of buttons
+ int <i>SIDE_BOX_WIDTH</i>	- Width of side box
+ int <i>PAGE_HEIGHT</i>	- Height of the Pane
+ int <i>BOX_HEIGHT</i>	- Height of the box
+ int <i>PAGE_WIDTH</i>	- Width of the Pane
- int OFFSET	- Offset
- VBox buttonBox	- Pane of buttons
- VBox sideBox	- Pane of sideBox
- boolean isMain	- True if the page if Main Menu False otherwise

3.4.2 Constuctor

+ public GamePage(boolean isMain,boolean sideBoxVisible)	<ul style="list-style-type: none">- Set (25, 25, 75, 25) padding- Set 25 spacing- Set size with PAGE_WIDTH and PAGE_HEIGHT- Set alignment to Top Center- Set visibility with given value- Initialize field with given value- Call initializeBox()- Call setPageLocation()
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3.4.3 Methods

- void setPageLocation()	<ul style="list-style-type: none">- Set page's location to proper position
- void initializeBox()	<ul style="list-style-type: none">- Call initializeButtonBox()- Call initializeSideBox()
- void initializeButtonBox()	<ul style="list-style-type: none">- Initialize buttonBox with 10 spacing and set proper size- Set alignment to Top Right
- void initializeSideBox()	<ul style="list-style-type: none">- Initialize sideBox with VBox, 10 spacing, 15 padding, set alignment to Top Center. set proper size and set background to Grey
+ void addButton(MenuButton button)	<ul style="list-style-type: none">- add button to buttonBox
+ void addSideBoxContent(Node node)	<ul style="list-style-type: none">- add node to sideBox
+ setSideBoxVisible(boolean set)	<ul style="list-style-type: none">- Set sideBox's visibility to given value
+ void moveIn()	<ul style="list-style-type: none">- Perform moving in effect
+ void moveOut()	<ul style="list-style-type: none">- Perform moving out effect

3.5 Class GameText

- extends Text

3.5.1 Fields

- String <i>FONT_PATH</i>	- Font's path
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3.5.2 Constructor

+ GameText(String text,int size)	- Initialize text with given text and size by calling parent's constructor
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3.5 Class MenuButton

- extends StackPane

3.5.1 Fields

- GameText text	- Contains text which will be put in a button
- Rectangle bg	- Background

3.5.2 Constructor

+ MenuButton(String name)	<ul style="list-style-type: none">- Build a text with given name- Initialize and set color of bg to Black- Set alignment to Center Left- Setup mouse event- Setup effect and sound- Add bg and text to the Pane
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3.5.3 Methods

+ void setText(String text)	- Set text with given text
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4. Packag View

4.1 Class GameMenu

4.1.1 Fields

+ int <i>WIDTH</i>	- Menu's width
+ int <i>HEIGHT</i>	- Menu's height
+ int <i>PAGE_HEIGHT</i>	- Page's height
+ int <i>OFFSET</i>	- Offset
- int GAME_LABEL_HEIGHT	- Game label's height
+ String <i>FONT_PATH</i>	- Font's path
- String GAME_NAME	- Name of the game
- String BG_IMG_PATH	- Path to background's image
- String BG_MUSIC_PATH	- Path to background music
- String CLICK_SOUND_PATH	- Path to click audio
- HashMap<Integer, Character> allCharacter	- Map of character's number and character
- List<CharacterPicker> characterList	- Contains boxes of each character to be picked
- Character chosenCharacter	- Contains chosen character
- boolean backgroundMusicEnable	- Boolean for enabling background music

- boolean soundFXEnable	- Boolean for enabling sound FX
- MediaPlayer backgroundMusic	- Object of background music
- GamePage mainMenu	- Main menu
- GamePage optionMenu	- Option menu
- GamePage instructionMenu	- Instruction menu
- GamePage characterSelectMenu	- Character selection menu
- GamePage exitMenu	- Exit menu
- HBox gameLabelBox	- HBox for game's title
- Pane mainPane	- Main pane
- Scene mainScene;	- Main scene
- Stage mainStage	- Main stage

4.1.2 Constructor

+ GameMenu()	<ul style="list-style-type: none"> - Initialize mainPage, mainScene and mainStage - Calls addCharacter() - Calls createBackground() - Calls createBackgroundMusic() - Calls createMenu() - Calls createGameLabel()
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4.1.3 Methods

- void addCharacter()	- Add 3 characters to allCharacter's map
- void createGameLabel()	- Create game label and add to mainPane
- void createMenu()	<ul style="list-style-type: none"> - Create all menus - Calls createMainMenu() - Calls createCharacterSelectMenu() - Calls createOptionsMenu() - Calls createHighScoreMenu() - Calls createExitMenu()
- void createExitMenu()	<ul style="list-style-type: none"> - Initialize exitMenu - Setup sounds and events - Add to mainPane
- void createCharacterSelectMenu()	<ul style="list-style-type: none"> - Initialize characterSelectMenu - Setup sounds and events - Add to mainPane
- void createInstructionMenu()	<ul style="list-style-type: none"> - Initialize instructionMenu - Setup sounds and events - Add to mainPane
- void createOptionsMenu()	<ul style="list-style-type: none"> - Create option menu - Contains music muting button - Contains FX muting button
- void createMainMenu()	<ul style="list-style-type: none"> - Create main menu - Contains startButton - Contains optionButton - Contains instructionButton - Contains exitButton - Setup sound and events for each button - Add to mainPane
*For every object of menu set proper location, style and size	
- void createBackground()	<ul style="list-style-type: none"> - Create background with specified path - Add to mainPane
- void createBackgroundMusic()	- Create background music with

	specified path
- void playClickSound()	- Play clickick sound if soundFXEnable is true
+ boolean getSoundFXEnable()	- Get value of soundFXEnable
+ void toggleBackgroundMusic()	- Toggle background music
+ void toggleSoundFX()	- Toggle sound FX
+ Stage getMainStage()	- returns mainStage
+ void setMusicEnable(boolean val)	- Set value of backgroundMusic according to val

4.2 Class GameView

4.2.1 Fields

+ int GAME_WIDTH	- Game screen's width
+ int GAME_HEIGHT	- Game screen's height
+ int OBSTACLE_SIZE	- Obstacle's size
+ int GRAVITY	- Gravity
+ String FONT_PATH	- Font's path
+ double FINAL_LEVEL_VELOCITY	- Max level speed
- String GAME_BACKGROUND_IMAGE_PATH	- Path to background music
- String JUMP_SOUND_PATH	- Path to jumping sound
- String DEAD_SOUND_PATH	- Path to dead sound
- double levelVelocity	- Current level speed
- int minObstacle	- Minimum obstacles in a row
- int maxObstacle	- Maximun obstacles in a row

- GameLevel currentLevel	- Current level (current screen)
- GameLevel nextLevel	- Next level (next screen)
- GameMenu gameMenu	- Game menu
- Pane gamePane	- Game's pane
- Scene gameScene	- Game's scene
- Stage gameStage	- Game' stage
- Stage menuStage	- Menu's stage
- boolean soundFXEnable	- Boolean value of sound FX enabling
- AudioClip jumpSound	- Jumping sound
- AudioClip deadSound	- Dead sound
- Character player	- Contains current player
- boolean canJump	- True if player is able to jump
- boolean isTouchGround	- True if player is on the ground
- String currentImage	- Current player image
- boolean isAKeyPressed	- True if key A is being pressed False otherwise
- boolean isWKeyPressed	- True if key W is being pressed False otherwise
- boolean isDKeyPressed	- True if key D is being pressed False otherwise
- int playerYVelocity	- Velocity of player in Y Axis
- int playerSpeed	
- GameText scoreBox	- Box showing score on the screen
- int score	- Current score
- AnimationTimer timer	- Timer for looping the game

4.2.2 Constructor

+ GameView()	<ul style="list-style-type: none">- Initialize gamePane, set background and size- Initialize gameScene- Initialize gameStage, set size and resizable to false- Calls createKeyListeners()
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4.2.3 Methods

+ void createNewGame(Stage menuStage, GameMenu gameMenu, Character character)	<ul style="list-style-type: none">- Create a new game- Calls createCharacter()- Calls createLevel()- Calls createScore()- Calls createGameLoop()- Show gameStage
- void createScore()	<ul style="list-style-type: none">- Score = 0- Initialize scoreBox- Add scoreBox to gamePane
- void updateScore()	<ul style="list-style-type: none">- Increment score point- Increase levelVelocity every 1000 points- Decrease maximum obstacle by 1 every 3000 points by never less than minimum obstacle
- void createCharacter(Character character)	<ul style="list-style-type: none">- Create player- Add the gamePane
- void createLevel()	<ul style="list-style-type: none">- Initialize currentLevel and nextLevel- Add currentLevel and nextLevel to gamePane
+ void createGameLoop()	<ul style="list-style-type: none">- Game loop- Initialize timer- Calls makePlayerFall()- Calls moveCharacter()- Calls moveLevel()

	<ul style="list-style-type: none"> - Calls updateScore() - If the player is dead, stop the timer and calls createGameOver()
- boolean isDeath()	<ul style="list-style-type: none"> - return True if the player is dead False otherwise
- void createGameOver()	<ul style="list-style-type: none"> - Create game over windows showing score, restart button and back to menu button
+ void clearScreen()	<ul style="list-style-type: none"> - Clear the screen
- void makePlayerFall()	<ul style="list-style-type: none"> - Make player falls by increase player's Y velocity by GRAVITY
- void moveLevel()	<ul style="list-style-type: none"> - Make obstacles down and random new ones
- void moveCharacter()	<ul style="list-style-type: none"> - Move and change character animation according to key pressed
- void movePlayerY(int x)	<ul style="list-style-type: none"> - Move player in Y Axis for amount of "x" and also detect collisions in Y Axis
- void movePlayerX(boolean moveRight)	<ul style="list-style-type: none"> - Move player in X Axis for amount of playerSpeed
- boolean checkSideCollision()	<ul style="list-style-type: none"> - Check collisions in X Axis
- void createKeyListeners()	<ul style="list-style-type: none"> - Setup key event for gameScene
- void playJumpSound()	<ul style="list-style-type: none"> - Play jumping sound
- void playDeadSound()	<ul style="list-style-type: none"> - Play dead sound