

JoJo Bizarre Adventure Jump

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2110215 Programming Methodology
Semester 1 Year 2019
Chulalongkorn University

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Introduction

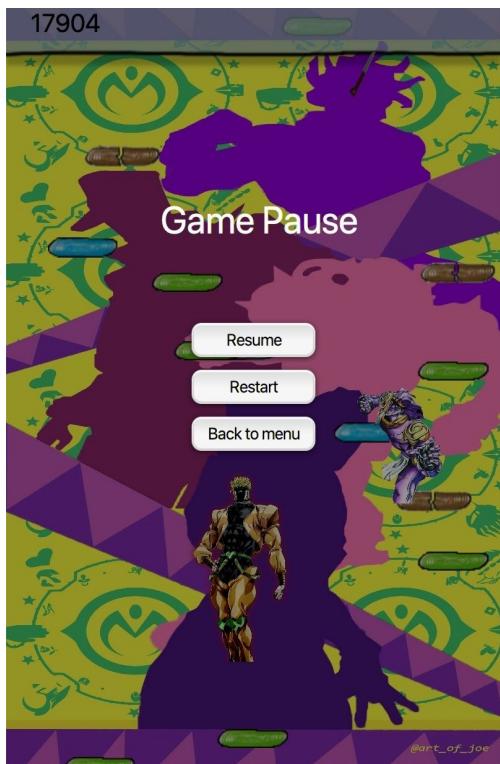
Jojo Bizarre Adventure is an Japanese animation which is variant popular these days. The animation is about the adventures of Jojo and his descendants to fight against Dio, man got vampire power from ancient stone mask who is the antagonist of this animation. The animation, Jojo Bizarre Adventure, has an interesting and unique style of story and art. Since Jojo Bizarre Adventure is our favorite animation, we have built a game that used characters from Jojo as references characters. The game is made by using doodle jump, one of the popular mobile games, as base. Objective of this game is to make the highest score by control character to jump on the platforms and avoid monsters and falling. The game has no end as if the character still alive. If the character fall out of the screen or got hit by any monsters, the player will die and the game is over.



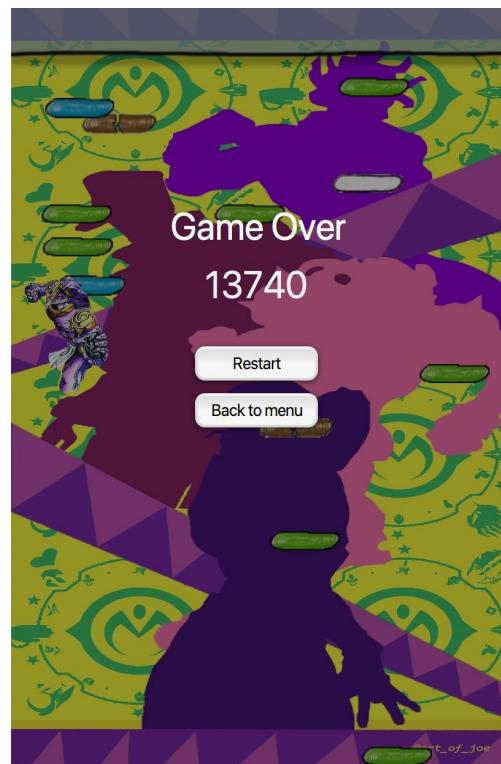
Menu Scene



Game play



Game pause



Game Over

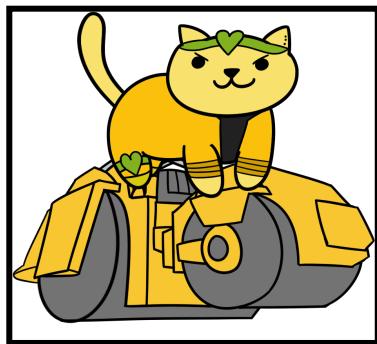
Character



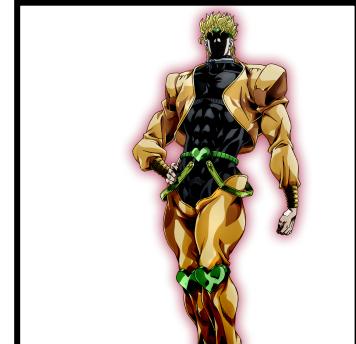
Character picture while moving up.



Character picture while moving down.



Character picture when character dead.



Character picture while game paused.

Knife



Picture of knife, player's character's weapon.

Platform



Pictures of platforms e.g.

1. Blue color platform: The platform that can move in the x axis.
2. Green color platform: The standard platform which stand still.

3. White color platform: player can jump only once on this type of platform and then it disappears.
4. Brown color platform: Player is unable to jump on this platform. mimic player to fall.

Monster



Monster picture 1



Monster picture 2

Game Interface



1. Score : Show current score.
2. Platform : Character can step on and jump over platform.
3. Character : Player's Character.
4. Monster : GameOver if player got hit by.

Gameplay



Game Control

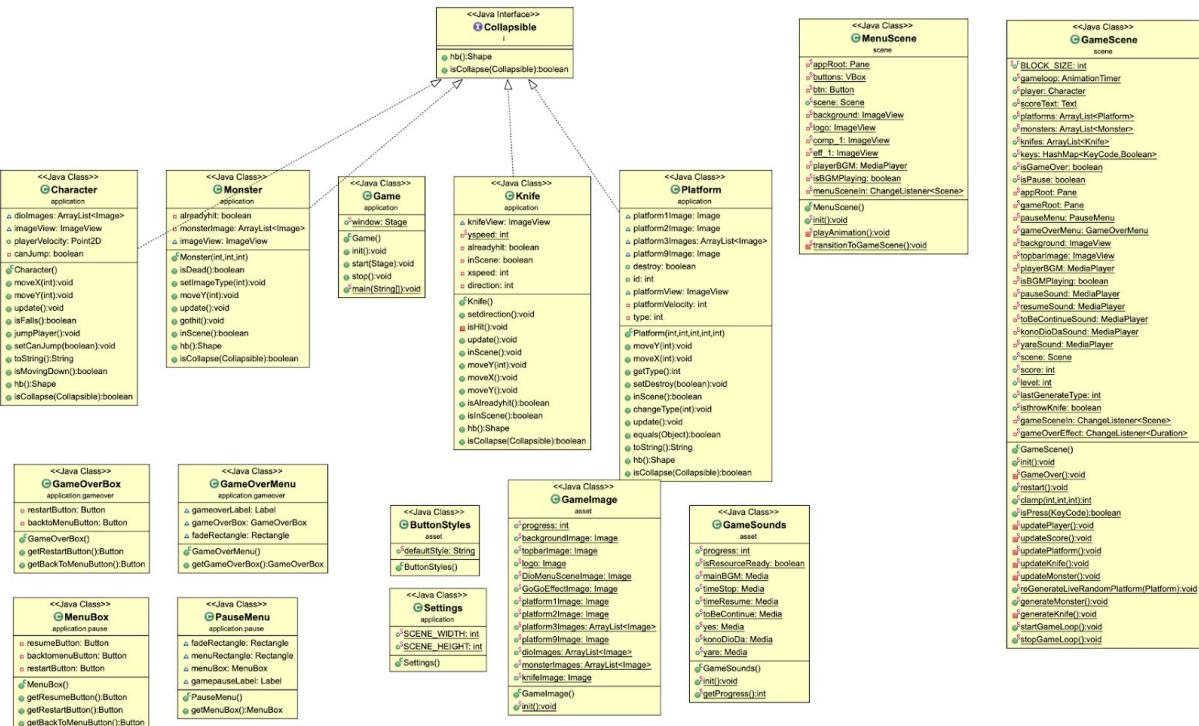
Move player RIGHT: Keypad RIGHT
 Move player LEFT: Keypad LEFT
 Throw knife: Keypad SPACE
 Pause game: Keypad ESCAPE (ESC)

Game Mechanic

Player can only jump after step on platform (except brown platform). Player has to form one platform to another to get higher step. Score depends on how far the player can go. Player can kill monsters by throw the knife at it.

If the play fall out of the scene or got hit by a monster, the game is over.

Implement detail



1. Package application

1.1 Class Game extends Application

1.1.1 Field

public static Stage window	Primary Stage
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1.1.2 Method

public void init() throws Exception	this method called Application.init(), GameSound.init() and GameImage.init() to download resources and to prepare for starting. this is override method.
public void start(Stage primaryStage)	set primaryStage to window, called MenuScene.init(), set MenuScene.scene to stage's scene and show stage. this is override method.
public void stop() throws Exception	stop and exit game.
public static void main(String[] args)	start application

1.2 Class Character extends Pane implements Collapsible

1.2.1 Field

ArrayList<Image> diolimages	download dio image from GameImage.
ImageView imageView	Image from first diomages's image.
public Point2D playerVelocity	vector of velocity start with 0 use for controlling player movement.
private boolean canJump	boolean check player jump status. Default is true.

1.2.2 Constructor

public Character()	<ul style="list-style-type: none">- set ImageView FitWidth to 48- set ImageView FitHeight to 110- set character pref size equal imageview- add imageview to pane
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1.2.3 Method

public void moveX(int value)	moving character in the x axis.
public void moveY(int value)	moving character in y axis and stepping on platform or monster.
public void update()	update character imageview depend on character acting.
public boolean isFalls()	return true if player falls.
public void jumpPlayer()	player jump.
public void setCanJump(boolean b)	setter for CanJump.
public String toString()	print player position for debugging.
public boolean isMovingDown()	return true if player is moving down.
public Shape hb()	return bound of character for checking hitbox. override method from interface.
public boolean isCollapse(Collapsible other)	return true if player and other are collapse. override method from interface.

1.3 Class Knife extends Pane implements Collapsible

1.3.1 Field

ImageView knifeView	download knifeImage from GameImage.
private static int yspeed	knife speed in y axis.
private boolean alreadyhit	boolean for checking knife status. false when knife hit monster.
private boolean inScene	boolean for checking knife. false when knife out of scene.
private int xspeed	knife speed in x axis.
private int direction	int for set the knife direction.

1.3.2 Constructor

public Knife()	<ul style="list-style-type: none"> - set knifeview FitWidth to 48. - set knifeview FitHeight to 48. - set x speed to 0. - set y speed to 20. - set alreadyhit to false. - set direction to 0. - rotate knife 50. - setScale to 1.2. - rotate 1 round use 0.5 s. - setCyclecount to infinite. - setInterpolator to linear. - add imageview to pane. - rotate from 0 to 360. - add knifeview to pane.
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1.3.3 Method

public void moveX()	moving knife in x axis.
public void moveY()	moving knife in y axis.
public void moveY(int value)	move relatively with character and platform. (camera)
public void update()	<p>Called method below</p> <ul style="list-style-type: none"> - moveX() - moveY() - isHit() - inScene()
public void setdirection()	set direction of knife if player pressing right the direction will be set to 3, if pressing left the direction will be -3 and default is 0. and also set x speed to 4 multiple direction.
private void isHit()	set already hit to true if knife collapse with monster and called monster.gothit().
public void inScene()	set inScene to false if knife is out of scene.
public String toString()	print player position for debugging.
public boolean isAlreadyhit()	return alreadyhit
public boolean isInScene()	return inScene

public Shape hb()	return bound of knife for checking hitbox. override method from interface Collapsible.
public boolean isCollapse(Collapsible other)	return true if knife and other are collapse. override method from interface Collapsible.

1.4 Class Monster extends Pane implements Collapsible

1.4.1 Field

ArrayList<Image> monsterImage	download monster image from Gamelimage
private boolean alreadyhit	Monster status
ImageView imageView	ImageView use first image from monsterImage

1.4.2 Constructor

public Monster(int type, int x, int y)	setposition of monster to (x,y) setImageType
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1.4.3 Method

public boolean isDead()	return alreadyhit
public void setImageType(int type)	set Image
public void moveY(int value)	move relatively with character and platform. (camera)
public void update()	do nothing
public void gohit()	set alreadyhit to true
public boolean inScene()	return false if monster not in scene
public Shape hb()	return bound of monster for checking hitbox override method from interface Collapsible
public boolean isCollapse(Collapsible other)	return true if monster and other are collapse override method from interface Collapsible

1.5 Class Platform extends Pane implements Collapsible

1.5.1 Field

ArrayList<Image> platform3Images	load image of brown platform
Image platform1Image	load image of green platform
Image platform2Image	load image of blue platform
Image platform9Image	load image of white platform
public boolean destroy	platform status
public int id	platform id (not use)
ImageView platformView	ImageView of platform
private int platformVelocity	platform velocity
private int type	type of platform

1.5.2 Constructor

public Platform(int type, int x, int y, int width, int height)	- set parameter - add platformView to pane
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1.5.3 Method

public int getType()	return type
public void setDestroy(boolean b)	setter
public void moveY(int value)	move relatively with character. (camera)
public void moveX(int value)	
public void update()	operate depends on platform type
public boolean equals(Object obj)	debugging
public String toString()	debugging
public boolean inScene()	return false if platform not in scene
public void changeType(int type)	change platform properties.
public Shape hb()	return bound of platform for checking hitbox override method from interface Collapsible

public boolean isCollapse(Collapsible other)	return true if platform and other are collapse override method from interface Collapsible
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1.6 Class Settings

1.6.1 Field

public static int SCENE_WIDTH	scene width
public static int SCENE_HEIGHT	scene height

2. Package application/gameover

2.1 Class GameOverBox extends VBox

2.1.1 Field

private Button restartButton	restart button
private Button backtoMenuButton	backtoMenu button

2.1.2 Constructor

public GameOverBox()	<ul style="list-style-type: none"> - set all button and set on action on button - set box size - add all button to VBox
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2.1.3 Method

public Button getRestartButton()	getter
public Button getBackToMenuButton()	getter

2.2 Class GameOverMenu extends Pane

2.2.1 Field

Label gameoverLabel	gameoverLabel
GameOverBox gameOverBox	GameOverBox
Rectangle fadeRectangle	using for fading scene

2.2.2 Constructor

public GameOverBox()	- set all field and add to pane
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2.2.3 Method

public GameOverBox getGameOverBox()	getter
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3. Package application/pause

3.1 Class MenuBox extends VBox

3.1.1 Field

private Button restartButton	restart button
private Button backtoMenuButton	backtoMenu button
private Button resumeButton	resume button

3.1.2 Constructor

public GameOverBox()	<ul style="list-style-type: none">- set all button and set on action on button- set box size- add all button to VBox
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3.1.3 Method

public Button getRestartButton()	getter
public Button getBackToMenuButton()	getter
public Button getResumeButton()	getter

3.2 Class PauseMenu extends Pane

3.2.1 Field

MenuBox menuBox	MenuBox
Rectangle fadeRectangle	using for fading scene
Rectangle menuRectangle	menu rectangle

Label gamepauseLabel	label using to show gamepause
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3.2.2 Constructor

public GameOverBox()	- set all field and add to pane
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3.2.3 Method

public MenuBox getMenuBox()	getter
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4. Package asset

4.1 Class ButtonStyles

4.1.1 Field

public static String defaultStyle	css for button style
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4.2 Class GameImage

4.2.1 Field

public static int progress	tell where download progress is
public static Image backgroundImage	backgroundImage
public static Image topbarImage	topbarImage
public static Image logo	logo
public static Image DioMenuScenelImage	DioMenuScenelImage
public static Image GoGoEffectImage	GoGoEffectImage
public static Image platform1Image	platform1Image
public static Image platform2Image	platform2Image
public static ArrayList<Image> platform3Images	platform3Images
public static Image platform9Image	platform9Image
public static ArrayList<Image> diolimages	diolimages
public static ArrayList<Image> monsterImages	monsterImages
public static Image knifelImage	knifelImage

4.2.2 Method

public static void init()	load resource
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4.3 Class GameSounds

4.3.1 Field

public static int progress	tell where download progress is
public static boolean isResourceReady	tell resource status
public static Media mainBGM	BGM
public static Media timeStop	time stop sound
public static Media timeResume	time resume sound
public static Media toBeContinue	to be continue sound
public static Media yes	yes yes yes sound (use before enter gamescene)
public static Media konoDioDa	konoDioDa use when throwing knife
public static Media yare	yare yare use when game over

4.2.2 Method

public static void init()	load resource
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5. Package i

5.1 Class Collapsible

5.1.1 Method

public Shape hb()	Interface method
public boolean isCollapse(Collapsible other)	interface method

6. Package scene

6.1. Class Gamescene

6.1.1. Field

public static final int BLOCK_SIZE	constant size used for random platform position
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public static AnimationTimer gameloop	main game loop
public static Character player	player's character
public static Text scoreText	text that represent score
public static ArrayList<Platform> platforms	array of platforms in scene
public static ArrayList<Monster> monsters	array of monsters in scene
public static HashMap<KeyCode, Boolean> keys	map checking user input keys
public static boolean isGameOver	tell if game is over
public static isPause	tell if game is paused
private static Pane appRoot	main pane that contain everything
private static Pane gameRoot	contain every game object e.g. character monsters platforms etc.
private static PauseMenu pauseMenu	pause menu component
private static GameOverMenu gameOverMenu	game over menu component
private static ImageView background	background image
private static ImageView topbarImage	top bar image
private static MediaPlayer playerBGM	media player of background music
private static boolean isBGMPlaying	tell if background music is playing
private static MediaPlayer pauseSound	pause sound effect
private static MediaPlayer resumeSound	resume sound effect
private static MediaPlayer toBeContinueSound	game over music
private static MediaPlayer konoDioDaSound	throw knife sound effect
private static MediaPlayer yareSound	game over sound effect
public static Scene scene	Game scene
public static int score	current player's score
public static int level	current game level
public static int lastGenerateType	tell the last created type of platform
public static boolean isthrowKnife	tell if knife is thrown
private static ChangeListener<Scene> gameSceneln	contain command that run when change scene
private static ChangeListener<Duration> gameOverEffect	contain command that run when current time of game over music current time

6.1.2. Method

public static void init()	initiate game scene's component e.g. <ul style="list-style-type: none"> - Clean up every field - Set background image, top bar image size - Set music players - Generate starter random platforms - Set up button's effect - And set up game loop
public static restart()	restart game
public static clamp(int value, int min, int max)	clamp length value between min and max
public static isPress(KeyCode key)	return if key is pressed
private static void GameOver()	play game over music and add game over menu
private static void updatePlayer()	update player inputs and movement <ul style="list-style-type: none"> - player physics (Gravity) - player movement in the x and y axis - check if the player fall out of scene
private static void updateScore()	update score's text
private static void updatePlatform()	update platform movement <ul style="list-style-type: none"> - update position relatively with player - plus score while scene scrolling - update any platform with platform.update()
private static void updateKnife()	update knives <ul style="list-style-type: none"> - update position relatively with player - update any knife with knife.update() - remove knifes which out of scene
private static void updateMonster()	update monsters <ul style="list-style-type: none"> - update position relatively with player - update monster update with monster.update() - remove monster who is dead
public static reGenerateLiveRandomPlatform(Platform platform)	regenerate random type platform on top of the scene with random position
private static void generateMonster()	generate random position monster
private static void generateKnife()	generate knife and play throw sound effect
public static void startGameLoop()	start game loop
public static void stopGameLoop()	stop game loop

6.2. Class MenuScene

6.2.1. Field

private static Pane appRoot	main pane that contains everything and background
private static VBox buttons	buttons container
private static Button btn	start game button
public static Scene scene	menu scene
private static ImageView background	background image
private static ImageView logo	game logo image
private static ImageView comp_1	dio image
private static ImageView eff_1	effect image
private static MediaPlayer playerBGM	background music player
private static boolean isBGMPlaying	tell if bgm is playing
private static ChangeListener<Scene> menuSceneln	contain command that run when change scene

6.2.2. Method

public static void init()	initiate components in class - clean up app root and buttons - set size background image - set size buttons container
private static void playAnimation()	play animations in menu scene
private static void transitionToGameScene()	play animations changing scene and change scene