SummonerCB

Documentation

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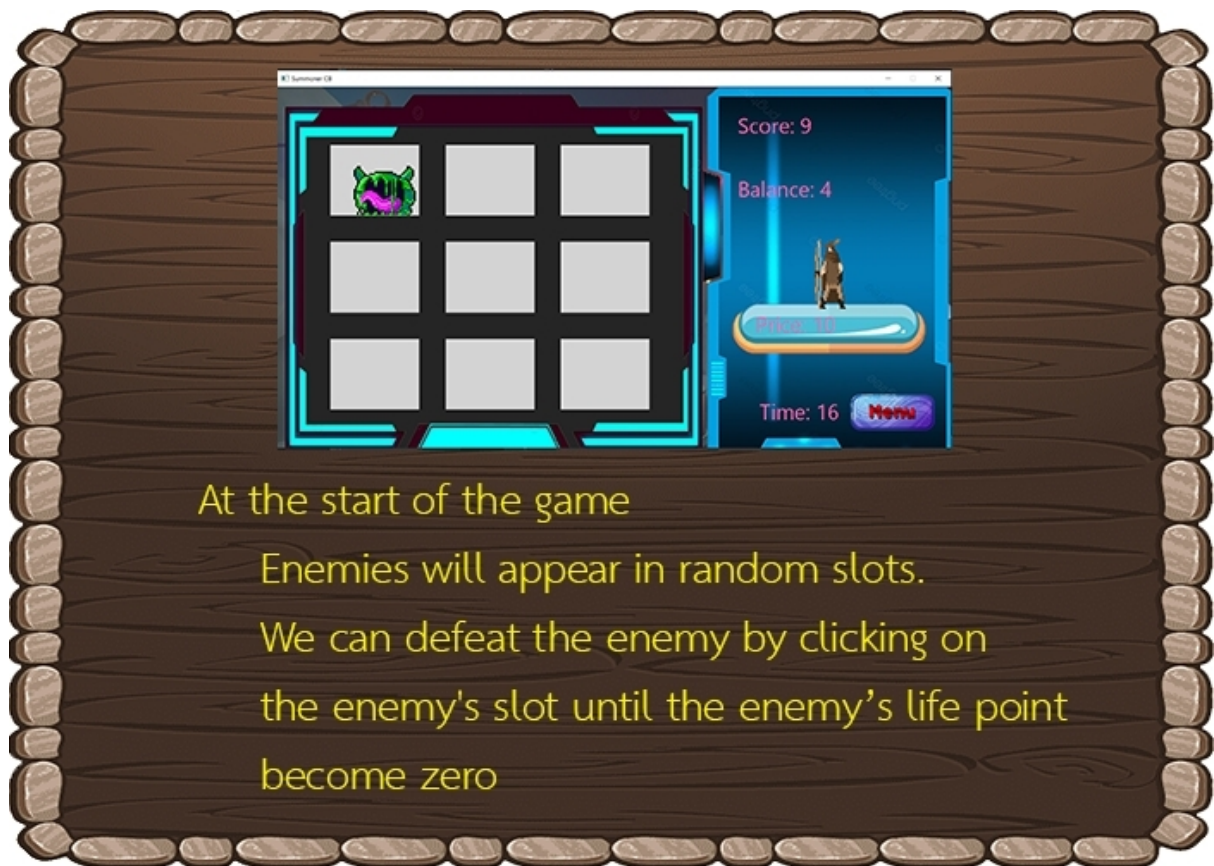
Chulalongkorn University

SummonerCB

Introduction

SummonerCB is a new game based on the childhood Whack-A-Mole game. The objective of the game is to deal with monsters that come up on the board.
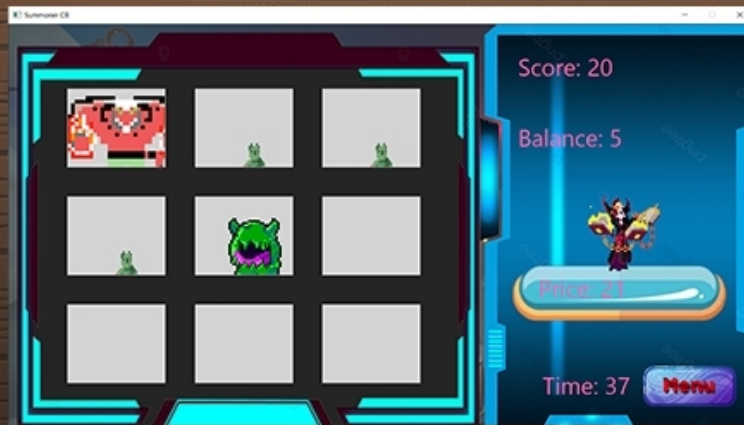
Rules

Player has to kill any monster that comes up from the board before the whole board is full. When the board is full, it is immediately lost.
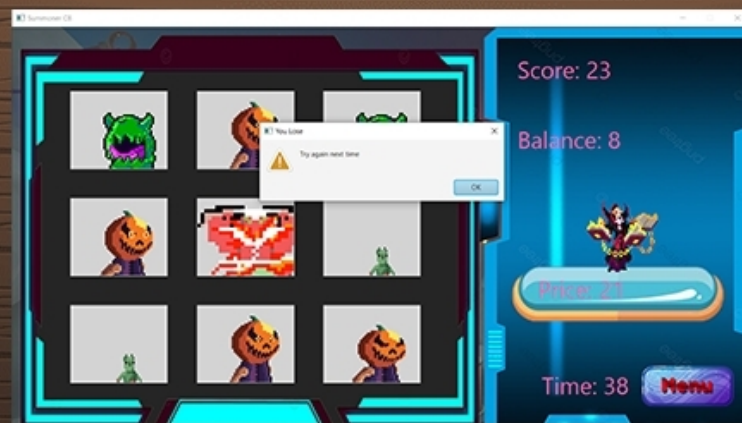

At the start of the game

Enemies will appear in random slots.

We can defeat the enemy by clicking on the enemy's slot until the enemy's life point become zero

So the goal of the game is Eliminate all enemies
and use the money to upgrade weapons

But if unable to get rid of the enemy in time
until the enemy appears 9 cells
will be considered a loser immediately
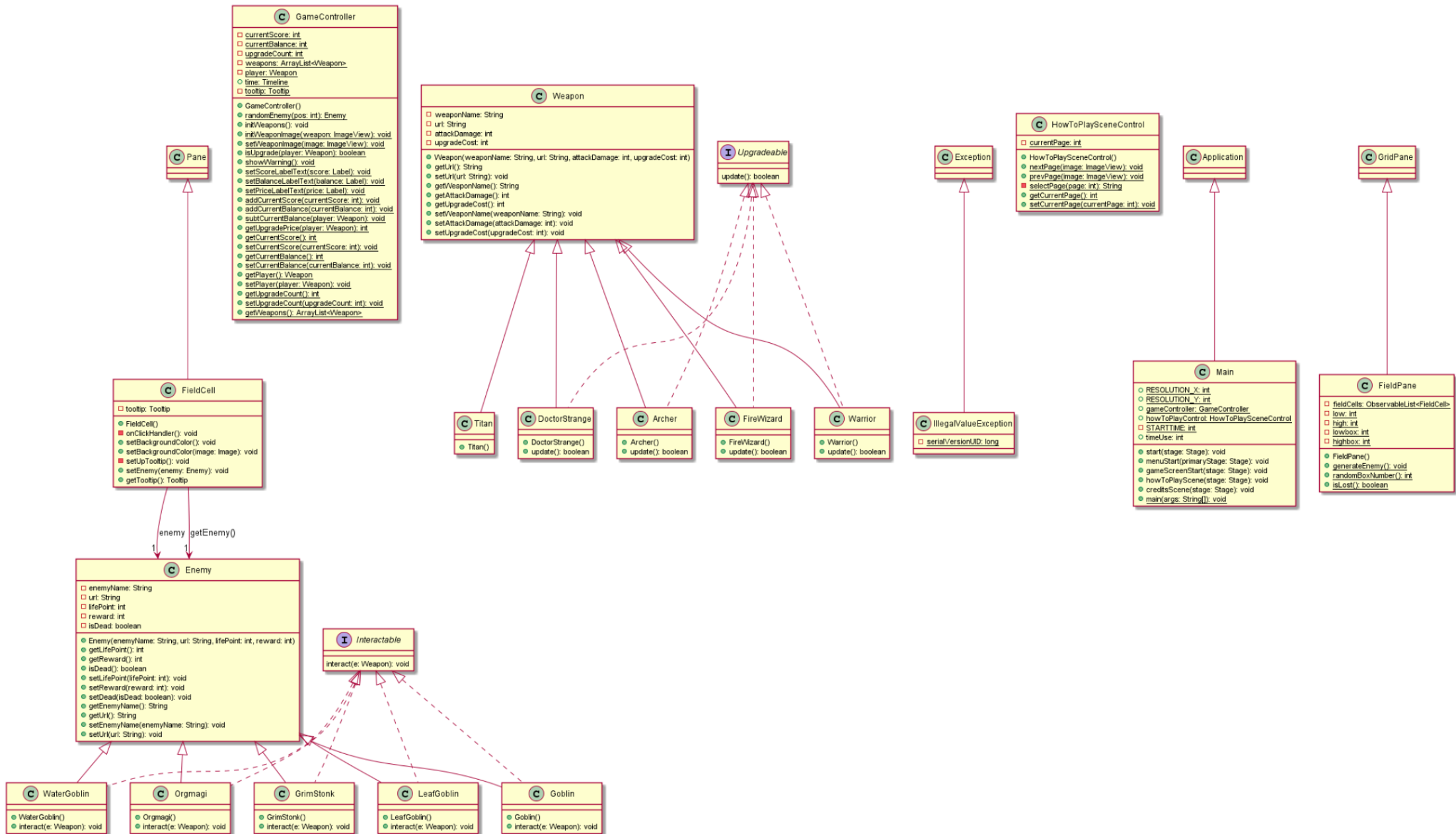
MainMenu scene

You can tap on the speaker logo to pause the theme song. And tap again to play it again.

Click Play button to proceed to the game stage
Help button will tell you how to play ,Credit with the name of the game maker and exit button to exit the game.

Class diagram

GameController

- currentScore: int
- currentBalance: int
- upgradeCount: int
- weapons: ArrayList<Weapon>
- player: Weapon
- time: Timeline
- tooltip: Tooltip

- GameController()
- randomEnemy(pos: int): Enemy
- initWeapons(): void
- initWeaponImage(weapon: ImageView): void
- setWeaponImage(image: ImageView): void
- isUpgrade(player: Weapon): boolean
- showWarning(): void
- setScoreLabelText(score: Label): void
- setBalanceLabelText(balance: Label): void
- setPriceLabelText(price: Label): void
- addCurrentScore(currentScore: int): void
- addCurrentBalance(currentBalance: int): void
- subtCurrentBalance(player: Weapon): void
- getUpgradePrice(player: Weapon): int
- getCurrentScore(): int
- setCurrentScore(currentScore: int): void
- getCurrentBalance(): int
- setCurrentBalance(currentBalance: int): void
- getPlayer(): Weapon
- setPlayer(player: Weapon): void
- getUpgradeCount(): int
- setUpgradeCount(upgradeCount: int): void
- getWeapons(): ArrayList<Weapon>

Weapon

- weaponName: String
- url: String
- attackDamage: int
- upgradeCost: int

- Weapon(weaponName: String, url: String, attackDamage: int, upgradeCost: int)
- getUrl(): String
- setUrl(url: String): void
- getWeaponName(): String
- getAttackDamage(): int
- getUpgradeCost(): int
- setWeaponName(weaponName: String): void
- setAttackDamage(attackDamage: int): void
- setUpgradeCost(upgradeCost: int): void

Upgradeable (I)

- update(): boolean

HowToPlaySceneControl

- currentPage: int

- HowToPlaySceneControl()
- nextPage(image: ImageView): void
- prevPage(image: ImageView): void
- selectPage(page: int): String
- getCurrentPage(): int
- setCurrentPage(currentPage: int): void

Exception (C)

Application (C)

GridPane (C)

Pane (C)

FieldCell

- tooltip: Tooltip

- FieldCell()
- onClickHandler(): void
- setBackgroundColor: void
- setBackgroundColor(image: Image): void
- setUpTooltip(): void
- setEnemy(enemy: Enemy): void
- getTooltip(): Tooltip

Titan (C)

- Titan()

DoctorStrange (C)

- DoctorStrange()
- update(): boolean

Archer (C)

- Archer()
- update(): boolean

FireWizard (C)

- FireWizard()
- update(): boolean

Warrior (C)

- Warrior()
- update(): boolean

IllegalValueException (C)

- serialVersionUID: long

Main

- RESOLUTION_X: int
- RESOLUTION_Y: int
- gameController: GameController
- howToPlayControl: HowToPlaySceneControl
- STARTTIME: int
- timeUse: int

- start(stage: Stage): void
- menuStart(primaryStage: Stage): void
- gameScreenStart(stage: Stage): void
- howToPlayScene(stage: Stage): void
- creditsScene(stage: Stage): void
- main(args: String[]): void

FieldPane

- fieldCells: ObservableList<FieldCell>
- low: int
- high: int
- lowbox: int
- highbox: int

- FieldPane()
- generateEnemy(): void
- randomBoxNumber(): int
- isLost(): boolean

enemy getEnemy()
1   1

Enemy

- enemyName: String
- url: String
- lifePoint: int
- reward: int
- isDead: boolean

- Enemy(enemyName: String, url: String, lifePoint: int, reward: int)
- getLifePoint(): int
- getReward(): int
- isDead(): boolean
- setLifePoint(lifePoint: int): void
- setReward(reward: int): void
- setDead(isDead: boolean): void
- getEnemyName(): String
- getUrl(): String
- setEnemyName(enemyName: String): void
- setUrl(url: String): void

Interactable (I)

- interact(e: Weapon): void

WaterGoblin (C)

- WaterGoblin()
- interact(e: Weapon): void

Orgmagi (C)

- Orgmagi()
- interact(e: Weapon): void

GrimStonk (C)

- GrimStonk()
- interact(e: Weapon): void

LeafGoblin (C)

- LeafGoblin()
- interact(e: Weapon): void

Goblin (C)

- Goblin()
- interact(e: Weapon): void

1.Package BoardView

1.1 class FieldCell extends Pane

1.1.1 Fields

- Enemy enemy	enemy in this FieldCell
- Tooltip tooltip	tooltip of the enemy to show information

1.1.2 Contructor

+ FieldCell()	Initializes the FieldCell - Set the preferred height to 200 - Set the preferred width to 200 - Set the Border with BorderStroke Color.LIGHTGRAY, BorderStrokeStyle.SOLID, CornerRadii.EMPTY, BorderWidths.DEFAULT - Set the Background by calling setBackgroundColor( ). - Set tooltip by calling setTooltip() method. - Set onMouseClicked to calling onClickHandler method.

1.1.3 Methods

- void onClickHandler()	This method is the handler when the cell is clicked, do the following. if the enemy is not null then call interact method of enemy and setText of tool tip to "Name: " + EnemyName + "\n" + "Lifepoint: " + EnemyLifePoint after that check if the enemy was dead if its true then set the Background by calling setBackgroundColor( ), set enemy to null and if enemy's tooltip is not null then hide it
+ void setBackgroundColor()	- Set the Background with BackGroundFill LIGHT GRAY Color
+ void setBackgroundSoilColor(Image image)	- Set the Background with BackGroundFill LIGHT GRAY Color with image parameter background
- void setUpTooltip( )	Set up the tooltip of the FieldCell to show information of the enemy in this FieldCell when hovering the mouse over the FieldCell.

+ getter and setter of fields for the remaining fields	

1.2 class FieldPane extends GridPane

low = 0
high = 5
lowbox = 0
highbox = 10

1.2.1 Fields

- <u>ObservableList<FieldCell> fieldCells</u>	JavaFX's observable list, which can be used for storing the fieldCells to display on field.
- <u>int low</u>	minimum value of the case that used when call randomEnemy method in GameController
- <u>int high</u>	maximum value of the case that used when call randomEnemy method in GameController
- <u>int lowbox</u>	minimum value of the case that used when call generatedEnemy
- <u>int highbox</u>	maximum value of the case that used when call generatedEnemy

1.2.2 Contructor

+ FieldPane()	Initializes the FieldCell - Set the Hgap to 50.0 - Set the Vgap to 50.0 - Set the preferred height to 720 - Set the preferred width to 800 - Set the alignment of the pane to the TOP_LEFT - Set the inset padding of (110,100,110,100) - Create and add 3*3 FieldCells to fieldCells field and add to this child in 3 rows * 3 columns.

1.2.3 Methods

+ <u>void generateEnemy</u>	this method will random modify in each cell if it pass the condition that this cell's enemy is null and (x + y) % 2 == 0 where x and y are int that initialized by calling randomBoxNumber method
	this method will set enemy cell by random using GameController.randomEnemy method that use random number (result = new Random().nextInt(high - low) + low;) and then - set cell background image with that enemy's picture - set tooltip text to "Name: " + EnemyName + "\n" + "Lifepoint: " + EnemyLifePoint
	random x and y again before going to the next cell
+ <u>int randomBoxNumber()</u>	initialized the random number and return result = r.nextInt(highbox - lowbox) + lowbox; where r is a random number
+ <u>boolean isLost()</u>	return true if all the cell have the enemy

1.3 class Main extends Application
     RESOLUTION_X = 1280
     RESOLUTION_Y = 720
     STARTTIME = 0

1.3.1 Fields

+ <u>final int RESOLUTION_X</u>	value of resolution of x
+ <u>final int RESOLUTION_Y</u>	value of resolution of y
+ <u>final GameController gameController</u>	initialized new game controller
- <u>final int STARTTIME</u>	value of the begin time when enter gameScreenStage
+ int timeUse	value of current time

1.3.2 Methods

+ void start (Stage stage)	The main entry point of the JavaFX application. - Set title "Summoner CB" - The stage window must not be resizable. calling menuStart method
+ void menuStart(Stage primaryStage)	- Creates a stackpaneRoot container using StackPane with alignment of the pane to the TOP_LEFT and set prefheight and pref width to 720, 1280 respective - Creates a background control using ImageView with image "menu/background.jpg" - set background fitHeight to 720 - set background fitWidth to 1280 - set background PickOnBounds to true - set background PreserveRatio to true - Creates a hboxChild container using HBox - Creates a vboxChild container using VBox - Set vboxChild PrefHeight to 200 - Set vboxChild PrefWidth to 100 - Set vboxChildinset padding of (0,0,0,50) - Creates a logo control using ImageView with image "menu/logo.png" - set logo fitHeight to 309 - set logo fitWidth to 469 - set logo PickOnBounds to true - set logo PreserveRatio to true - Creates a playImageButton control using ImageView with image "menu/playbutton.png" - set logo fitHeight to 150 - set logo fitWidth to 200 - set logo PickOnBounds to true - set logo PreserveRatio to true - Set VBox margin on this to (0,0,0,125) - Creates a helpImageButton control using ImageView with image "menu/helpbutton.png" - set logo fitHeight to 150 - set logo fitWidth to 200 - set logo PickOnBounds to true - set logo PreserveRatio to true - Set VBox margin on this to (0,0,0,125)

	- Creates a creditsImageButton control using ImageView with image "menu/creditsbutton.png" - set logo fitHeight to 150 - set logo fitWidth to 200 - set logo PickOnBounds to true - set logo PreserveRatio to true - Set VBox margin on this to (0,0,0,125) - Creates a exitImageButton control using ImageView with image "menu/exitbutton.png" - set logo fitHeight to 150 - set logo fitWidth to 200 - set logo PickOnBounds to true - set logo PreserveRatio to true - Set VBox margin on this to (0,0,0,125) - Creates a audioButton control using ImageView with image "menu/audioon.png" - set logo fitHeight to 150 - set logo fitWidth to 200 - set logo PickOnBounds to true - set logo PreserveRatio to true - Set **HBox** margin on this to (550,0,0,550) - Creates AudioClip bgm with "sounds/menusound.mp3" - set bgm CycleCount to MediaPlayer.INDEFINITE - set bgm Volume to 0.5D - call stop the AudioClip then - start the AudioClip - set playImageButton setOnMouseClicked to call gameScreenStart method and call stop the AudioClip - set helpImageButton setOnMouseClicked to call howToPlayScene method - set creditsImageButton setOnMouseClicked to call creditsScene method - set exitImageButton setOnMouseClicked to close the stage - set audioButton setOnMouseClicked to call Audio stop and set its image to "object/audiooff.png" if the bgm.isPlaying or call Audio play and set its image to "object/audioon.png" if the bgm.isNotPlaying - add all control (logo, playImageButton, helpImageButton, creditsImageButton,

	exitImageButton) element to vboxChild container respective - add the vboxChild and audioButton to hboxChild respective - add the background and hboxChild to stackpanel Root respective - Create a scene with a stackpane root container. - Set primaryStage with appropriate scene and title "Summoner CB". - set primaryStage width with RESOLUTION_X - set primaryStage height with RESOLUTION_Y - The stage window must not be resizable. - Show the primaryStage.
+ void gameScreenStart(Stage stage)	- initialize gameController - Create StackPane root - setPrefHeight to 720 - setPrefWidth to 1280 - set alignment to top_left - Create background using ImageView with image "menu/background.png" - setFitHeight to 720 - setFitWidth to 1280 - set PickOnBounds to true - set PreserveRatio to true - set Opacity(0.8) - add background to root - Create HBox hboxChild - setPrefHeight to 100 - setPrefWidth to 200 - Create Pane paneLeftHboxChild - setPrefHeight to 720 - setPrefWidth to 800 - setPadding to 20,20,20,20 - Create board using ImageView with image "play/board.png" - set fitHeight to 720 - set fitWidth to 800 - set PickOnBounds to true - Create FieldPane gridChild - Create Pane paneRightHboxChild - setPrefHeight to 720

	- setPrefWidth to 480 - Create scoreFrame using ImageView with image "play/framev2.png" - set fitHeight to 720 - set fitWidth to 480 - set PickOnBounds to true - Create VBox vboxChild - setPrefHeight to 720 - setPrefWidth to 480 - set alignment to top_center - Create Label score - setPrefHeight to 100 - setPrefWidth to 350 - set alignment to center_left - set text color to HOTPINK - set text size to 40 - set score label text by using method setScoreLabelText in GameController - set VBox margin on score to (30, 0, 0, 0) - Create Label balance - setPrefHeight to 100 - setPrefWidth to 350 - set alignment to center_left - set text color to HOTPINK - set text size to 40 - set balance label text by using method setBalanceLabelText in GameController - set VBox margin on balance to (30, 0, 30, 0) - Create ImageView weapon - initialize weapon image by using method initWeaponImage in GameController - setPrefHeight to 150 - setPrefWidth to 200 - set logo PickOnBounds to true - Create Label price - setPrefHeight to 100 - setPrefWidth to 200 - set alignment to center_left - set text color to HOTPINK - set text size to 40 - set price label text by using method setPriceLabelText in GameController - set padding to 0, 0, 30, 0 - set VBox margin on price to (0, 80, 0, 0) - set price OnMouseClicked to use method setWeaponImage, setBalanceLabelText

and setPriceLabelText in GameController

- Creates AudioClip bgm with "sounds/ingamesound.mp3"
- set bgm CycleCount to MediaPlayer.INDEFINITE
- set bgm Volume to 0.5D
- call stop the AudioClip then
- start the AudioClip

- Create HBox menu
- setPrefHeight to 220
- setPrefWidth to 200
- set alignment to center_right

- Create menuButton using ImageView with image "play/menubutton.png"
- set fitHeight to 150
- set fitWidth to 200
- set PickOnBounds to true
- set PreserveRatioto true
- set menuButton OnMouseClicked to stop in game sound, go to menuStart and stop time count
- set HBox margin on menuButton to (0, 25, 0, 0)

- set timeUse to STARTTIME

- Create Label label("Time: " + Integer.toString(timeUse))
- set text color to HOTPINK
- set text size to 40

- innitialize GameController.time
- set CycleCount to Timeline.INDEFINITE

- create KeyFrame frame
- set Duration to seconds(1)
- override method handle to increase timeUse, set label text to "Time: " + Integer.toString(timeUse),

check if (timeUse % 2 == 0) if it true then call GameController method setBalanceLabelText and setScoreLabelText by using ThreadFx.

check if(FieldPane.isLost()) if it true then call GameController.showWarning() method using ThreadFx, sleep for 1000 (Thread.sleep(1000)), stop music and call menuStart by using another ThreadFx

	and then call stop time count by using GameController.time.stop() method - add frame to GameController.time - set GameController.time to play from start - add all control (label, menuButton) element to menu container respective - add all (score, balance, weapon, price, menu) to vboxChild respective - add all (scoreFrame, vboxChild) to paneRightHboxChild respective - add all (board, gridChild) to paneLeftHboxChild respective - add all (paneLeftHboxChild, paneRightHboxChild) to hboxChild respective - add hboxChild to root - Create a scene with a root container. - set primaryStage width with RESOLUTION_X - set primaryStage height with RESOLUTION_Y - The stage window must not be resizable. - Show the stage.
+ void howToPlayScene(Stage stage)	- initialized new howtoplaycontrol - Creates a root container using StackPane with alignment of the pane to the TOP_LEFT and set prefheight and pref width to 720, 1280 respective - Creates a background control using ImageView with image "menu/background.jpg" - set background fitHeight to 720 - set background fitWidth to 1280 - set background PickOnBounds to true - set background PreserveRatio to true -set background opacity to 0.8 - Creates a vboxChild container using VBox - Set vboxChild PrefHeight to 720 - Set vboxChild PrefWidth to 1280 - set alignment of the VBox to the TOP_CENTER - Creates a frame control using ImageView with image " h2p/1-page.png" - set frame fitHeight to 500 - set frame fitWidth to 700 - set frame PickOnBounds to true

	- set frame PreserveRatio to true - Set VBox margin on this to (50, 50, 10, 50) - Creates a hboxChild container using HBox - set alignment of the HBox to the CENTER - Set vboxChild PrefHeight to 120 - Set vboxChild PrefWidth to 200 - Creates a prevbutton control using ImageView with image "object/prev.png" - set prevbutton fitHeight to 100 - set prevbutton fitWidth to 200 - set prevbutton PickOnBounds to true - set prevbutton PreserveRatio to true - set prevbutton setOnMouseClicked to call HowToPlaySceneControl.prevPage method - Creates a nextbutton control using ImageView with image "object/next.png" - set nextbutton fitHeight to 100 - set nextbutton fitWidth to 200 - set nextbutton PickOnBounds to true - set nextbutton PreserveRatio to true - set nextbutton setOnMouseClicked to call HowToPlaySceneControl.nextPage method - Creates a menubutton control using ImageView with image "play/menubutton.png" - set menubutton fitHeight to 150 - set menubutton fitWidth to 200 - set menubutton PickOnBounds to true - set menubutton PreserveRatio to true - set menubuttonsetOnMouseClicked to call menuStart method - add all control (prevbutton, nextbutton, menubutton) element to hboxChild container respective - add frame and hboxChild to vboxChild respective - add background and vboxChild to root respective - Create a scene with a root container. - set primaryStage width with RESOLUTION_X - set primaryStage height with RESOLUTION_Y - The stage window must not be resizable. - Show the stage.
+ void creditsScene(Stage stage)	- Creates a root container using StackPane

	with alignment of the pane to the TOP_LEFT and set prefheight and pref width to 720, 1280 respective
	- Creates a background control using ImageView with image "menu/background.jpg"
	- set background fitHeight to 720
	- set background fitWidth to 1280
	- set background PickOnBounds to true
	- set background PreserveRatio to true
	-set background opacity to 0.8
	- Creates a vboxChild container using VBox
	- Set vboxChild PrefHeight to 720
	- Set vboxChild PrefWidth to 1280
	- set alignment of the VBox to the TOP_CENTER
	- Creates a frame control using ImageView with image " object/credits.gif"
	- set frame fitHeight to 500
	- set frame fitWidth to 700
	- set frame PickOnBounds to true
	- set frame PreserveRatio to trueи
	- Set VBox margin on this to (50, 50, 50, 50)
	- Creates a menubutton control using ImageView with image "play/menubutton.png"
	- set menubutton fitHeight to 150
	- set menubutton fitWidth to 200
	- set menubutton PickOnBounds to true
	- set menubutton PreserveRatio to true
	- set menubuttonsetOnMouseClicked to call menuStart method
	- add all control (frame, menubutton) element to vboxChild container respective
	- add background and vboxChild to root respective
	- Create a scene with a root container.
	- set primaryStage width with RESOLUTION_X
	- set primaryStage height with RESOLUTION_Y
	- The stage window must not be resizable.
	- Show the stage.
+ void main (String [] args)	An entry point of the application.

2.Package entities.base

2.1 class Weapon
2.1.1 Fields

- String weaponName	The name of the weapon
- String url	The url of the weapon's image
- int attackDamage	Attack damage of the weapon
- int upgradeCost	Upgrade cost of the weapon

2.1.2 Constructor

+ Weapon(String weaponName, String url, int attackDamage, int upgradeCost)	Initializes each field according to the parameter.

2.1.3 Methods

+ void setUrl(String url)	set enemy url to "weapon/" + weapon's url
+ getter and setter of fields for the remaining fields	

2.2 class Enemy
2.2.1 Fields

- String enemyName	The name of the enemy
- String url	The url of the enemy's image
- int lifePoint	Lifepoint of the enemy
- int reward	Reward of the enemy when the enemy dead
- boolean isDead	boolean that check if enemy is dead

2.2.2 Constructor

+ Enemy(String enemyName, String url, int lifePoint, int reward)	Initializes each field according to the parameter and set isDead to false

2.2.3 Methods

+ boolean isDead()	return true if lifePoint lower or equal than 0
+ void setUrl(String url)	set enemy url to "enemy/" + enemy's url
+ getter/setter for each field for the remaining fields	

2.3 class Interactable

2.3.1 Methods

+ *void interact(Weapon e)*	This method is called when the **Weapon e** hits the enemy.

2.4 class Upgradeable

2.4.1 Methods

+ *void boolean update() throws IllegalValueException*	This method is called when updating a weapon and throws an error when an error value occurs.

3.Package entities.enemy.role

3.1 class Goblin extends Enemy implements Interactable
enemyName = "Goblin"
url = "goblin.gif"
lifePoint = 1
reward = 1

3.1.1 Constructor

+ Goblin()	Initialize the Goblin with the given name, url, lifePoint and reward. (See above)

3.1.2 Methods

+ void interact(Weapon e)	Decrease Goblin health according to **Weapon e** damage received and check if Goblin is dead, if dead set Goblin dead and increase current balance and current score based on Goblin reward.

3.2 class GrimStonk extends Enemy implements Interactable

enemyName = "GrimStonk"
url = "grimstonk.gif"
lifePoint = 2
reward = 2

3.2.1 Constructor

+ GrimStonk()	Initialize the GrimStonk with the given name, url, lifePoint and reward. (See above)

3.2.2 Methods

+ void interact(Weapon e)	Decrease GrimStonk health according to **Weapon e** damage received and check if GrimStonk is dead, if dead set GrimStonk dead and increase current balance and current score based on GrimStonk reward.

3.3 class LeafGoblin extends Enemy implements Interactable

```
enemyName = "LeafGoblin"
url = "leafGoblin.gif"
lifePoint = 6
reward = 3
```

3.3.1 Constructor

+ LeafGoblin()	Initialize the LeafGoblin with the given name, url, lifePoint and reward. (See above)

3.3.2 Methods

+ void interact(Weapon e)	Decrease LeafGoblin health according to **Weapon e** damage received and check if LeafGoblin is dead, if dead set LeafGoblin dead and increase current balance and current score based on LeafGoblin reward.

3.4 class Orgmagi extends Enemy implements Interactable

```
enemyName = "Orgmagi"
url = "orgmagi.gif"
lifePoint = 15
reward = 4
```

3.4.1 Constructor

+ Orgmagi()	Initialize the Orgmagi with the given name, url, lifePoint and reward. (See above)

3.4.2 Methods

+ void interact(Weapon e)	Decrease Orgmagi health according to **Weapon e** damage received and check if Orgmagi is

	dead, if dead set Orgmagi dead and increase current balance and current score based on Orgmagi reward.

3.5 class WaterGoblin extends Enemy implements Interactable

enemyName = "WaterGoblin"
url = "watergoblin.gif"
lifePoint = 24
reward = 5

3.5.1 Constructor

+ WaterGoblin()	Initialize the WaterGoblin with the given name, url, lifePoint and reward. (See above)

3.5.2 Methods

+ void interact(Weapon e)	Decrease WaterGoblin health according to **Weapon e** damage received and check if WaterGoblin is dead, if dead set WaterGoblin dead and increase current balance and current score based on WaterGoblin reward.

4.Package entities.power.type

4.1 class Warrior extends Weapon implements Upgradeable

weaponName = "Warrior"
url = " warrior.gif"
attackDamage = 1
upgradeCost = 5

4.1.1 Constructor

+ Warrior()	Initialize the Warrior with the given name, url, attackDamage and upgradeCost. (See above)

4.1.2 Methods

+ boolean update() throws IllegalValueException	Check if CurrentBalance Greater than equal Warrior UpgradeCost.

4.2 class Archer extends Weapon implements Upgradeable

weaponName = "Archer"
url = " archer.gif"
attackDamage = 2
upgradeCost = 10

4.2.1 Constructor

+ Archer()	Initialize the Archer with the given name, url, attackDamage and upgradeCost. (See above)

4.2.2 Methods

+ boolean update() throws IllegalValueException	Check if CurrentBalance Greater than equal Archer UpgradeCost.

4.3 class FireWizard extends Weapon implements Upgradeable

weaponName = "FireWizard"
url = " firewizard.gif"
attackDamage = 3
upgradeCost = 21

4.3.1 Constructor

+ FireWizard()	Initialize the FireWizard with the given name, url, attackDamage and upgradeCost. (See above)

4.3.2 Methods

+ boolean update() throws IllegalValueException	Check if CurrentBalance Greater than equal FireWizard UpgradeCost.

4.4 class DoctorStrange extends Weapon implements Upgradeable

weaponName = "DoctorStrange"
url = " drstrange.gif"
attackDamage = 4
upgradeCost = 30

4.4.1 Constructor

+ DoctorStrange()	Initialize the DoctorStrange with the given name, url, attackDamage and upgradeCost. (See above)

4.4.2 Methods

+ boolean update() throws IllegalValueException	Check if CurrentBalance Greater than equal DoctorStrange UpgradeCost.

4.5 class Titan extends Weapon

weaponName = "Titan"
url = " titan.gif"
attackDamage = 5
upgradeCost = 0

4.5.1 Constructor

+ Titan()	Initialize the Titan with the given name, url, attackDamage and upgradeCost. (See above)

5.Package exception

5.1 class IllegalValueException extends Exception

4.1.1 Field

- final long serialVersionUID	set serialVersionUID = 5185074954089643328L

6.Package gui

6.1 class GameController

6.1.1 Fields

- int currentScore	the value represents the current score of the game
- int currentBalance	the value represents the current balance of the game
- int upgradeCount	the value represents the number of upgrading times
- ArrayList<Weapon> weapons	ArrayList that contains all weapons
- Weapon player	weapon in use now
+ Timeline time	keep track the time
- Tooltip tooltip	tooltip of the weapon to show information

6.1.2 Constructor

+ GameController()	- initialize all weapon by using InitWeapons method - set currentBalance, currentScore and upgradeCount to 0 - set player according to upgradeCount

6.1.3 Methods

+ <u>Enemy randomEnemy(int pos)</u>	return enemy according to the entered number where 0 is Goblin, 1 is GrimStonk, 2 is LeafGoblin, 3 is Orgmagi, 4 is WaterGoblin and otherwise return null.
+ void InitWeapons()	initialize all weapon and add them to ArrayList<Weapon> weapons
+ <u>void InitWeaponImage(ImageView image)</u>	- initialize weapon image according to the sent image - Set up the tooltip of the GameController to show information of the weapon in this FieldCell when hovering the mouse over the FieldCell. - SetText of tool tip to "Name: " + Weaponname + "\n" + "Attack_damge: " + WeaponAttackDamage
+ <u>void setWeaponImage(ImageView image) throws IllegalValueException</u>	- Set weapon image which can upgrade - SetText of tool tip to "Name: " + Weaponname + "\n" + "Attack_damge: " + WeaponAttackDamage
+ <u>boolean isUpgrade(Weapon player) throws IllegalValueException</u>	Check if the sent weapon can be upgraded, if so, - increase upgradeCount - upgrade weapon and set current weapon to the weapon that was just upgraded - reduce currentBalance
+ void showWarning()	show warning when losing the game - title = "You Lose" - content text = "Try again next time"
+ <u>void setScoreLabelText(Label score)</u>	set value Label score = "Score: " + getCurrentScore()
+ <u>void setBalanceLabelText(Label balance)</u>	set value Label balance = "Balance: " + getCurrentBalance()
+ <u>void setPriceLabelText(Label price)</u>	set value Label price = "Price: " + getUpgradePrice(player)

+ <u>void addCurrentScore(int currentScore)</u>	Increase the currentScore based on the input value.
+ <u>void addCurrentBalance(int currentBalance)</u>	Increase the currentBalance based on the input value.
+ <u>void subtCurrentBalance(Weapon player)</u>	decrease the currentBalance based on the input value.
+ <u>int getUpgradePrice(Weapon player)</u>	get upgrade price of the input weapon
+ getter/setter for each field for the remaining fields	

6.2 class GameController

6.2.1 Fields

- <u>int currentPage</u>	value that represent a currentpage in howtoplayscene

6.2.2 Constructor

+ HowToPlaySceneControl()	initialized currentPage to 1

6.2.3 Methods

+ <u>void nextPage(ImageView image)</u>	- add 1 to currentPage - set image to currentpage image using selectpage method
+ <u>void prevPage(ImageView image)</u>	- subtract 1 from currentPage - set image to currentpage image using selectpage method
- <u>String selectPage(int page)</u>	switch case that has page as a input - return String url of that page image [("h2p/1-page.png") if page = 1] -default return is null
+ <u>void setCurrentPage(int currentPage)</u>	- set currentPage to given number - if given number is lower than 1 set currentPage to 1

	- if given number is more than 11 set currentPage to 11
+ <u>int getCurrentPage()</u>	return currentPage