

**Nibba**

**Created by**

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# Galactic Colonization

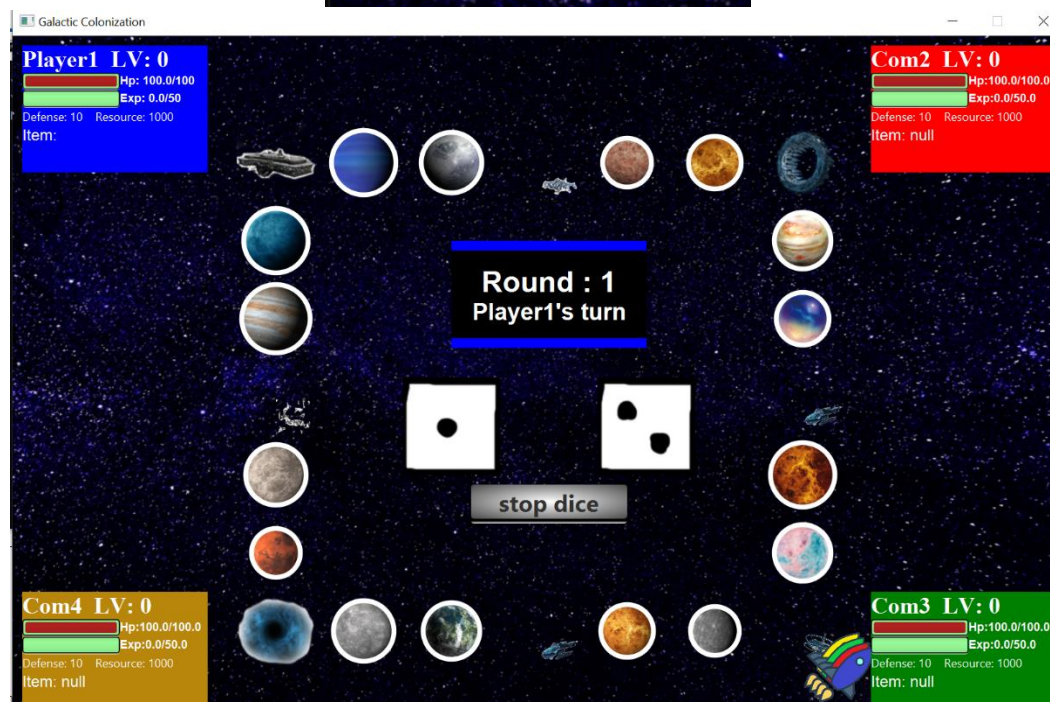
## Introduction

Galactic Colonization is inspired by a Monopoly board game. We change a little game mechanic and its goal. In this game, your objective is to survive as long as you can until all opponents are defeat.

## Rules

There is an example of the player status bar.

It will show player name, level, hit point , exp, defense, resource and item.



Full screen of this board game. Each player will have their own color.

Blue for Player1. Red for player 2. Green for player 3. Yellow for player 4.

Information of player status.

- Hp show how much damage you can take. When Hp drop to 0, the player defeated.
- Exp is one of the important status. When exp reach the maximum, your exp will drop to 0 and your level increase. This will increase your defense too.
- Defense can reduce your damage you take
- Item can be found in space ruin and it will use automatically.

In one round, It is divided into 5 parts.

### 1. Dice Phase.

In this phase, you have to roll two dice by clicking the “stop dice” button. The dices will stop and your ship will move clock wise direction of the board. (Except you have Warp Scoll)

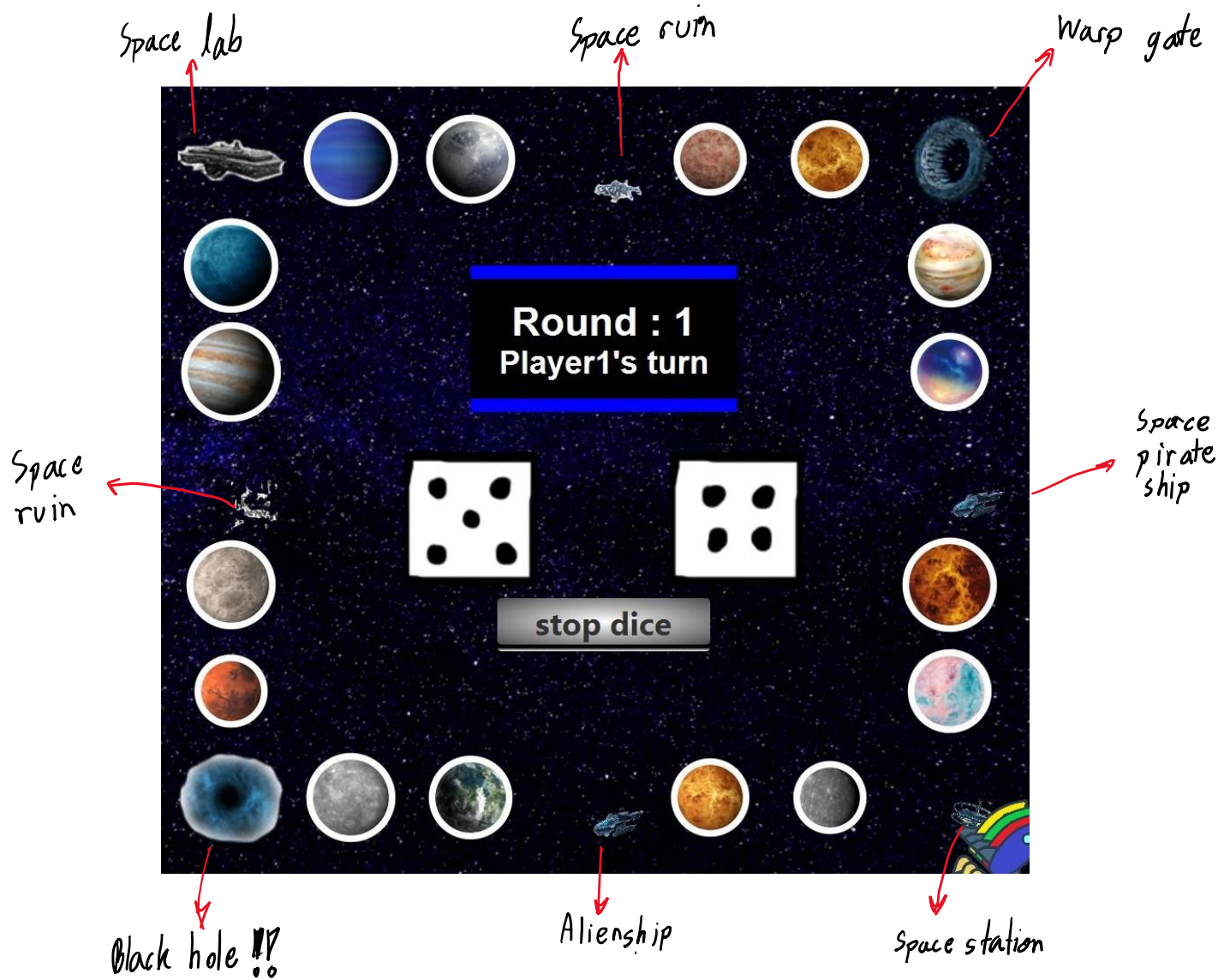


### 2. Result Phase.

In this phrase, after your ship stop, the result depends on what you have landed.

There are 8 type of space object.

- |                 |                      |
|-----------------|----------------------|
| - 16 Planets    | - A Space station    |
| - A Blackhole   | - An Alien ship      |
| - The Warp gate | -A Space pirate ship |
| - 2 Space ruins | -The Space lab       |



The other space object are all planet.



If you want to know the information of the space object.

Just point the mouse in to it(Example -> Earth).



## Space object

### Planet

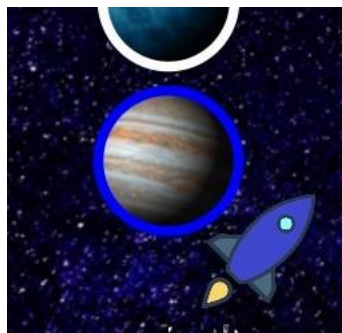
- Name : Planet's name.
- Capture cost : Resource you have to pay to capture this planet.
- Attack : You will lost your Hp if this planet is your opponents' planet.
- Resource per turn : You will get resource at the end of your turn.



### Planet's information.

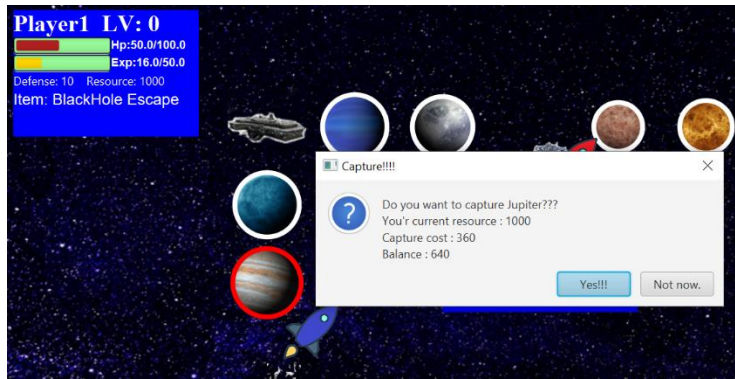


In case you have enough resources, an alert box will shows.



After capturing the planet. It will be highlighted with your color.

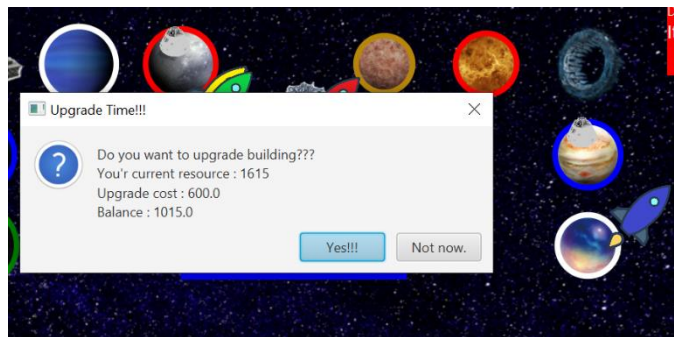
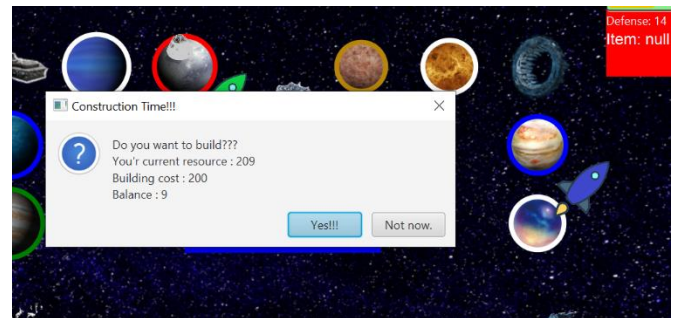
And this planet will be yours.



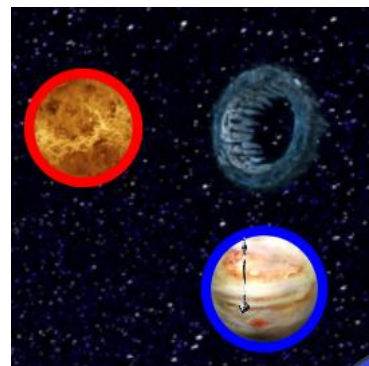
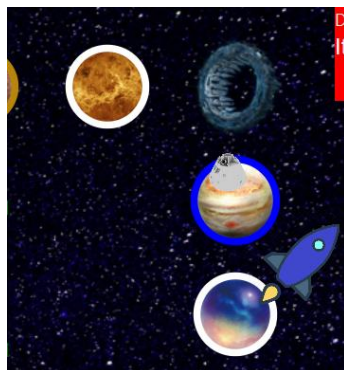
-In case that you drop in your opponents planet. You will get damage.

And if you have enough resource, you can capture this planet.

- When you drop on your planet. You can construct the building. After that, your planet will have the building now. Planet status will increase.



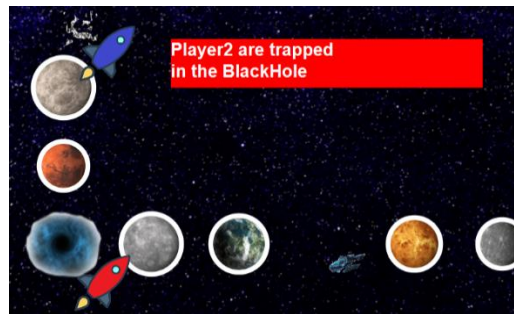
- When you drop on your planet when having building. You can upgrade the building. After that, your planet will be upgraded. Planet status will increase.



Picture of the normal building and and upgraded building in Kepler-176.

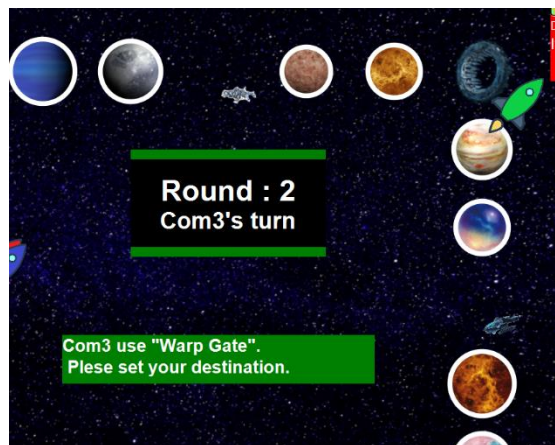
## Black Hole

- You are unable to move for 2 turns.



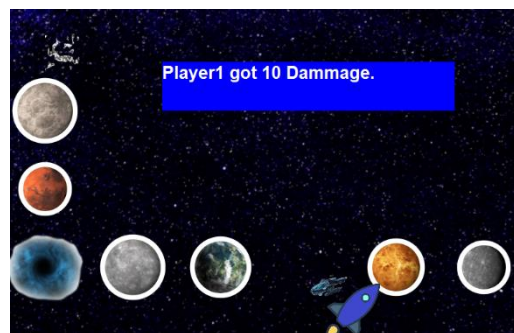
## Warp Gate

- You can choose any planet you want to go. After that, you can make an action like normal drop.



## Alien ship

- You will get damage randomly.



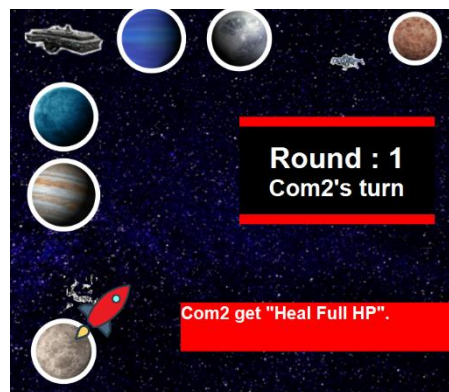
## Space lab

- All of your planets are improved. That makes your planet status higher.



## Space ruin

- Space ruin will give item randomly.
- There are 2 types of items. Normal item and Instant Item.



## Type of item.

- Instant item -> It will immediately be used.
  - “ Level Up”      Increase level by 1.
  - “Heal Full HP”      Set your Hp in to maximun.
  - “Resouce Bonus”      Get resource by half of your planet resource.
- Normal item -> It will be used when in the correct condition.
  - "Warp Scroll"      Work like warp gate. Auto use in the next turn.
  - "Attack Barrier"      Avoid damage from Alien ship.
  - "BlackHole Escape"      Blackhole will not affect.
  - "Pirate Pass"      Avoid pirate ship.



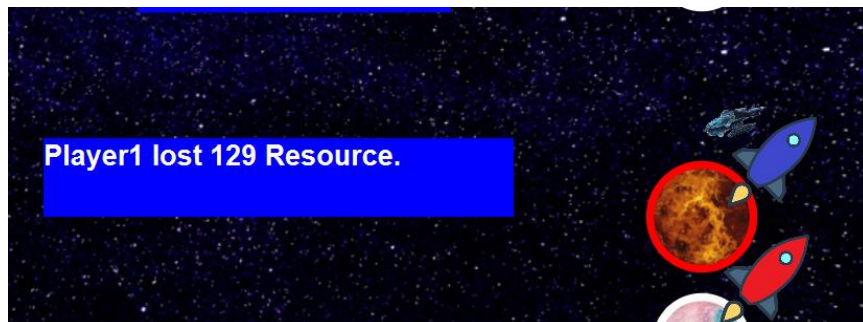
## Space station

- When you came pass space station, you will get resource, Exp and Hp
- This is your start point.
- Using warp is not count as “pass”, so that you will get nothing.



## Pirate ship

- “They take your resources. Not your life.”.



### 3. End Phase

After the calculated result, your turn will end and change into other players turn.

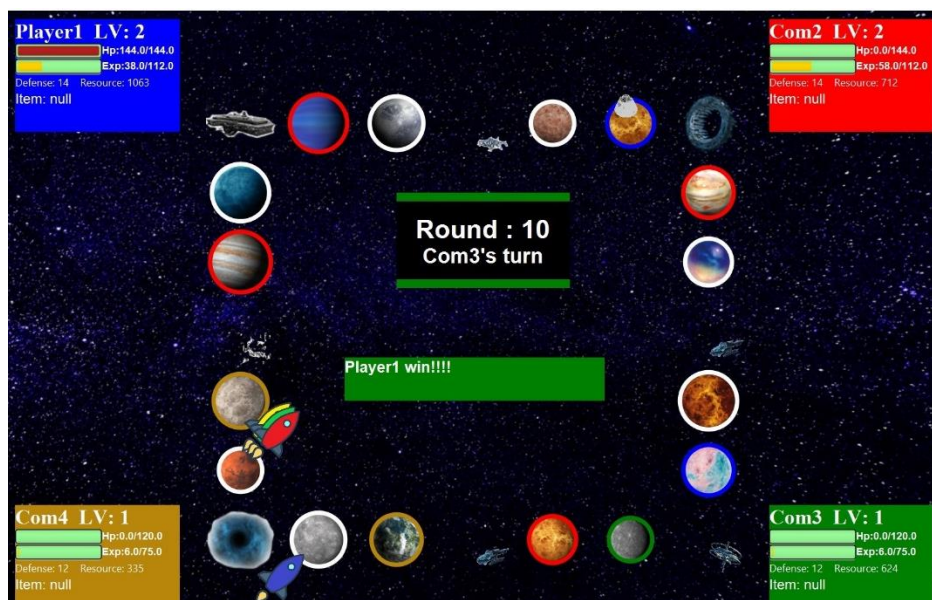
You will get resource from planets you already own.



Example -> Player1 already finished his turn. So that it is now Com2 turn and Player1 will receive 82 resources.(12 from mercury and 70 from HD-40307)

### End of the game

At the end of this game, 3 players are defeat so that the last survivor wins.



## MainMenu scene



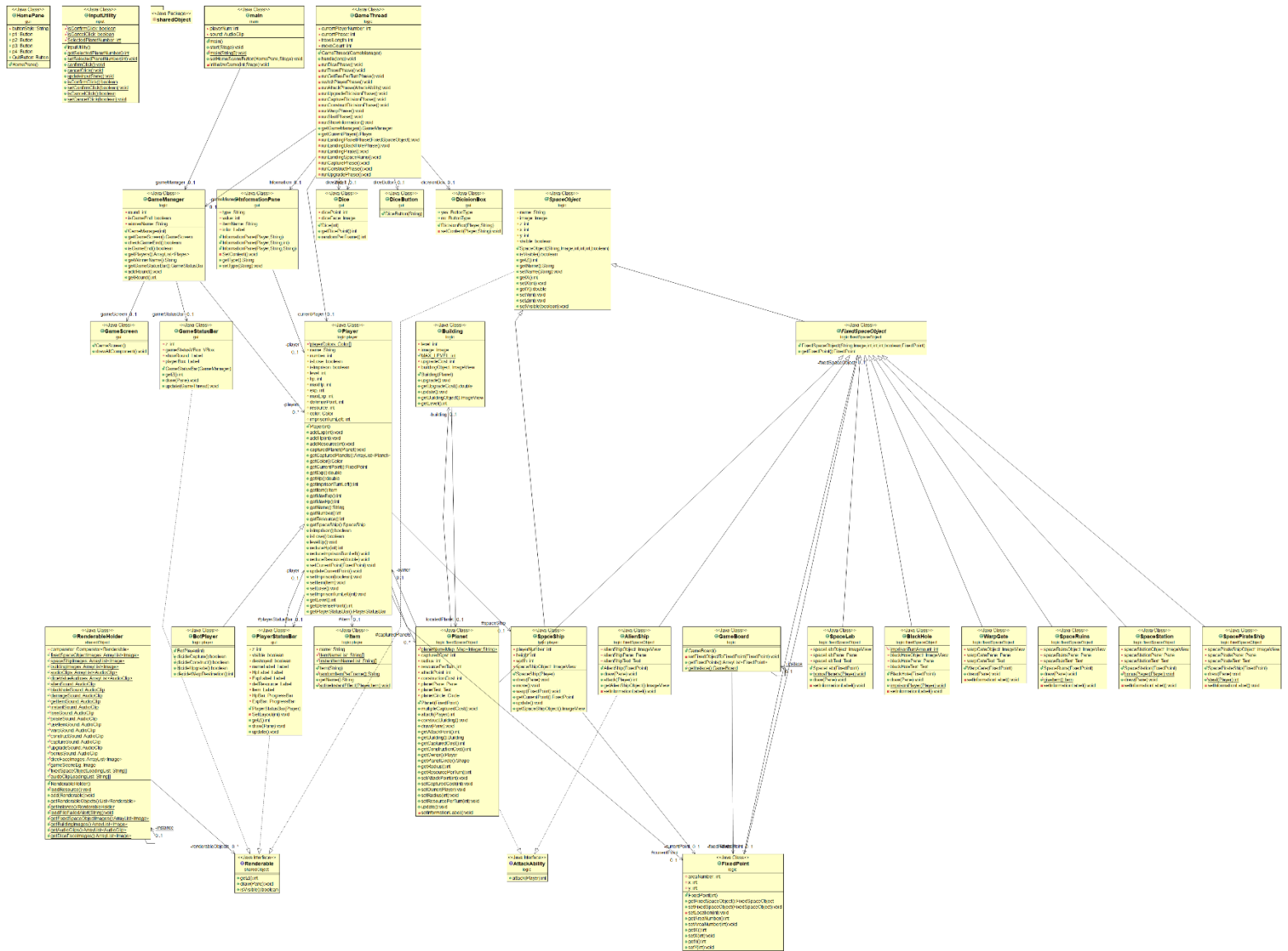
In this scene, you can choose how many players do you have. This game must have 4 players, so that we will fill the other with BOT.

And the "QUIT" button is for exit the game.

## Note

- Although the player is defeat, Their colony is still him/her because in each planet have their civilization and they only accept their owner.(But you can capture them later)
- After your Hp drop to 0, you still can capture the planet you drop in before defeated.
- Sound effect in Alien Ship isn't a bug. We design to make an echo sound.
- There is a chance you can defeat at the first round.(Bad luck. :D)
- There is a chance you get 0 damage,(from alien ship) and lost 0 resource(from pirate ship) because your defese and your luck.

## Class diagram





## 1 Package logic

### 1.1 Class GameManager

#### 1.1.1 field

- ArrayList<Player> players	list of players in this game
- int round	Amount of round of running game
- boolean isGameEnd	Is game end or not
- GameScreen gameScreen	GameScreen that display the game
- GameStatusBar gameStatusBar	GameStatusBar of this game
- String winnerName	The name of player that win this game

#### 1.1.2 method

+ GameManager(int playerNumber)	- Initialize Fields - set players by adding new Player and BotPlayer class - initialise gameStatusBar - Initialise gameScreen and draw all renderableObjects to gameScreen
+ GameScreen getGameScreen()	Return the gameScreen
+ boolean checkGameEnd()	Check that running game is end or not and return it
+ boolean isGameEnd()	Return isGameEnd
+ ArrayList<Player> players getPlayers()	Return the players
+ GameStatusBar getGameStatusBar()	Return gameStatusBar
+ void addRound()	Add 1 to this.round
+ int getRound()	Return round

### 1.2 Class gameThread extends AnimationTimer

#### 1.2.1 field

- GameManger gameManager	gameManager
- Player currentPlayer	The player that is running on this turn
- int currentPlayerNumber	The currentPlayer's number
- int currentPhase	Number of phase that is running of this turn
- int travelLength	Amount of fixedPoint that spaceShip of player will move

- Dice dice1	Dice no.1
- Dice dice 2	Dice no.2
- DiceButton diceButton	Button that will stop dicePhase when clicked
- int moveCount	Amount of fixedPoint that spaceShip has moved
- DicisionBox decisionBox	AlertBox that make player decision to do something
- InformationPane information	Pane that show information of happened event

### 1.2.2 method

+ GameThread(GameManager gameManger)	<ul style="list-style-type: none"> <li>- initialise fields</li> <li>- New Dice(1), Dice(2), DiceButton, InformationPane to their fields</li> </ul>
+ void handle(long arg0)	<ul style="list-style-type: none"> <li>- run each frame for game</li> <li>- If game end, stop this class and exit the game</li> <li>- Do switch-case by the currentPhase</li> </ul>
- void runDicePhase()	<ul style="list-style-type: none"> <li>- Random the value of dice1 and dice2 for each frame.</li> <li>- If click the diceButton, dice 1 and dice 2 will stop random, sum the value of 2 dices to keep in travellLength and set currentPhase to 3.</li> </ul>
- void runTravelPhase()	<ul style="list-style-type: none"> <li>- move the spaceShip of currentPlayer to next fixedPoint, update currentPlayer location, and add moveCount by 1</li> <li>- If moveCount == travellLength, stop move the spaceShip, remove 2 dices form scene, and set currentPhase to 4</li> </ul>
- void runGetResPerTurnPhase()	<ul style="list-style-type: none"> <li>- add resources of currentPlayer form sum of resourcePerTurn of all planets that are owned by currentPlayer</li> </ul>
- void switchPlayerPhase()	<ul style="list-style-type: none"> <li>- set new currentPlayer to next index of players in gameManager</li> <li>- If currentPlayerNumber == amount of players, add round of gameManager by 1</li> </ul>
- void runAttackPhase(AttackAbility attacker)	<ul style="list-style-type: none"> <li>- if currentPlayer has attackBarrier item, use that item and cancel attack</li> <li>- else, attacker do attack method to the currentPlayer and show the damage to informationPane</li> <li>- If curretPlayer die form attack, set currentPhase to 0</li> </ul>
- void runUpgradeDicisionPhase()	<ul style="list-style-type: none"> <li>- If currentPlayer is not bot, show the upgrade dicisionBox</li> <li>- Set currentPhase to 43</li> </ul>

- void runCaptureDecisionPhase()	<ul style="list-style-type: none"> <li>- If currentPlayer is not bot, show the capture decisionBox</li> <li>- Set currentPhase to 42</li> </ul>
- void runConstructDecisionPhase()	<ul style="list-style-type: none"> <li>- If currentPlayer is not bot, show the construct decisionBox</li> <li>- Set currentPhase to 41</li> </ul>
- void runWarpPhase()	<ul style="list-style-type: none"> <li>- Warp spaceShip to fixedPoint by their own decision and set currentPhase to 4</li> </ul>
- void runStartPase()	<ul style="list-style-type: none"> <li>- if game end, stop this game</li> <li>- If currentPlayer is lose, switch player</li> <li>- If currentPlayer is imprision, end this turn</li> <li>- If currentPlayer has Warp Scroll, set currentPhase to 2. else, add 2 dices to the screen</li> </ul>
- void runShowInformation()	Show information of happened event
- void runLandingPlanetPhase()	<ul style="list-style-type: none"> <li>- if planet not has owner, player can capture it.</li> <li>- If planet is owned by currentPlayer, player can construct or upgrade building to it.</li> <li>- If planet is owned by other players, currentPlayer will be attacked and can capture it later.</li> <li>- and set currentPhase to 5</li> </ul>
- void runLandingBlackHolePhase()	<ul style="list-style-type: none"> <li>- if currentPlayer has BlackHole Escape, cancel the imprison. else, imprison player for 3 turns.</li> <li>- and set currentPhase to 5</li> </ul>
- void runLandingPirate()	<ul style="list-style-type: none"> <li>- Pirate will steal currentPlayer's resource.</li> <li>- if currentPlayer has Pirate pass, pirate won't steal player's resource.</li> <li>- and set currentPhase to 5</li> </ul>
- void runLandingSpaceRuin()	<ul style="list-style-type: none"> <li>- currentPlayer will get random Item.</li> <li>- If item is instant item, it will use instantly. else, it will store in player's inventory</li> <li>- and set currentPhase to 5</li> </ul>
- void runCapturePhase()	<ul style="list-style-type: none"> <li>- if currentPlayer is bot, use their own decision method</li> <li>- If dicision is yes, capture this planet. else, do nothing.</li> <li>- and set currentPhase to 5</li> </ul>
- void runConstructPhase()	<ul style="list-style-type: none"> <li>- if currentPlayer is bot, use their own decision method</li> <li>- If dicision is yes, construct building to this planet. else, do nothing.</li> <li>- and set currentPhase to 5</li> </ul>

- void runUpgradePhase()	<ul style="list-style-type: none"> <li>- if currentPlayer is bot, use their own decision method</li> <li>- If decision is yes, upgrade building of this planet. else, do nothing.</li> <li>- and set currentPhase to 5</li> </ul>
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### 1.3 Class FixedPoint

#### 1.3.1 field

- int areaNumber	Number of this fixedPoint
- FixedSpaceObject	FixedSpaceObject that fixed on this point
- int x	X-position of this fixedPoint
- int y	Y-position of this fixedPoint

#### 1.3.2 method

+ FixedPoint(int areaNimber)	<ul style="list-style-type: none"> <li>- initialise field</li> <li>- Set x,y from method setLocation</li> </ul>
+ int getAreaNumber()	Return areaNumber
+ FixedSpaceObject getFixedSpaceObject()	Return fixedSpaceObject
+ int getX()	Return x
+ int getY()	Return y
+ void setFixedSpaceObject(FixedSpaceObject fixedSpaceObject)	Set FixedSpaceObject to this field
- void setLocation(int areaNumber)	set x and y by using if-else from areaNumber

### 1.4 Class GameBoard

#### 1.4.1 field

- ArrayList<FixedPoint> fixedPoints	List of fixedPoint of this gameBoard
+ static GameBoard instance	Singleton of this class

#### 1.4.2 method

+ GameBoard()	<ul style="list-style-type: none"> <li>- Add 24 fixedPoints to gameBoard</li> <li>- Set fixSpaceObject to each fixedPoint in list by using method</li> </ul>
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- void setFixedSpaceObjectToFixedPoint(FixedPoint fixed Point)	- use if-else for set proper child class of FixedSpaceObject to fixePoint by using areaNumber
+ ArrayList<FixedPoint> getFixedPoints()	Return fixedPoints
+ static GameBoard getInstance()	Ruturn instance of class

## 1.5 Abstract Class SpaceObject implement Renderable

### 1.5.1 field

# String name	Name of this object
# Image image	Image of this object
# int x	X-position in pane
# int y	Y-position in pane
# int z	Number of layer in pane
# boolean visible	Visibility of this object

### 1.5.2 method

+ SpaceObject(String name, Image image, int z, int x, int y, boolean visible)	-initialize fields
+ boolean isVisible()	Return visible
+ int getZ()	Return z
+ String getName()	Return name
+ void setName(String name)	Set name
+ int getX()	Return x
+ void setX(int x)	Set x
+ int getY()	Return y
+ void setY(int y)	Set y
+ void SetZ(int z)	Set z
+ void setVisible(boolean visible)	Set visible

## 1.6 Interface AttackAbility

### 1.6.2 method

+ abstract int attack(Player player)	Attack player
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## 1.7 Class Building

### 1.7.1 field

+ static final int MAX_LEVEL = 3	Max level of all building
- ImageView buildingObject	ImageView of building that show on pane
- Image image	Image of this building
- int level	Level of this building
- Planet locatedPlanet	Planet that building locate
- int upgradeCost	Cost to upgrade to next level

### 1.7.2 method

+ Building(Planet planet)	<ul style="list-style-type: none"> <li>- initialise fields</li> <li>- Set image from RenderableHolder.buildingImages</li> <li>- Config the properties of buildingObject</li> </ul>
+ public ImageView getBuildingObject()	Return buildingObject
+ int getLevel()	Return level
+ int getUpgradeCost()	Return upgradeCost
+ void update	<ul style="list-style-type: none"> <li>- set new image of building from new building level</li> <li>- Set new ImageView of buildingObject from new image</li> </ul>
+ void upgrade	<ul style="list-style-type: none"> <li>- reduce owner player's resource from upgradeCost</li> <li>- Add level and upgradeCost</li> <li>- Set attackPoint of locatedPlanet to *2</li> <li>- Update this building</li> </ul>

## 2 Package logic.fixedSpaceObject

### 2.1 abstract class FixedSpaceObject

#### 2.1.1 field

# FixedPoint fixedPoint	fixedPoint that contains this FixedSpaceObject
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#### 2.1.2 method

+ FixedSpaceObject(String name, Image image, int x, int y, boolean visible, FixedPoint fixedPoint)	-Initialize fields
+ FixedPoint getFixedPoint()	get fixedPoint

## 2.2 Planet extends FixedSpaceObject implements AttackAbility

### 2.2.1 field

- static Map<Integer,String> planetNameMap	Map of areaNumber of fixedPoint and the name of each planets
- Player owner	Player that own this planet
- int capturedCost	Resource cost to capture this planet
- int radius	Radius of planet circle
- int resourcePerTurn	Resource that will add to owner each turns
- int attackPoint	Amount of damage when attack player
- Building building	Building that constructed on this planet
- int constructionCost	Resources to add building to this planet
- Circle PlanetCircle	Circle that will show on pane
- Pane planetPane	Pane that show information about this object in game screen
- Text planetText	Text that will add to alienShipPane

### 2.2.2 method

+ Planet(FixedPoint fixedPoint)	Constructor - Initialize fields - Set this image form RenderableHolder.fixedSpaceObjectImaged - config properties of planetCircle and add to RenderableHolder instance
+ void multipleCaptureCost()	Multiple captureCost by 2
+ void constructBuilding()	Reduce owner's resources by constructionCost and add new Building to this planet
+ void draw(Pane pane)	Add planetCircle to the children of pane
+ int attack(Player player)	Attack Player, reduce player hp from this attackPoint
+ int getAttackPoint()	Return attackPoint
+ Building getBuilding()	Return building

+ int getCaptureCost()	Return captureCost
+ int getConstructionCost()	Return constructionCost
+ Player getOwner()	Return owner
+ Shape getPlanetCircle()	Return planetCircle
+ int getRadius	Return radius
+ int getResourcePerTurn	Return resourcePerTurn
+ void setAttackPoint(int attackPoint)	Set this attackPoint to attackPoint
+ void setCaptureCost(int areaNumber)	Set this captureCost by using if-else-if that use areaNumber to decision how many captureCost
+ void setOwner(Player player)	set this owner to player
+ void setRadius(int areaNumber)	Set this radius by using if-else-if that use areaNumber to decision how many radius
+ void update()	Update to set new planetCircle's stroke and set new planetText
+ void setInformationLabel()	-Set properties of planetText and planetPane - set mouseAction handle for planetCircle to show planetPane

## 2.2 Class AlienShip extends FixedSpaceObject implements AttackAbility

### 2.2.1 field

- ImageView alienShipObject	ImageVlew that will add to game screen
- Pane alienShipPane	Pane that show information about this class in game screen
- Text alienShipText	Text that will add to alienShipPane

### 2.2.2 method

+ AlienShip(FixedPoint fixedPoint)	Constructor - Initialize fields - Set this image form RenderableHolder.fixedSpaceObjectImages - config properties of alienShipObject and alienShipPane - add this object to RenderableHolder instance
+ void draw(Pane pane)	Add alienShipObject, alienShipPane to the children of pane
+ int attack (Player player)	Attack player, Random 0-40% of player's maxHealth to damage to reduce player's hp
+ ImageView getAlienShipObject()	Return alienShipObject



- void setInformationLabel()	-Set properties of alienShipText and alienShipPane - set mouseAction handle for alienShipObject to show alienShipPane
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## 2.3 Class BlackHole extends FixedSpaceObject

### 2.3.1 field

- final static int imprisonTurnAmount	Amount of turns that player need to wait when falling to black hole
- ImageView blackHoleObject	ImageVlew that will add to game screen
- Pane blackHolePane	Pane that show information about this class in game screen
- Text blackHoleText	Text that will add to blackHolePane

### 2.3.2 method

+blackHole(FixedPoint fixedPoint)	Constructor - Initialize fields - Set this image form RenderableHolder.fixedSpaceObjectImages - config properties of blackHoleObject and blackHolePane - add this object to RenderableHolder instance
+ void draw(Pane pane)	Add blackHoleObject, blackHolePane to the children of pane
+ static void imprisonPlayer (Player player)	Imprison player, set isImprison player to true and set ImprisonTurnLeft to 2
- void setInformationLabel()	-Set properties of blackHoleText and blackHolePane - add blackHoleText to blackHolePane - set mouseAction handle for blackHoleObject to show blackHolePane

## 2.4 Class SpaceLab extends FixedSpaceObject

### 2.4.1 field

- ImageView spaceLabObject	ImageVlew that will add to game screen
- Pane spaceLabPane	Pane that show information about this class in game screen
- Text spaceLabText	Text that will add to spaceLabPane

### 2.4.2 method

+spaceLab(FixedPoint fixedPoint)	Constructor <ul style="list-style-type: none"><li>- Initialize fields</li><li>- Set this image form RenderableHolder.fixedSpaceObjectImages</li><li>- config properties of spaceLabObject and spaceLabPane</li><li>- add this object to RenderableHolder instance</li></ul>
+ void draw(Pane pane)	Add spaceLabObject, spaceLabPane to the children of pane
+ static void bonusPlanets (Player player)	Set new (improve) attackPoint and resourcePerTurn of all planet in player's capturedPlanet
- void setInformationLabel()	-Set properties of spaceLabText and spaceLabPane - add spaceLabText to spaceLabPane - set mouseAction handle for spaceLabObject to show spaceLabPane

### 2.5 Class SpacePirateShip extends FixedSpaceObject

#### 2.5.1 field

- ImageView spacePirateShipObject	ImageVlew that will add to game screen
- Pane spacePirateShipPane	Pane that show information about this class in game screen
- Text spacePirateShipText	Text that will add to spacePirateShipPane

#### 2.5.2 method

+SpacePirateShip(FixedPoint fixedPoint)	Constructor <ul style="list-style-type: none"><li>- Initialize fields</li><li>- Set this image form RenderableHolder.fixedSpaceObjectImages</li><li>- config properties of spacePirateShipObject and spacePirateShipPane</li><li>- add this object to RenderableHolder instance</li></ul>
+ void draw(Pane pane)	Add spacePirateShipObject, spacePirateShipPane to the children of pane
+ static void steal(Player player)	reduce player's resource, amount of reduced resource random form 0-40%
- void setInformationLabel()	-Set properties of spacePirateShipText and spacePirateShipPane - add spacePirateShipText to spacePirateShipPane - set mouseAction handle for spacePirateShipObject to show spacePirateShipPane

## 2.6 Class SpaceRuins extends FixedSpaceObject

### 2.6.1 field

- ImageView spaceRuinsObject	ImageVlew that will add to game screen
- Pane spaceRuinsPane	Pane that show information about this class in game screen
- Text spaceRuinsText	Text that will add to spaceRuinsPane

### 2.5.2 method

+spaceRuins(FixedPoint fixedPoint)	Constructor <ul style="list-style-type: none"><li>- Initialize fields</li><li>- Set this image form RenderableHolder.fixedSpaceObjectImages</li><li>- config properties of spaceRuinsObject and spaceRuinsPane</li><li>- add this object to RenderableHolder instance</li></ul>
+ void draw(Pane pane)	Add spacePirateShipObject, spacePirateShipPane to the children of pane
+ static Item giveItem ()	Random itemName and use it as argument to instance Item return this Item
- void setInformationLabel()	-Set properties of spaceRuinsText and spaceRuinsPane - add spaceRuinsText to spaceRuinsPane - set mouseAction handle for spaceRuinsObject to show spaceRuinsPane

## 2.7 Class SpaceStation extends FixedSpaceObject

### 2.7.1 field

- ImageView spaceStationObject	ImageVlew that will add to game screen
- Pane spaceStationPane	Pane that show information about this class in game screen
- Text spaceStationText	Text that will add to spaceStationPane

### 2.7.2 method

+spaceStation(FixedPoint fixedPoint)	Constructor <ul style="list-style-type: none"> <li>- Initialize fields</li> <li>- Set this image form RenderableHolder.fixedSpaceObjectImages</li> <li>- config properties of spaceStationObject and spaceStationPane</li> <li>- add this object to RenderableHolder instance</li> </ul>
+ void draw(Pane pane)	Add spaceStationObject, spaceStationPane to the children of pane
+ static void bonusPlayer (Player player)	<ul style="list-style-type: none"> <li>- add exp to player 33% form maxExp</li> <li>- Heal hp to player 33% from maxHp</li> </ul>
- void setInformationLabel()	<ul style="list-style-type: none"> <li>-Set properties of spaceStationText and spaceStationPane</li> <li>- add spaceStationText to spaceStationPane</li> <li>- set mouseAction handle for spaceStationObject to show spaceStationPane</li> </ul>

## 2.8 Class WarpGate extends FixedSpaceObject

### 2.8.1 field

- ImageView warpGateObject	ImageVlew that will add to game screen
- Pane warpGatePane	Pane that show information about this class in game screen
- Text warpGateText	Text that will add to warpGatePane

### 2.8.2 method

+warpGate(FixedPoint fixedPoint)	Constructor <ul style="list-style-type: none"> <li>- Initialize fields</li> <li>- Set this image form RenderableHolder.fixedSpaceObjectImages</li> <li>- config properties of warpGateObject and warpGatePane</li> <li>- add this object to RenderableHolder instance</li> </ul>
+ void draw(Pane pane)	Add warpGateObject, warpGatePane to the children of pane
- void setInformationLabel()	<ul style="list-style-type: none"> <li>-Set properties of warpGateText and warpGatePane</li> <li>- add warpGateText to warpGatePane</li> <li>- set mouseAction handle for warpGateObject to show warpGatePane</li> </ul>

## 3 Package logic.player

### 3.1 Class Player

### 3.1.1 field

- static Color[] playerColors	Color for each players
# String name	Name of player
# int number	Number of player
# boolean isLose	Is player lose, or not
# boolean isImprison	Is player imprisoned in blackhole, or not
# FixedPoint currentPoint	Current fixedPoint that player locate
# int level	Level of player
# int hp	Current health point of player
# int maxHp	Max health point of player
# int exp	Current exp point of player
# int maxExp	Max exp point of player
# defensePoint	Defence point of player
# int resource	Resource that player has
# SpaceShip spaceShip	Space ship of player
# ArrayList<Planet> capturedPlanets	List of planets that player own
# Item item	Item that player has
# Color color	Color of player
# int imprisonTurnLeft	Amount of turns to wait in blackhole
# PlayerStatusBar playerStatusBar	Status bar of player

### 3.1.2 method

+ Player (playerNumber)	<ul style="list-style-type: none"> <li>- initialise fields</li> <li>- set currentPoint to areaNumber = 0</li> <li>- Add new spaceShip and playerStatusBar</li> <li>- Add Item named "null"</li> </ul>
+ void addExp(int addedExp)	<ul style="list-style-type: none"> <li>-Add player exp</li> <li>- if new exp &gt;= max exp, up level this player</li> </ul>
+ void addHp(int addedHp)	<ul style="list-style-type: none"> <li>-Add player hp</li> <li>-if new hp &gt;= maxHp, setHp to maxHp instead</li> </ul>
+ void addResource(int resource)	-add player resource



+ void capturePlanet(Planet planet)	<ul style="list-style-type: none"> <li>- reduce player's resource by planet's constructionCost</li> <li>- Set planet's owner to this player</li> <li>- Add planet to capturePlanets of player</li> <li>- Multiply planet captureCost</li> <li>- Add exp to player</li> </ul>
+ ArrayList<Planet> getCapturedPlanets()	Return capturedPlanets
+ Color getColor()	Return player's color
+ FixedPoint getCurrentPoint()	Return currentPoint
+ int getExp()	Return exp
+ int getMaxExp()	Return maxExp
+ int getHp()	Return hp
+ int getMaxHp()	Return MaxHp
+ int getImprisonTurnLeft()	Return imprisonTurnLeft
+ Item getItem()	Return item
+ String getName()	Return name
+ int getNumber()	Return player's number
+ int getResource()	Return resource
+ SpaceShip getSpaceShip()	Return spaceShip
+ boolean isImprison()	Return isImprison
+ boolean isLose()	Return isLose
+ void levelUp()	<ul style="list-style-type: none"> <li>- add player's level by 1</li> <li>- -set new hp, maxHp, exp, maxExp, defensePoint, maxExp.</li> </ul>
+ int reduceHp(int attackPoint)	<ul style="list-style-type: none"> <li>- damage = attackPoint - this defensePoint</li> <li>- if(damage &gt; hp), this hp =0 and setLose to player</li> <li>- Else reduce hp by damage</li> <li>- Return damage</li> </ul>
+ void reduceImprisonTurnLeft()	<ul style="list-style-type: none"> <li>- reduce imprisonTurnLeft by 1</li> <li>- If (imprisonTurnLeft == 0), set isImprison to false</li> </ul>
+ void reduceResourese(int reducedRes)	<ul style="list-style-type: none"> <li>- reduce player's resource by reducedRes</li> <li>- If reducedRes &gt; player's resource, set player resource = 0</li> </ul>
+ void updateCurrentPoint()	- set player's currentPoint to spaceShip's currentPoint
+ void setItem(Item item)	- set item

+ void setImprison(boolean isImprison)	- set isImprison
+ void setLose()	- set isLose to true and run loseSound
+ int getLevel()	Get level
+ int getDefensePoint()	Get defensePoint
+ PlayerStatusBar getPlayerStatusBar()	Get playerStatusBar

### 3.2 Class BotPlayer extends Player

#### 3.2.2 method

+ BotPlayer(int playerNumber)	- initialise field
+ boolean dicideCapture()	- decide to capture planet - Return true if (resource/3 >= planet's captureCost), else return false
+ boolean dicideConstruct()	- decide to construct building - Return true if (resource/5 >= planet's constructCost), else return false
+ boolean dicideUpgrade()	- decide to upgradeBuilding - Return true if (resource/5 >= building's upgradeCost), else return false
+ int dicideWarpDestination()	- decide which planet to warp - Return areaNumber of fixedPoint of warp destination

### 3.3 Class SpaceShip extends SpaceObject

#### 3.3.1 field

- FixedPoint currentPoint	Current fixedPoint where spaceShip locate
- int height	Height of imageView spaceShipObject
- int width	Width of imageView spaceShipObject
- ImageView spaceShipObject	ImageView of spaceShip that will add to pane

#### 3.3.2 method

+ SpaceShip(Player player)	- initialise fields - Set currentPoint to fixedPoint number 0 - Set spaceShipObject image and properties - Add this to RenderableHolder
+ void draw(Pane gameScreen)	Add spaceShipObject to gameScreen

+ void move()	Set this currentPoint to the next FixedPoint and update this class
+ void warp(FixedPoint fixedPoint)	Set currentPoint to fixedPoint and update this class
+ void update()	- set layoutX,Y of spaceShipObject to this x,y
+ ImageView getSpaceShipObject()	Return spaceShipObject

### 3.4 Class Item

#### 3.4.1 fields

- String name	Item name
- static String[] itemNameList	List of all item names
+ static String[] instantItemNameList	List of all instant item names

#### 3.4.2 method

+ Item(String name)	- initialise field
+ static String randomItemPerFrame()	- random item name string from itemNameList
+ String getName()	- return name
+ static void activeInstantEffect(Player player,Item item)	Active instant item effect to player, use itemName switch-case to select which effect to active

## 4 Package sharedObject

### 4.1 Interface Renderable

#### 4.1.2 method

+ int getZ()	Abstract method - return z
+ void draw(Pane gameScreen)	Abstract method - add object to gameScreen
+ boolean isVisible()	Abstract method - return visible

### 4.2 Class RenderableHolder

#### 4.2.1 fields

- static final RenderableHolder instance	Singleton of RenderableHolder
- List<Renderable> renderableObjects	List of renderable objects
- Comparator<Renderable> comparator	Comparator to compare renderable object
+ static ArrayList<Image> fixedSpaceObjectImages	List of fixedSpaceObjectImage

+ static ArrayList<Image> spaceShipImages	List of spaceShipImage
+ static ArrayList<Image> diceFacelImages	List of dice face image
+ static ArrayList<Image> buildingImages	List of buildingImage
+ static ArrayList<Image> diceValueAudioes	List of diceValueSound
+ static AudioClip alienSound, + static AudioClip blackholeSound, + static AudioClip damageSound, + static AudioClip getItemSound, + static AudioClip instantSound, + static AudioClip loseSound, + static AudioClip pirateSound, + static AudioClip useItemSound, + static AudioClip warpSound, + static AudioClip constructSound, + static AudioClip captureSound, + static AudioClip upgradeSound, + static AudioClip bonusSound,	Audio clips of game event
+ static Image gameSceneBg	Image of game screen background
+ static String[] fixedSpaceObjectLoadingList	List of file name string of fixedSpaceObject images

#### 4.2.2 method

+ RenderableHolder()	- initialise fields
+ static void loadResource	- load all image and audio files to class fields using loop for form loadingList or exact file number
+ List<Renderable> getRenderableObjects()	Return renderableObjects
+ static RenderableHolder getInstance	Return instance of RenderableHolder
+ static void loadFileFailedAlert(String fileName)	Show alert when load file fail
+ static ArrayList<Image> getFixedSpaceObjectImages	Return fixedSpaceObjectImages
+ static ArrayList<Image> getBuildingImages	Return buildingImages
+ static ArrayList<Image> getDiceFacelImages	Return diceFacelImages

## 5 Package GUI

### 5.1 Class Dice extends ImageView

#### 5.1.1 Field

- int dicePoint	Use to show the value of the dice.
- Image diceFace	Contain and show the dice face.

#### 5.1.2 Constructor

+ Dice(int diceNumber)	Set prefwidth = 100 and prefHeight = 100 If diceNumber = 1, Set LayoutX = 400 If diceNumber = 2, Set LayoutX = 600 Set LayoutY = 350 Call randomPerFrame() to set dicePoint and diceFace.
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#### 5.1.3 Methods

+ int randomPerFrame()	Use random to set dicePoint. Set diceFace to match the dicePoint. Return value of the dicePoint
Generate int value getter	

### 5.2 Class DiceButton extends Button

#### 5.2.1 Constructor

+ DiceButton(String name)	Set text , set Alignment , set Layout , setprefSide, set style , set tooltip and set Cursor of this button. Use InputUtility.confirmClick() when click the button.
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### 5.3 Class DictionBox extends Alert

#### 5.3.1 Field

+ ButtonType yes,no;	Use to set button for DictionBox
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#### 5.3.2 Constructor

+DicisionBox(Player player,String type)	Set Alert type and use setContent(). Add ButtonType yes,no in DictionBox
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#### 5.3.3 Methods

- void setContent(Player player,String type)	set Title and Content in DictionBox by using type.
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### 5.4 Class GameScreen extends Pane

#### 5.4.1 Constructor

+ GameScreen()	Set prefSide to (1080, 720 ) and set visible. Use RenderableHolder to set the blackground.
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#### 5.4.2 Methods

+ void drawAllComponent()	Draw every object that in List<Renderable> renderableObjects to the GameScreen
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### 5.5 Class GameStatusBar extends VBox implements Renderable

#### 5.5.1 Field

- int z	z = 5
- VBox gameStatusVBox	Show in gameManager
- Label showRound	Show round that game played.
- Label playerBox	Show player name's turn.

### 5.5.2 Constructor

+ GameStatusBar(GameManager gameManager)	Set PrefSize ,Layout , Alignment and color of gameStatusVBox. Set Label text and style in showRound and playerBox and add in to gameStatusVBox.
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### 5.5.3 Methods

+ int getZ()	Return value of z
+ void draw(Pane gameScreen)	Add this in to gameScreen.
+void update(GameThread gameThread)	Change Round, player, and gameStatusVBox color.

## 5.6 class HomePane extends Pane

### 5.6.1 Field

- String ButtonStyle	Contain css comman.(use in setstyle).
- Button p1,p2,p3,p4,QuitButton	Use to show in this pane.

### 5.6.2 Constructor

+ HomePane()	Set this pane. Add all button in pane and setStyle use ButtonStyle.
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## 5.7 Class InformationPane extends Pane

### 5.7.1 Field

- Player player	Use to fill in infor.(such as resource etc.)
- String type	Use in SetContent().
- int value	Use to fill in infor.
- String itemName	Use to fill in infor.
- Label infor	Lable that add in InformationPane.

### 5.7.2 Constructor

+ InformationPane(Player player,String type)	Initialize fields and use SetContent().
+ InformationPane(Player player,String type,int value)	Initialize fields and use SetContent().
+ InformationPane(Player player,String type,String itemName)	Initialize fields and use SetContent().

### 5.7.3 Methods

- void SetContent()	Use type to set text in infor in each case.
Generate getter of all fields	

## 5.8 Class PlayerStatusBar extends VBox implements Renderable

### 5.8.1 Field

- Player player	Use player porperties to show in VBox
# int z	z = 5
# boolean visible,destroyed;	Set visible = true , set destroyed = false
- Label nameLabel,HpLabel,ExpLabel,defResource,Item	Use to add in VBox.
- ProgressBar HpBar,ExpBar	Use to add in VBox.

### 5.8.2 Constructor

+ PlayerStatusBar(Player player)	Initialize fields and add in to PlayerStatusBar. Use SetLayout(player.getNumber());
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### 5.8.3 Methods

- void SetLayout(int playerNumber)	Set layout use case(playerNumber)
+ int getZ()	Return value of z
+ void draw(Pane gameScreen)	Add this in to gameScreen.
+void update(GameThread gameThread)	Change all Label text in class related to player.

## 6.Package input

### 6.1 Class InputUtility

#### 6.1.1 Field

- static boolean isConfirmClick	isConfirmClick = false
- static boolean isCancelClick	isCancelClick = false
- static int SelectedPlanetNumber	SelectedPlanetNumber = 0

#### 6.1.2 Methods

+ static void updateInputState()	Set - isConfirmClick = false - isCancelClick = false - SelectedPlanetNumber = 0
+ static void confirmClick()	Set isConfirmClick = true
+ static void cancelClick()	Set isCancelClick = false
+ static boolean isConfirmClick()	Return isConfirmClick
+ static boolean isCancelClick()	Return isCancelClick
Generate getter of all fields	

## 7 Package main

### 7.1 Class main

#### 7.1.1 Field

- GameManager gameManager	Use to manage game.
- int playerNum	Get number of player
- AudioClip sound	Background sound

#### 7.1.2 Methods

+ void start(Stage window) throws InterruptedException	-Initialize field -show window
static void main(String[] args)	- main application
+ void setHomeSceneButton(HomePane Home, Stage window)	- set action to the button in HomePane - return int and save to playerNum - use initializeGame();
- void initializeGame(int playerNum, Stage window)	- run gameThread and set scene to