


Onsite Case	
JavaH4Project	
<b>Periode Berlaku</b> New Recruitment Assistant 19-2 <i>Valid on New Recruitment Assistant 19-2</i>	<b>Software Laboratory Center</b> <b>Assistant Recruitment 19-2</b>

## Materi

*Material*

- Introduction to JAVA 2D
- Multithreading
- Synchronized
- Thread and Runnable (FPS)
- Sound, Animation, Video, etc

## Soal

*Case*

### adventing waRZ

**adventing waRZ** is a strategy game where player must conquer the enemies. There are 2 ways to win the game:

1. Defeat all units before they spawn again.
2. Reach the enemies headquarter (HQ)

## Menu Scene

In this scene, show the **game title**, the **objectives**, and the **button “Play Now”**. When the button is pressed, **start the game**.

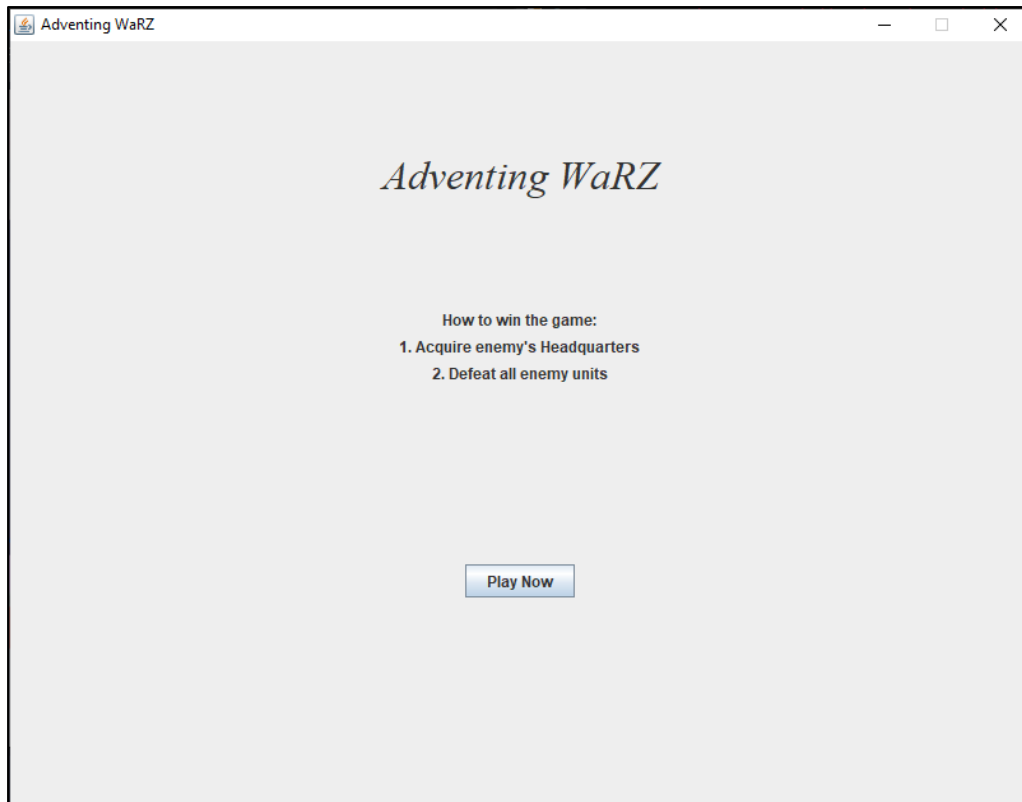


Figure 1. Menu Scene

## Game Scene

The map is 12x12 tiles generated by using "map.txt" with the following as a legend:



Figure 2. Legends

Note:

1. There must be **only 1 Headquarters** for each player.
2. Units are **spawned randomly** between infantry and mech.

The following are details of each tiles and units:

### Units



Figure 3. Game Preview

#### 1. Infantry

- a. Move range: 4
- b. Attack damage: 3 – 8
- c. Health: 13



#### 2. Mech

- a. Move range: 3
- b. Attack damage: 5 – 10
- c. Health: 10



### Lands

#### 1. Hill

- a. Can't be passed.



#### 2. Forest

- a. Cost 2 movement to move into the forest.



#### 3. Plain

- a. Just an empty land.



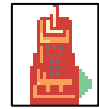
#### 4. City

- Units are **spawned** in city at player's starting phase.
- If city has unit on it, then it won't spawn any more unit.
- Units are **spawned randomly** between infantry and mech.



#### 5. Headquarters (HQ)

- Each player only has 1 Headquarter.
- Player loses if an enemy unit **reached Headquarter** and the otherwise



### Gameplay

When player clicks a unit, **show** the unit's details (health & remaining move).

There are 4 buttons in the game:

#### 1. Move

- Show the unit's available destination, by **highlighting** the possible tiles.
- Player can only choose the empty tile.
- When player click the green tiles, unit will **move** to chosen tile and reduce the unit's remaining movement.
- If the chosen tile has an enemy nearby, the unit will automatically go to attack mode.



Figure 4. Pressing the move button



Figure 5. Unit showing target after reached destination

#### 2. Attack

- Show unit's available target within 1 range.
- Player can only choose a tile that **has an enemy**.

- c. After choosing tile, unit will deal damage to target enemy. If the target's health reached 0, show explosion animation.



Figure 6. Unit exploded when their health reached 0

### 3. Cancel

- a. Remove all highlighted tiles and remove unit's details.
- b. **All buttons will be disabled** until player choose another idle unit.

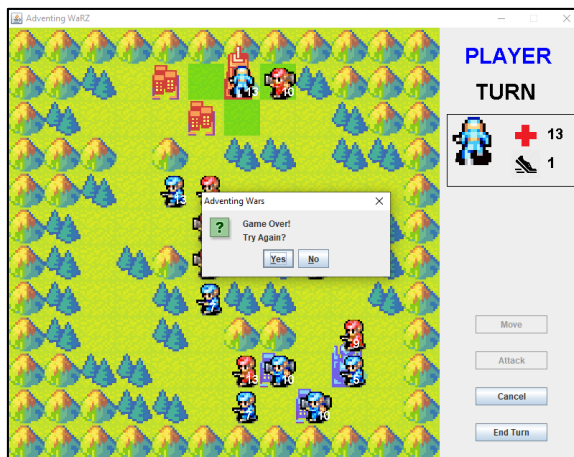


Figure 7. Player wins by reaching the enemies Headquarter

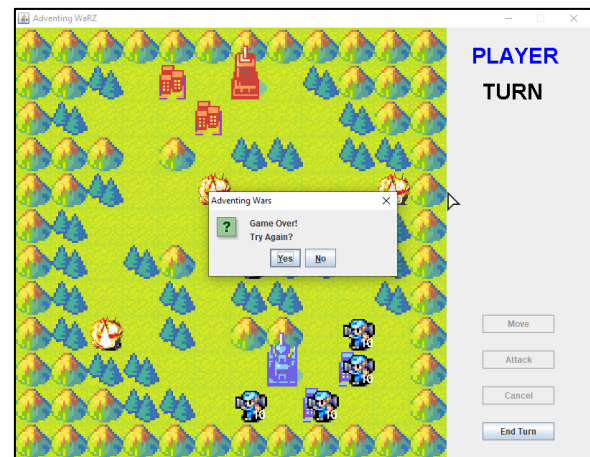


Figure 8. Player wins by defeating all enemy units before they spawn

### 4. End Turn

- a. End the player's turn.

## Enemy

1. The enemy unit's goal is to **reach the HQ**.
2. **Use DIJKSTRA's algorithm** to calculate the path needed for the unit to reach the HQ.
3. Unit will always move to their **farthest point** possible.
4. Unit will only attack player's unit **if they detected player's unit** in their destination.
5. Unit **cannot pass player's unit**, and will find another route to reach the HQ.

6. Enemy’s turn ends when all units have moved.

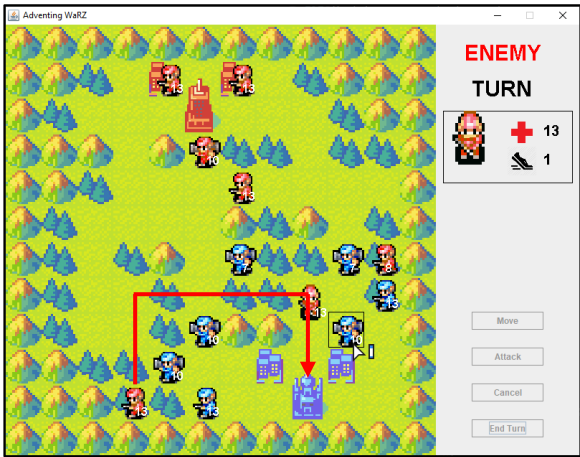


Figure 9. Enemy will choose a path that is not blocked



Figure 10. Enemy unit will attack player after moving to destination

Komponen

Component

Criteria	Score
Tiles	16
Movement	35
Animation	14
Lands	17
Game Logic	18

*Please run the EXE file to see the sample program.*