Tampere University

TIE - 02402 Ohjelmointi 3: Tekniikat / TIE - 02408 Programming 3: Techniques

Course Project: NowItWent

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December 6, 2020

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1 Background Story

The unknown authority has invaded the city of Tampere as a part of their larger plan. They have taken over the public transportation of Tampere city to move their troops. They have also taken over the Näsinneula tower and set up an air defense base there. You will be sent on the mission by helicopter from where your object is to destroy buses by shooting grenades at them. Since the enemy has upgraded the buses with bulletproof shields, shooting the window of the bus is the only way to eliminate the bus. Be aware of the enemy's air defense. Good luck.

2 Game Rules

The goal of the game is to get as many points and get high shooting accuracy(%) within a limited time. To reach the goal, you need to destroy buses by shooting the bus window. The game points are calculated by equation 1, and the shooting accuracy is calculated by equation 2.

$$game\ points = 3 * destroyed\ bus + 1 * passengers\ in\ the\ bus \tag{1}$$

$$shooting\ accuracy = shot\ hit\ the\ bus\ /\ total\ shots \tag{2}$$

Also, enemies are protecting themselves by shooting the missile in a random direction from the Näsinneula tower. If a missile hits your gun sight (circle area), the game is over.

3 Game Controls

You can move the gun by pressing the following keys: A(left), S(down), W(up), D(right). You can shoot the gun by pressing key L.
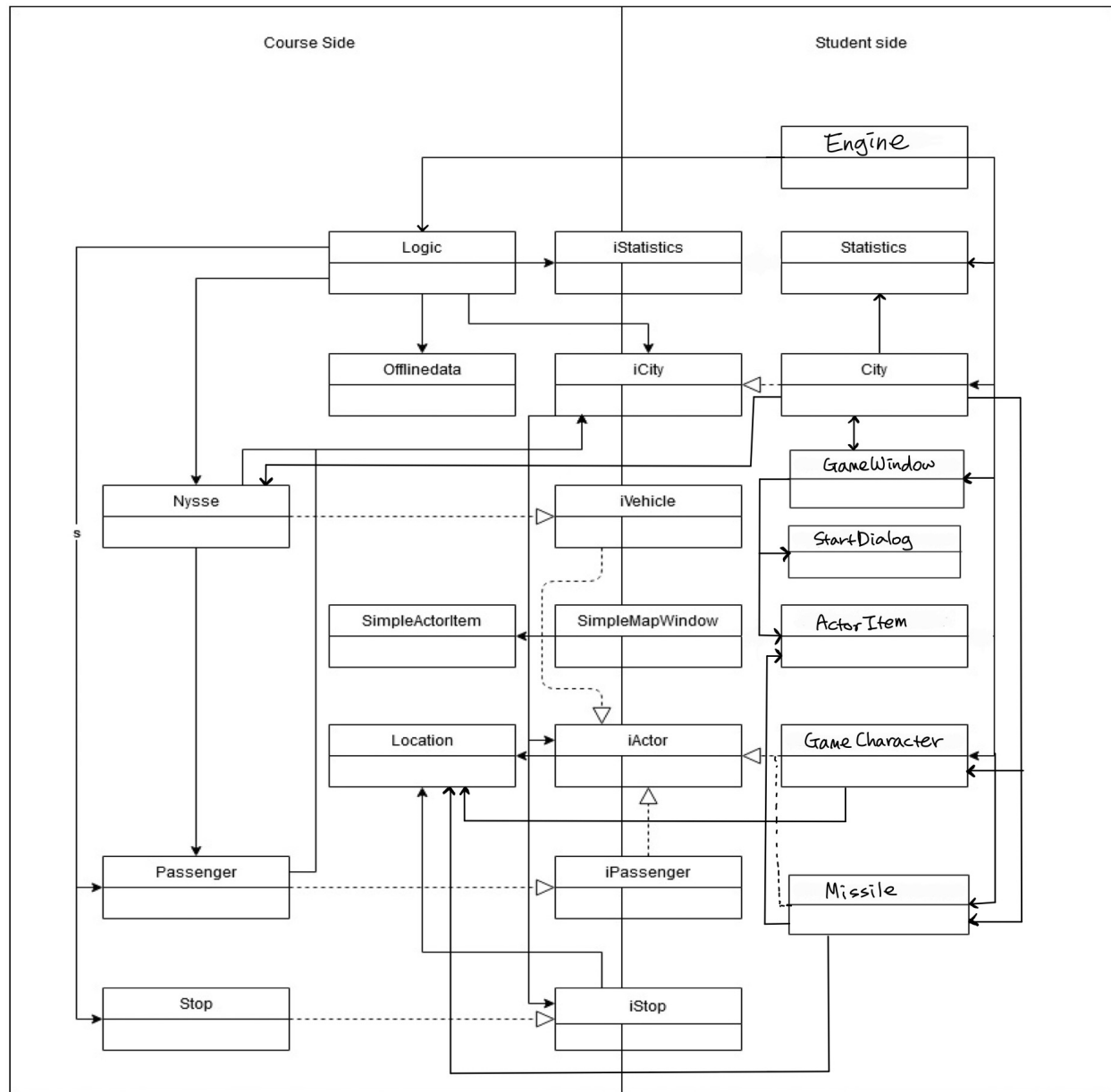
4 Class Responsibilities

Figure 1: Class Diagram

A brief description of classes is on the table 1.

Class Name	Description
Engine	providing necessary resources for the game
Statistics	operations for handling statistics data
City	operations for handling game characters in the game
GameWindow	operations of the game window ui
StartDialog	the dialog for the starting game
ActorItem	drawing and setting the actor item (= an object acting in the game)
GameCharacter	operations for the gamecharacter that user uses in the game
Missile	operations for handling missile in the game

Table 1: Class Description

5   Project Functionality

CourseSide Logic class provides the information of actors in the game. From that class, City class methods are called in order to add actors in the game and move the actors in the game. City class is calling the methods of GameWindow class to draw actors in the right position. GameCharacter (playable figure) and Missile (additional unique actor) class are offering methods for the special actors on the game. Since they are inherited from CourseSide IActor, special actors are able to interact easily with CourseSide actors.

6   Division of Labour

Mainly, We divided teamwork according to the classes. The agreed division of work was planned as the following description.

- JoriRintakangas : CreateGame, Statistics, City
- Ayoung: StartDialog, GameWindow, BusStopItem
- Both: GameCharacter

While developing the game, we decide to change the game mechanism, so we divided the workload in different ways. The actual division of work is shown in the following description.

- Jori Rintakangas : Engine, City, and GameCharacter class
(Unit test and exception handling are also implemented by Jori)
- Ayoug Kim : GameWindow, ActorItem, StartDialogue, Statistics, and Missile class
(PDF documentation is done by Ayoung)

However, we did not strictly restrict each person's role in the classes. In other words, if someone struggled with problems, we tried to solve them together and made the project move forward.

7   Additional Features (2)

- Passenger amounts. The amounts of passengers on the busses and the bus stops is shown on the map.
- Following the game state. Statistics collected during the game are shown in real time in the main window.

8   Known Bugs or Missing Features

- Once the tower stopped shooting missile item in the middle of the game. This happened only once during the whole project period, and we could not find out what makes this happened.