

The Document of Tampere Adventure

Ruiying Yang, Haochen Zong, Junyuan Fang

11/22/2020

1. Game Overview

1.1 Game Name

Tampere Adventure

1.2 Game Concept

In Tampere Adventure, players control a penguin, a newcomer to Tampere who received the letter of admission from Tampere University (TAU). They must escape by destroying hostile monsters, avoiding traps and obtain the necessary items to register successfully at TAU.

1.3 Genre

side-scrolling role-playing game

1.4 Game Flow Summary

It's a linear game with three main scenes and some assisted scenes.

2. Game Mechanics

2.1 Game-rules

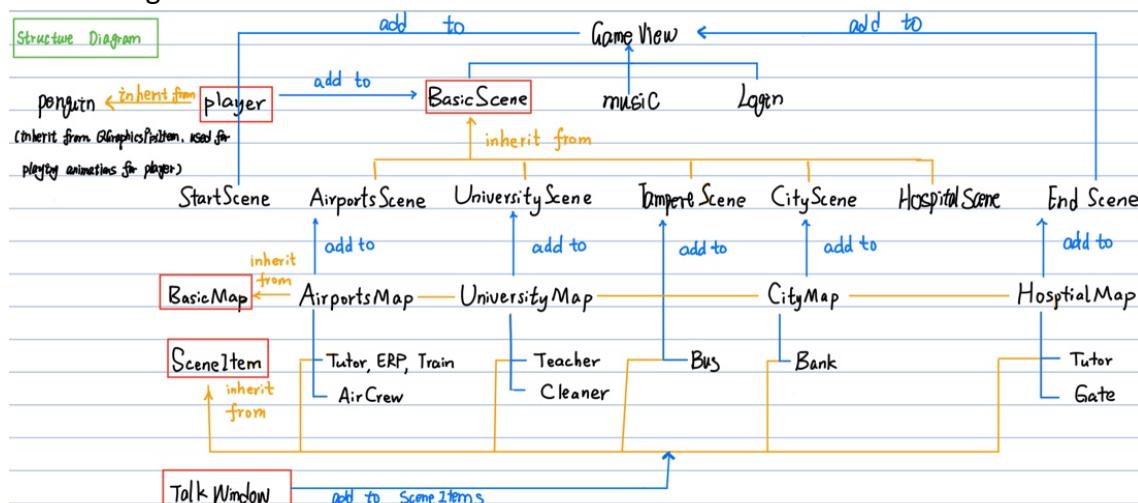
- move your character in the scenes to find a new way
- talk with NPCs to get important information
- battle against monsters to avoid death

2.2 Game-controls

- move left and right with the "arrow" keys
- jump with the "space" key. The height of jump depends on the time of pressing "space"
- talk with NPCs by clicking mouse
- attack monsters with the "a" key

3. Software Structure

3.1 Structure Diagram



3.2 Project Functionality

- Player can interact with objects: jump, move, die, battle with enemies, chat with NPCs
- Player can interact with scenes: get bank card at the bank, take train in the airport, take different buses in Tampere

4. Classes

4.1 Responsibilities of the key classes

- Player:
 - 1) Store player's current position, status(move, stand, ...) and directions(move left or right)
 - 2) Store player's current map(which map the player is current in: city, university or others)
 - 3) Check if player is on ground, at ceiling, or pushing the block, according to current map,
 - 4) Update player's status and play different animation, according to 3)
- BasicScene:
 - 1) Connect scene and QTimer to update the scene
 - 2) Provide virtual function for child class to use, such as functions for initializing scene, adding enemies, adding QGraphicsItems
- BasicMap:
 - 1) Store types for all tiles in the map by reading csv files
 - 2) Convert scene coordinates into tile index, vice versa
 - 3) Return the tile type, given scene coordinates
 - 4) Store all the NPCs' position
- GameView:
 - 1) Set current background music and current scene the player is in
 - 2) Connect signals of different scenes and the slots in this class to switch current scene and it's corresponding BGM

4.2 UniTests

- Map:
 - 1) Made data-driven test for university, airport, city, hospital, which match to Game's class : UniversityMap, AirportMap, CityMap, HospitalMap
 - 2) Made 4 different classes for testing: UniversityMapTest, AirportMapTest, CityMapTest, HospitalMapTest
 - 3) Each of those unit-test's class has method: void object_in_map(), void object_in_map_data(), because different map's GraphicsItems are different, so we need to fetch different objects from the data, and check those items' location to ensure that they are not out of the map
- Window:
 - 1) Made GUI test to detect mouse's clicking event.
 - 2) The class in Game sub-project, BusWindow and LoginWindow are tested.
 - 3) Made 2 different classes for testing: BusWindowTest, LoginWindowTest.
 - 4) In BusWindowTest, we tested 3 QPushButtons: EndButton, LeftButton, RightButton:
After pressing BusWindow's "end button", BusWindow closes.
After pressing BusWindow's "left/right button", place changing will success.
 - 5) LoginWindowTest, we tested 2 QPushButtons: CancelButton, StartButton:
After pressing LoginWindow's "cancel button", Login dialog closes
After pressing LoginWindow's start button", gameView's scene turns to start.

- GameView:
made 1 class: "gameViewTest" to check whether switch of different scenes is successful.

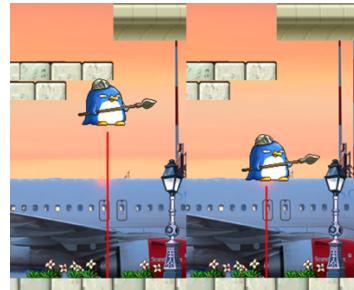
5. Additional features*

* The virtual machine of Tampere University doesn't support music playing. They are audible on Win/Mac Qt

5.1 Character

5.1.1 Player

- 1) Higher and nomal jump

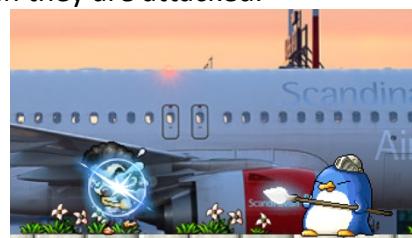


- 2) The penguin has different animation when it is walking, attacking or being killed.



5.1.2 Enemy

- 1) Enemies would kill the player character.
- 2) Enemies would be killed by the player character.
- 3) Enemies have the effect when they are attacked.



- 4) All of enemies would be revived when player changes scenes.
- 5) Two kinds of enemies.



5.2 Scenes

- 1) Main scenes: airport scene, city scene and university scene (player can input)
- 2) Assistance scenes: tampere scene, hospital scene (player cannot input)
- 3) Other scenes: start scene and end scene

5.2.1 Features in all scenes

- 1) The penguin has sound effects of attack, jump and die.
- 2) Add background music.
- 3) The player character can not pass the scenes' boundaries.
- 4) Background, terrain, enemies, NPCs would move when the player character moves. Those objects and background are in long or medium shot so their moving speed is less than the player character.
- 5) The transition of main scene and assistant scene would be triggered by the player character. They are shown as: choosing bus routes, bus moving to its destination, the player character dies.

5.2.2 Features in opening cinematic

- 1) Qdialog shows after splash screen. Then, the opening cinematic starts.



- 2) The opening cinematic consists of four pictures. Each of them has its own prologue. Each prologue ends, the next picture would show.

- 3) Four pictures changes like turning pages.



5.2.3 Features in the scene of Tampere

Given the starting and ending points' coordinates, the bus would move along the connection line with correct angle.



5.3 Objects

5.3.1 NPCs

- 1) NPCs have their own animation.
- 2) NPCs can talk with player (The figures are shown on the next page).
 - The chat could be run forward or back.
 - The mouse would change its appearance when clicking buttons, from arrow to hand.
 - School teacher has two kinds of animation: talking and being quiet.
 - School teacher (right figure) and tutor in hospital (left figure) have different scripts based on player's situation.

5.3.2 Movable objects

- 1) Bus: player chooses bus route and the bus can move on the map of Tampere freely (the left figure below).



- 2) Train: the train can move in the airport. Before boarding the train, the player character can't walk on the track because of the transparent wall. During this process, the player character would be invisible and its movement would be locked (the right figure above).



5.3.3 Tiles

There are three types of tiles: blocks, platforms and none tiles. Player character can move on platform; stop by blocks; fall on none tiles.

6. Division of labour

- Ruiying Yang: created classes for characters, NPCs objects, movable objects, main scenes; background story design, level design, GUI design (Qdialog); script writer; documentation
- Haochen Zong: created classes for tiles objects; added animation for objects, assistant scenes; materials collection; background story design, level design; music and image synthesis; dubbing; script writer; documentation
- Junyuan Fang: uniTest sub-project for all classes, exception handling, documentation(4.2 UniTests)

7. Bugs and Missing Features

1) The chat box would not be closed if the player character leave the bank, bus stop within a distance, even if player click “end” button. The reason is that the program always shows the chat box if the player character is or less than one tile from bank or bus stop. “End” could not stop this process unless the distance is more than one tile.

2) The penguin would hid some part of the chat box.

