Bilkent University

Department of Computer Engineering

Object-Oriented Software Engineering Project

CS 319 Project: Rush Hour

Final Report

Project Group: Quintuple Whopper

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1. Introduction

At this point, we have finished Level, Vehicle and Car classes. We can create vehicles, levels. We can put these vehicles on the map and move them. However, we could not begin the GUI part. It is far from being finished, nevertheless, we have been making rapid progress. There are also some missing parts that we are working on such as database, special levels and user interface as mentioned earlier.

2. Design Changes

Generally, we kept the previous design we have mentioned earlier, but some of the methods and variables are changed in the implementation process. We also had to add some methods that we could not think before.

Probably there will be several changes in the design, because, we have only focused on the levels and vehicles, not on the GUI, database or special levels. Especially, special level part is such a modifiable part. We can add several features that we did not mention before to the special levels.

3. Lessons Learnt

At each part of the project we have learned new lessons which can be pretty useful in the future. Firstly, we have learned that task sharing is crucial for our project. All members of the group have different skill sets, and it is ideal to make sure that everyone uses their strong sides for a better end result. But this also means that everyone will have different opinions about the functioning of the game, thus we have to compromise and reach a common point. Since we are adapting a board game to computers, we had the analyze the board game properly to meet the expected requirements from a computer version. In this analysis part we have experienced some divergence on game mechanism and we dissolved this by exchanging ideas and not just obsessing on our own opinions but also asking what a user would expect from the game.

At the design process we had to work together to form a stronger perspective of a final object design. Distributing roles at this part could result in a weaker design. In this part we have learned more about creating a useful architecture and managing subsystems to form a sensible system and became aware of how critical the design will be for the implementation process.

Architecture of our system came in very handy at the implementation process. There weren’t any vital changes needed thanks to the efficient architecture. We have added much to our knowledge on Java,

and we have learned how to use GitHub more efficiently for the project. However, we have realized that we attached less importance to GUI than we should have. Right now we are stuck at the GUI part and this taught us that a project like ours is pointless without a proper GUI. Thanks to our experiences in this project it will be easier for us to overcome this problem.

4. User's Guide

4.1 System Requirements & Installation

Our game Rush Hour does not require high system requirements. Any computer that has java in it will be able to run it. The game can be downloaded from our GitHub page. (https://github.com/aatahanm/1C_CS319Project_RushHour). The game can be played clicking the jar file of the game. Furthermore, if the user wishes to see the code and make some changes on it. They can download a java IDE(NetBeans, Eclipse, IntelliJIdea etc.) open the game as a project and change the code or review it as they wish. After compiling and running the game in IDE they will be able to play it.

4.2 How to Use

When you open the game the main menu will show up first. It will contain 3 options "Play", "How to Play" and "Show Credits". Furthermore there will be 2 icons on the bottom 1 for sound and the other for music. The user will be able to click on them to toggle them on or off. Music is for the theme music and sound is for the game sound effects such as clicking or moving the cars. If the user clicks on the "Play" button it will take the user to a level select screen where the passed levels and locked levels will be shown. If the user moves the cursor on a passed level it will show the best time for that level. There will be a back to menu button on the right bottom corner which will take the user back to the main menu. If the user clicks on a unlocked level, that level will start. If the player clicks on an locked level a notification that says "You have to pass the previous level to play this level" will pop up. In the main menu, if the user clicks on "Show Credit" name of our project group members will be shown. If the button "How to Play" is clicked a small notification window will appear which describes the game in text. In the bottom there will be a bottom that says "Play Tutorial" on the notification window. When clicked it will direct the player to a tutorial screen. In this tutorial screen the game will describe how the game functions and what are the rules with pop up text that appear on the game board. The game screen will contain a board where the cars will be placed. On the right side of the board there will be a time and move counter displayer. Which will show how much time passed and how many moves the user made. Below the move displayer there will be a "Select Level" button which will take the user to level selecting screen. Below "Select Level" button there will be 2 buttons next to each other. One will take the user back to main screen and the other will restart the level. While playing the game, the user will have to click on the vehicle they want to move. After that 2 cursors will appear showing the possible move options the selected car has. The user will choose one of them and the car will move to that direction 1 tile. When the red car reaches the exit a notification window will appear saying the player passed the level. It will have 2

options at the bottom of the notification window which are “Back to Main Menu” and “Play Next Level”. As their name implies “Back to main Menu“ will take the user to main menu and “Play Next Level” will initialise the next level for the board.