March 2, 2023 ◇ Thursday ◇ — The beginning

Project diary Created the project diary using latex and the jwjournal class. Dealing with the class was originally tedious, since it was written only two months ago and is not supported by Overleaf.

Game concept Decided that we should reproduce the existing Nintendo Switch game *Super One More Jump*. Other suggestions were *Super Mario Bros* and *Oh...Sir! The Hollywood Roast*.

March 3, 2023 ◇ Friday ◇ — Brainstorming

Name Suggestions Mind the Gap, Rainbow Edition; Leap of Colour; Hue Hop; Colourful Heights; Hues in the Air

Game concept The idea has emerged to create additional objects in the game, for example, a block that reassigns the colors in the level when it is reached, so that players have to relearn the level. However, since these special items are not essential for the game to work, they should be added optionally only at the end of the game's production. Another idea was to create "maze" levels: instead of just having levels that are difficult to complete, some of them could have the added difficulty of finding the exit. This idea would not require any additional implementation of code.

March 7, 2023 ◇ Tuesday ◇ — Preparation Milestone 1

Project plan Finalised Gantt Chart with more specific tasks.

Presentation Division of responsibilities and preparation of the presentation of the first milestone.

Repository Creation of a README file.

March 15, 2023 ◇ Wednesday ◇ — Exercise class

Current Progress Functioning server and client are implemented. Chat function and possibility of setting and changing a username exist. Network protocol already contains several commands mainly pertaining to the sending of messages and the username functionality.

What was worked on Encryption and decryption of messages sent between client and server, creation of a lobby, further username functionality, started implementing ping messages between client and server.

March 17, 2023 ◇ Friday ◇ — End of week update

Current Progress Debugging and reformatting mostly related to chat function and encryption, making first attempts at a GUI, started to work on a lobby.

March 21, 2023 ◇ Tuesday ◇ — Goal Discussion for Milestone 2

Discussion We discussed various aspects that needed to be worked on for the second milestone and how existing bugs in out code could be fixed (for example the server exhibited odd behaviors when clients disconnected, i.e there are issues with the ping messages). Evaluated our progress and what needed to be done for the next milestone.

TO DO Milestone 2 Validation of messages, Logout, Ping (Nils), Protocol Document and QA Concept: One page long concept on JUnit tests etc. (Jiri), Human Modem and Elephant in the Room (Eliot).

March 22, 2023 ◇ Wednesday ◇ — Exercise class

Current Progress Network Protocol documentation has been uploaded.

What was worked on Modified chat commands and user interaction with the chat, remodelled ping functionality so that disconnects are handled meaningfully from the server side.

March 24, 2023 ◇ Friday ◇ — End of week update

Current Progress Program can be launched from Main.java, fixed bugs related to null messages being sent between client and server, finalised ping functionality (client also handles disconnects meaningfully)

Overall progress evaluation Until now we have reached our goals on time and successfully. We have a functioning client-server architecture with chat, lobby and other features. We are even starting to experiment with a GUI and learning how to code the visual aspects of the game, which puts us somewhat ahead of the milestone goals. Next steps would be to start programming the game logic and mechanics and start thinking more seriously about the visuals.

April 3, 2023 ◇ Monday ◇ — The birth of a GUI

Current progress We have created a basic Graphical User Interface through which the user will be able to connect to the user. We are still getting to learn how Javafx works, until now we have mainly worked on creating a GUI more than connecting it to the server.

Jiri has started working on a game, creating a game class and a cube class containing what we expect the cube to need.

April 6, 2023 ◇ Thursday ◇ — Game Logic disccussion

Current progress Everyone has kept on working on their part of the GUI. The client can now connect to the server when the connect button is clicked on the login page, we have however not created a "main window" yet. In the game, the player can detect collisions and move around if the arrow keys are pressed. The whole thing is a little buggy, however, and collisions aren't quite reliable.

Discussion We discussed how the game logic will be implemented. This includes how jumps will work, how we could detect and implement rotations around block, and how gravity changes will be made.

April 9, 2023 ◇ Sunday ◇ — Easter weekend update

Nils & Jiri Developed a working prototype for the game: levels can be loaded from external files, a cube can then move on the levels (collisions are detected).

TODO: only display a given amount of blocks on the map regardless of how big the window is, make cube movements reproducible, implement game logic.

Jennifer Designed levels

Eliot Created the GUI for the menu. The user can now connect to the server via a login screen, once connected a menu screen appears, in which three tabs are available: home, game, settings. The home and settings tabs are somewhat finished, the game tab hasn't been created yet. The user gets feedback from the program when actions are performed: confirmation messages appear when their username was changed, error messages if it couldn't be changed, etc.

TODO: create a lobby window for when the user is connected to a lobby, from which users can start a game. Find an intuitive implementation of the *whisper* functionality. Redesign the mute buttons in the settings pane.

Note: the GUI somewhat lacks appeal; since most backgrounds are grey, it feels a little generic. Some tweaks have to made to make it more attractive for the user (add title, colour tabs?).

April 13, 2023 ◇ Thursday ◇ — An online game pt. 1

Current progress The players now have a fully functional window, in which they can chat, create lobbies and start games (we haven't had time to test all functionalities yet, so it could be that some bugs are hiding somewhere). When the players are in a lobby, they can "Toggle Ready", and if all have done so,

a game is started. Their game version are however not synced together yet, and the game is not displayed correctly onscreen.

TODO Make the game work online, so create a reference game instance on the server, display the game correctly, store a game list on the server.

April 15, 2023 ◇ Saturday ◇ — An online game pt. 2

Current progress Started implementing methods and protocol commands which will send information about the game state from the server to the client and requests for actions such as jumping and pausing the game from the client to the server.

April 16, 2023 ◇ Sunday ◇ — An online game pt. 3

Current progress The game runs fully on the server now. The client now only displays the game and updates the position of the cube with the information that it receives from the server. When a client wants to jump or pause the game, a request is sent to the server. All clients receive the same data from the server and thus the game looks the same for everyone.

Problems We found that the collision system did not work properly on the server for some reason, so we had to completely rework the way in which collisions are handled. It's still not perfect and somewhat buggy at times, but the cube does what it is supposed to do in terms of knowing when it is colliding with a wall, when it needs to change gravity etc.

TO DO Presentation Create the presentation and demo level. Assign speaking roles and determine structure of presentation.

April 24, 2023 ◇ Monday ◇ — Starting to see the light at the end of the tunnel

Code Improvements Finished reworking collisions, the cube now moves normally and can switch gravitation easily. The platforms in the level are coloured randomly and communicated to the clients so they have the same map. They can still all jump, but the levels look finished. The collisions required some major tweaking: javafx thought the cube was colliding in walls when it was only sliding on the ground.

Stepsize Created a team in which we will be able to create/track/resolve issues directly in IntelliJ. Created a first issue: the cube doesn't rotate around edges yet.

TODO When a game is ended, send all clients back to their lobby screens. Restrict jump permission ingame (block colour). Allow players to end the game. Load levels from their respective files. Reimplement rotations around edges (first issue).

April 26, 2023 ◇ Wednesday ◇ — Exercise class

Progress We implemented the build-cs108 task, made the in-game chat transparent so that you can see the map better, and started implementing JUnit tests for the game logic functionality in ServerCube.

Levels We built a level reader, created network links in order to load the levels and implemented a random level getter. Furthermore, we worked on making the levels more playable and set the spawn point correctly.

Bug fixes Fixed a bug where the GameController was called again even though it was deleted, and fixed the camera which was not moving around the map correctly

April 28, 2023 ◇ Friday ◇ — Win condition

Game Added win condition and lose condition. A coin placed at the end of the level needs to be collected in order to advance to the next level. The goal is to complete as many levels as possible. When the cube touches a white block, its position is reset at the beginning of the level, the players have to start the level again and a life is deducted. The game ends when the players have 0 lives left.

Other progress Continued with JUnit tests

April 30, 2023 ◇ Sunday ◇ — A multiplayer game

Improvements The clients now run their own instance of the game on their computer, so the server only has to send them a position update ten times a second. This has given a remarkable performance enhancement when playing on several machines. Some bugs are still present, which will be investigated. A highscore list is now implemented in the menu, and the life system works: players only have a limited number of lives to go through as many levels as they can. When they die, they lose a life; when they get through a level, they gain one, two or three additional lives (depending on the levels difficulty). The cube now rotates when jumping.

Levels The levels had previously been made very roughly, some of them had to be reworked. They still aren't all playable (some gaps are too big, making them impossible) but those are being worked. Ultimately, we would like to have ten to twenty levels of each difficulty.

TODO Implement that a level can't be played twice (they are loaded randomly at the moment, which allows for the same level to be played often). Add particles behind the cube, add animations when the cube dies, gets to the coin, make the cube landing animation smoother, etc.

May 1, 2023 ◇ Monday ◇ — JUnit testing

Testing Finished writing unit tests relevant to the game logic and the movement of the cube, such as the methods related to changing the position, velocity and acceleration of the cube, moving and jumping, and gravity changes.

Documentation Updated documents such as the game manual