



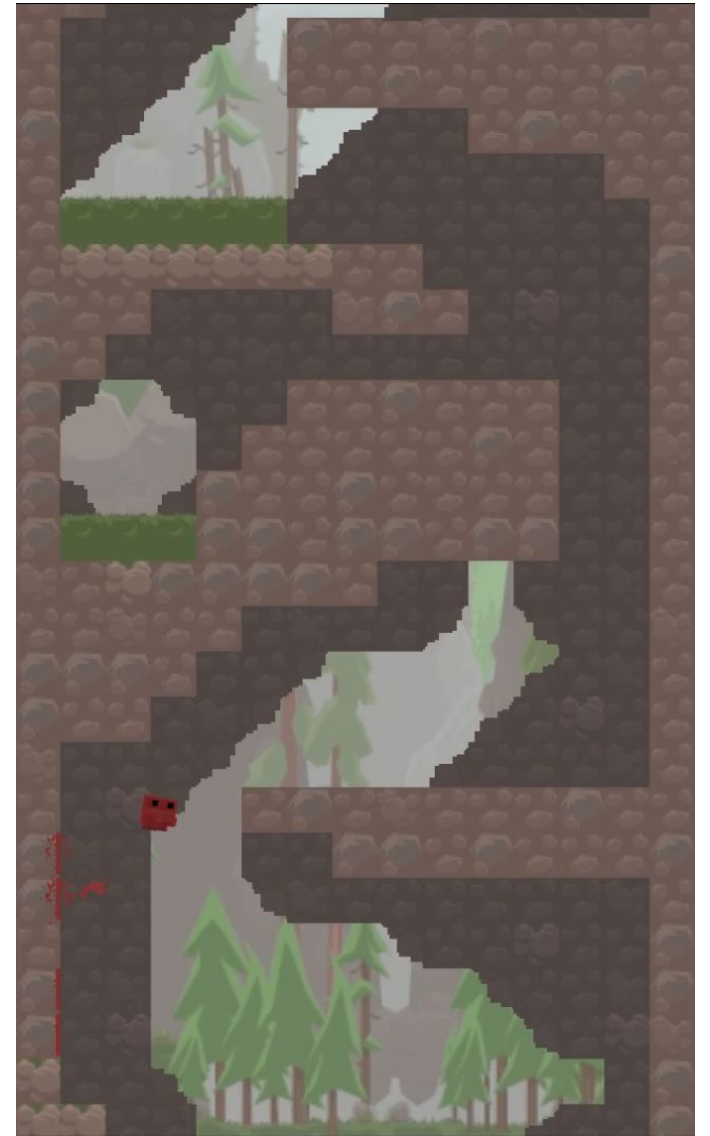
University of Antwerp
| Faculty of Science

Project Assignment

Advanced Programming
2022-2023

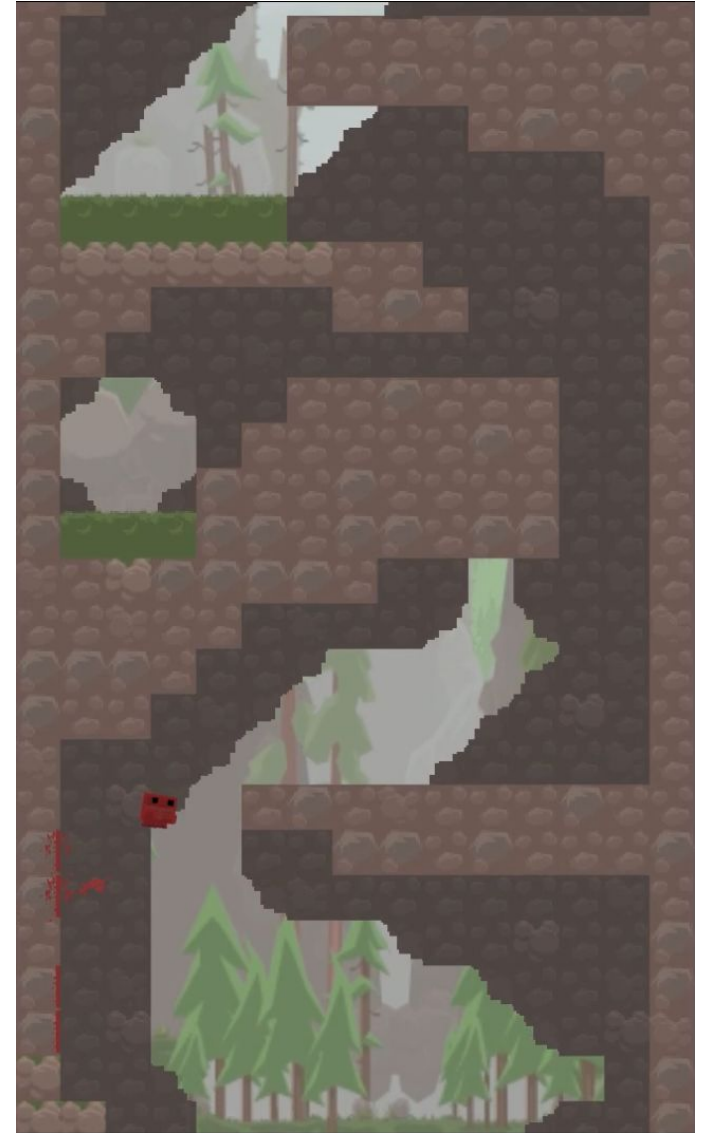
Meat Boy

- Implement game inspired by Meat Boy
- Using C++ and SFML
- Focus on good code design and quality



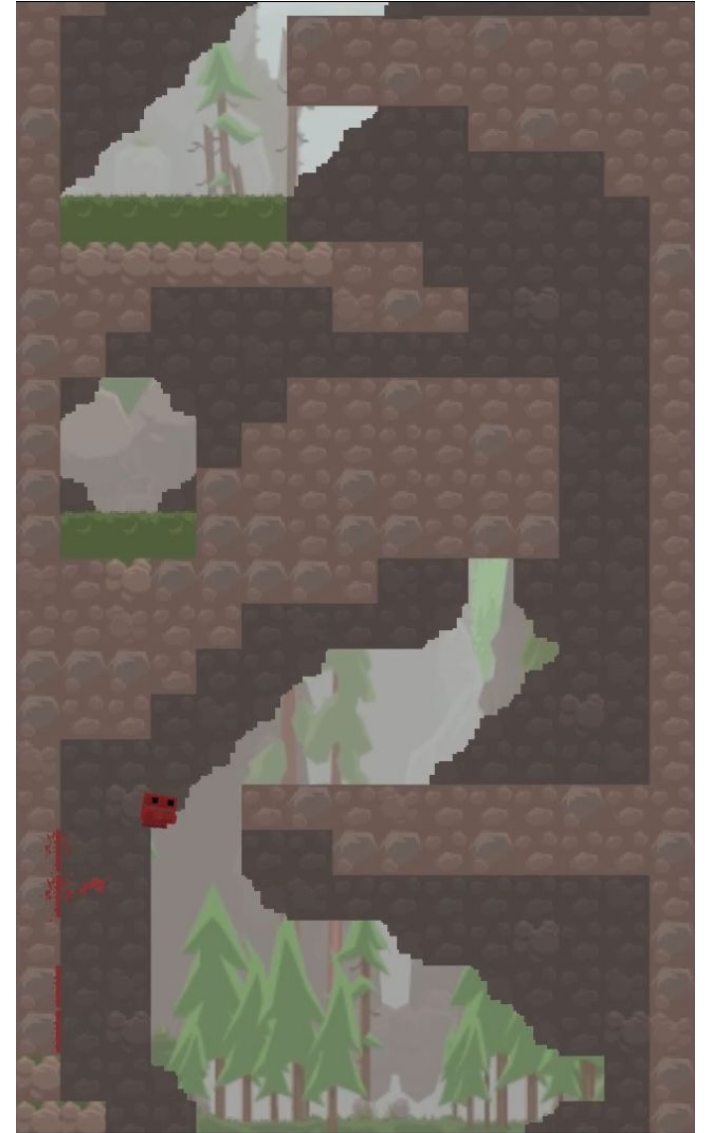
Gameplay

- Player can move left, right and jump
- Jump off walls to get higher
- Objective is reaching the goal at the top
- World view moves up with the player
 - Can also happen automatically
- Falling down resets the level

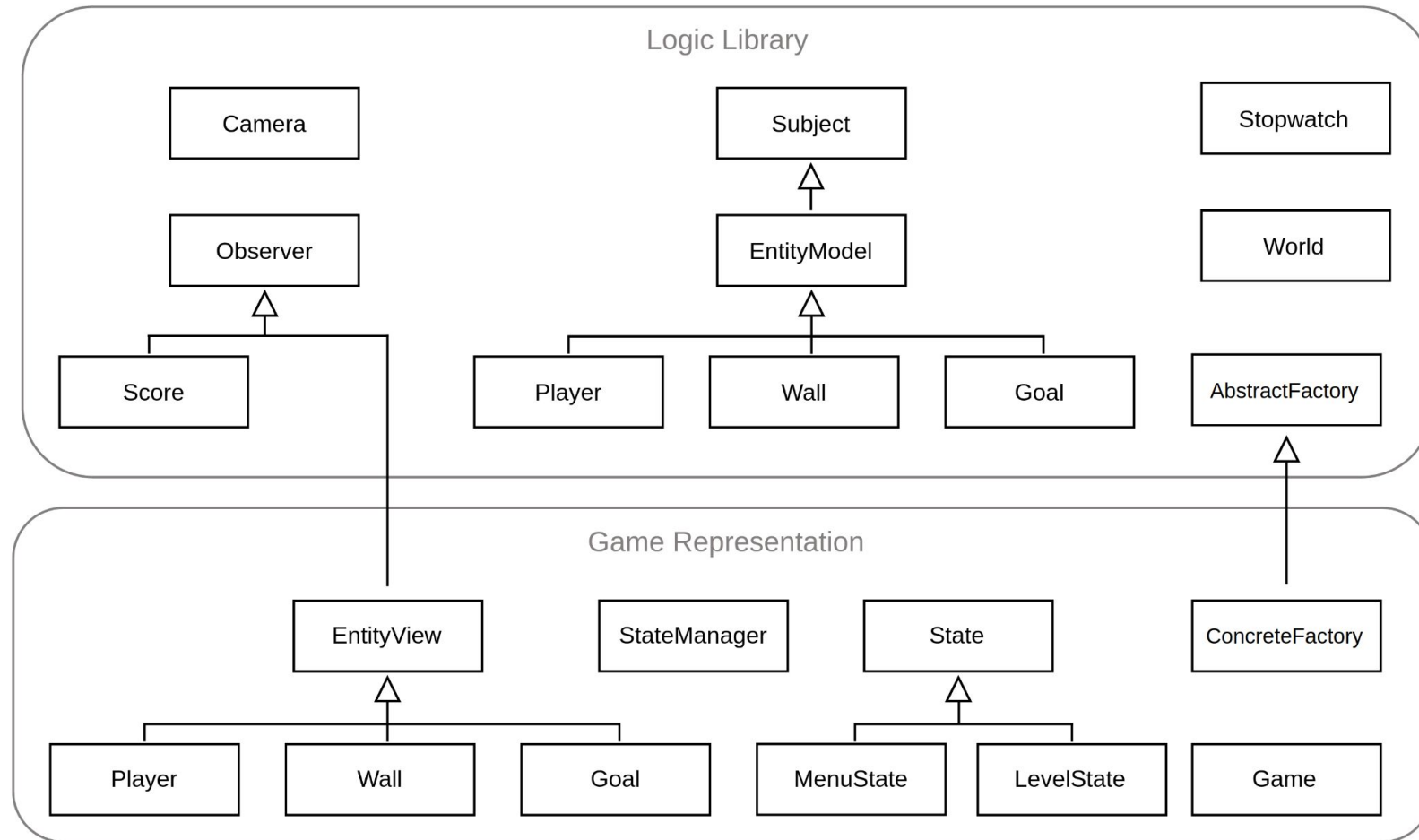


Player Movement

- Vertical / horizontal velocity & acceleration
- Gravity pulls you down
- Controls provide acceleration
- Terminal velocity
- Hitting a wall negates velocity in that direction

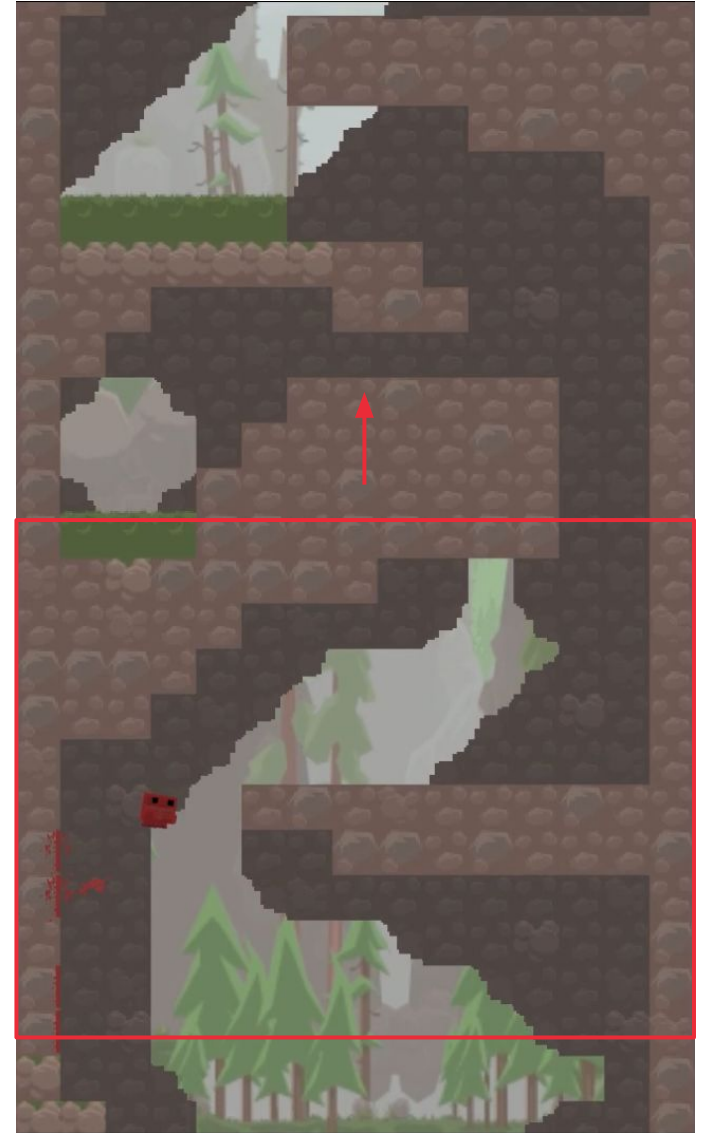


Design



Camera

- Rectangle in world space that is visible
- World uses normalized coordinates
- Translates these based on current height
- Projects these to pixel values



Stopwatch

- Different computers can handle different frame rate
- Game logic always runs at the same speed
- Stopwatch keeps time between current and previous frame
- Scale movement by this time delta

Design Patterns

- Model-View-Controller (MVC)
- Observer
- Abstract Factory
- Singleton
- State

Level Loading

- Menu to select from a list of levels
- Dynamically populated based on present config files
- Levels are not hard-coded in C++
- Adding or removing levels does not require a recompile
- Use JSON, XML or parse a custom file format
- Levels can be simple, but all features can be tested

Grading

- **40%:** Core game requirements
- **40%:** Good design and code quality
- **10%:** Project defense
- **10%:** Documentation & Report
- **10%:** Bonus points

CI/CD

- Join the [Github Classroom assignment](#)
- Set up a CI platform to automatically build your project
 - Make sure I can view the build configuration and result
- Final commit must show a successful build on GitHub

Questions

- Are there any questions?
- Post a new thread on the Blackboard forum for the project
- Send an e-mail to Thomas.Ave@uantwerpen.be