FIT3077: Software engineering: Architecture and design

S1 2023

Monash University Malaysia

Sprint Three

Nine Men's Morris

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Sprint 3: Design Rationale

Architecture

As outlined in our UML class diagram, we have added a SceneController Class to our code architecture. This class is necessary for us to handle switching between different scenes such as the main menu, game scene and the rules page. While we do have an existing controller class in RootLayoutController, we want it to exclusively be in charge of managing the game board so that it would not become a god class.

Therefore, we decided to add a SceneController class to manage the switching of scenes, such as from the main menu to the Rules page or the Game page. This is reflective of the **Single Responsibility Principle (SRP)**, as any new gameplay-related functionality will be handled by RootLayoutController while SceneController will be responsible for any new plugins or additional pages that might be added to the game, such as a leaderboard screen. Thus, by introducing the SceneController class, there is a higher level of code readability and maintainability that will greatly benefit anyone who works on the game in the future.

While SceneController was the only major modification we made, there were a number of smaller changes such as adding more attributes and methods to existing classes to help us flesh out our game and fulfil the necessary requirements. Some examples include isMill(), setMill() and updateMillStatus() in the GameManager class which handles logic relating to forming mills; as well as handleGameover(), handleNewGame(), handleClose() , handleMenu() and handleMusic() in RootLayoutController which allows the user to navigate or configure the app.

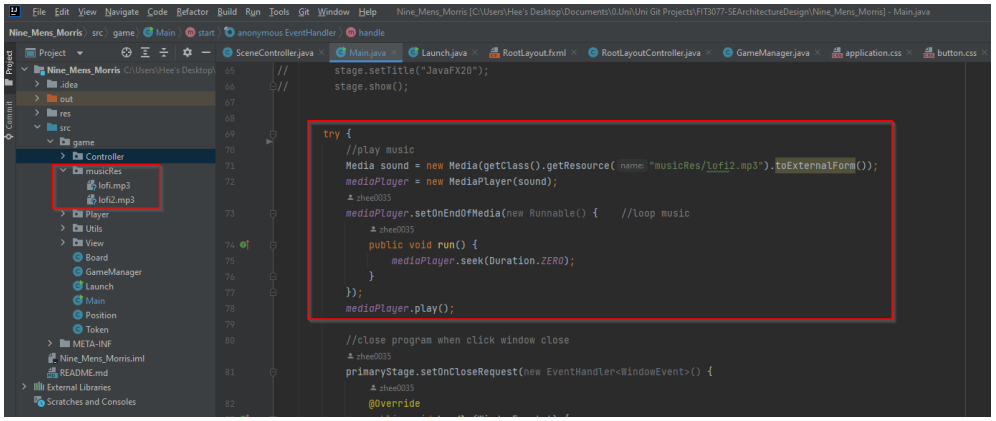
○ Explain 2-3 quality attributes (as non-functional requirements, e.g. usability, flexibility) that you consider relevant to the 9MM game and have explicitly considered in your design. Why are they relevant and important to your game? Show (provide evidence) how your design manifests these non-functional requirements.

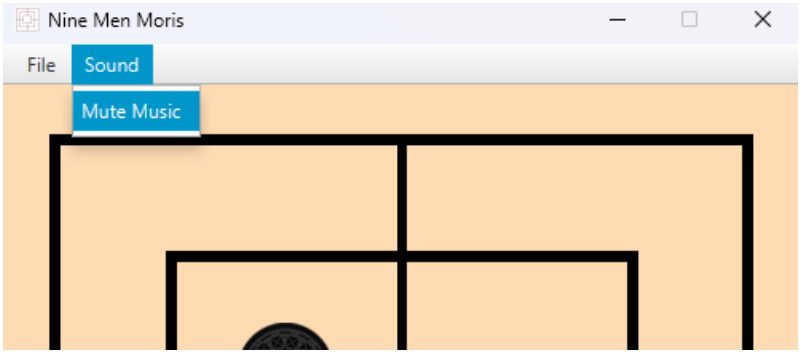
1. Usability
    - Dragging simulates real life behaviour
2. Communicative
    - Dialog windows when user wants to exit
    - Status bar at the bottom to indicate game phase
3. Portability
    - Tested and works on windows and mac
    - Should have linux support as well

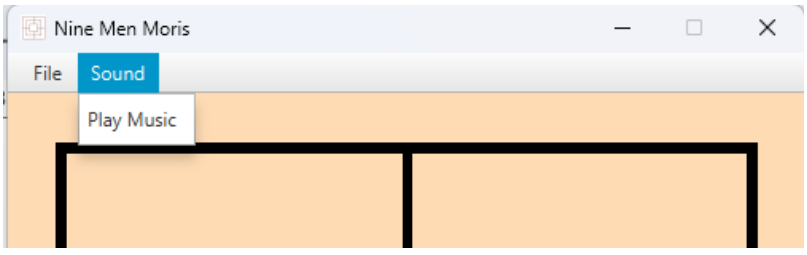
○ Explain at least one human value (from Schwartz's theory, e.g. achievement, tradition, freedom) that you consider relevant to the 9MM game and have

explicitly considered in your design. Why is it relevant and important to your game? Show (provide evidence) how your design manifests this value.

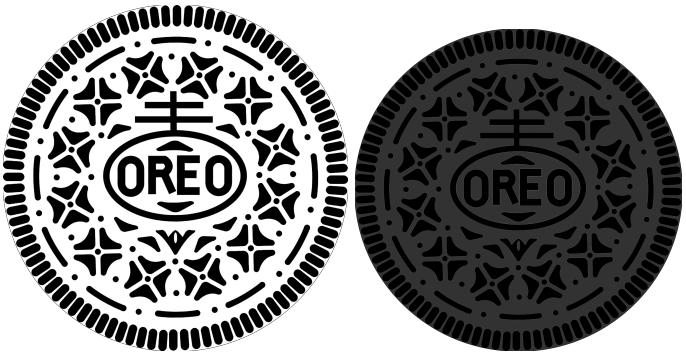
1. Pleasure (Music)?
    - Soothing, not boring.
    - Gives more pleasure and makes the gameplay more interesting.
    - Gives users the option to mute the music if needed to.







2. Creativity
    - Usage of Oreo inspired tokens instead of basic black and white tokens to spur up some fun.
    - Interesting main menu design that depicts what the game is about and attracts users' attention.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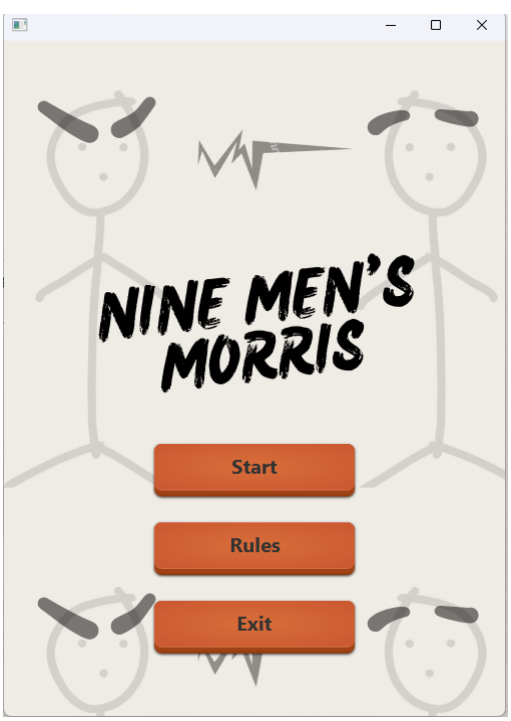
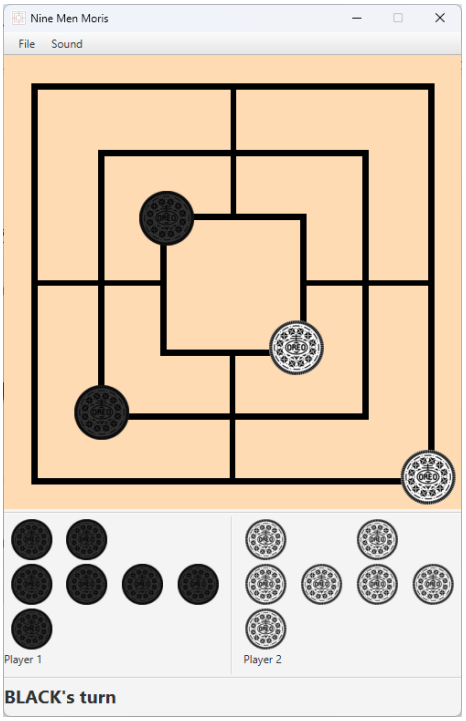

NINE MEN'S MORRIS
Start
Rules
Exit


Nine Men Moris
File
Sound
Player 1
Player 2
BLACK's turn