



Design - Part 2

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Overview

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Product Design
Overview

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Design Visuals

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Functionality

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Product Design Overview

- GameMaker Language Web Application
 - HTTP Supported Traffic
 - Object/Game Loop Cycle Handling
 - Game Logic Based on Rulebook
 - User Friendly Access Frontend
- Java Springboot Based Database
 - Modular/Swappable Database
 - Layered Architecture
 - Model View Controller Structure
 - Easily Modified/Deployed Backend

Design Visuals (MVC / Layered Design)

Presentation
& Views

Map/Game
Screen

Login
Screen

Game Select
Screen

Business &
Controller

Game Loop

Coordinate
Calculation

Inject Card
Flag Setting

Game
Retrieval

Account
Verification

Persistence
& Controller

Game
Controller

Account
Controller

Database &
Model

Account
Database

Game
Database

Join Code
Database

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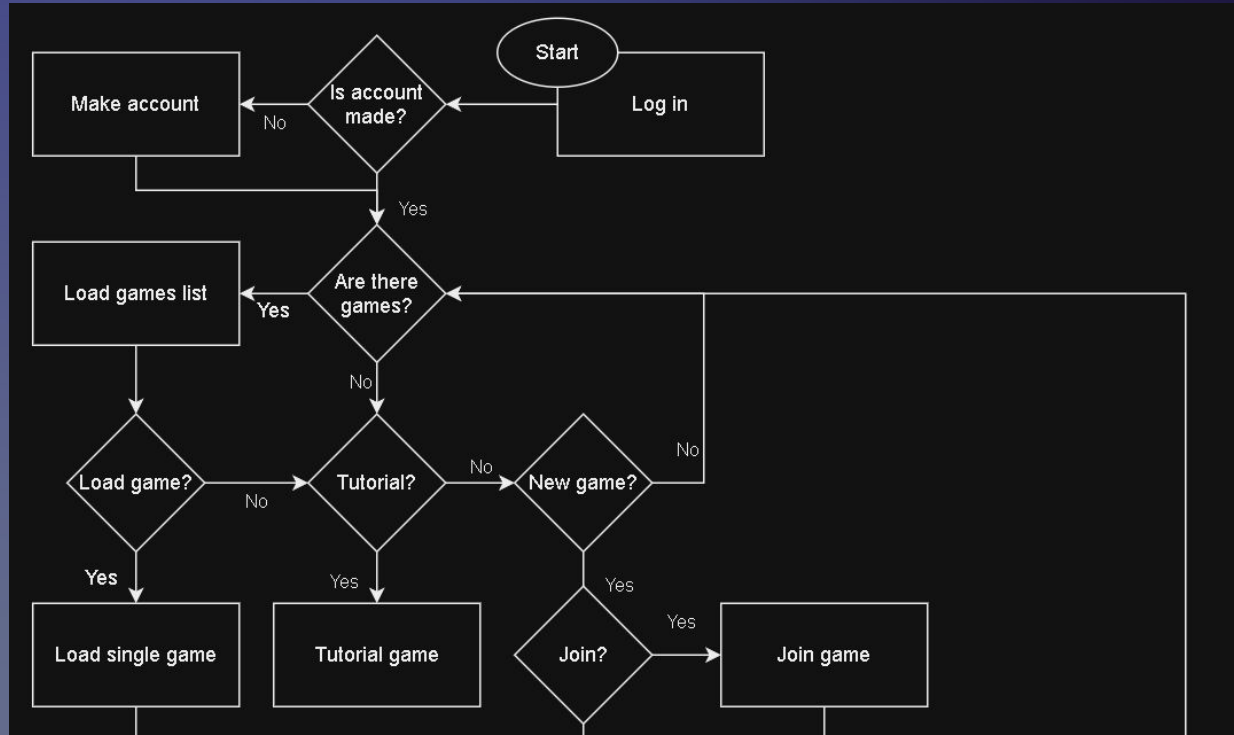
Game
Database

Join Code
Database

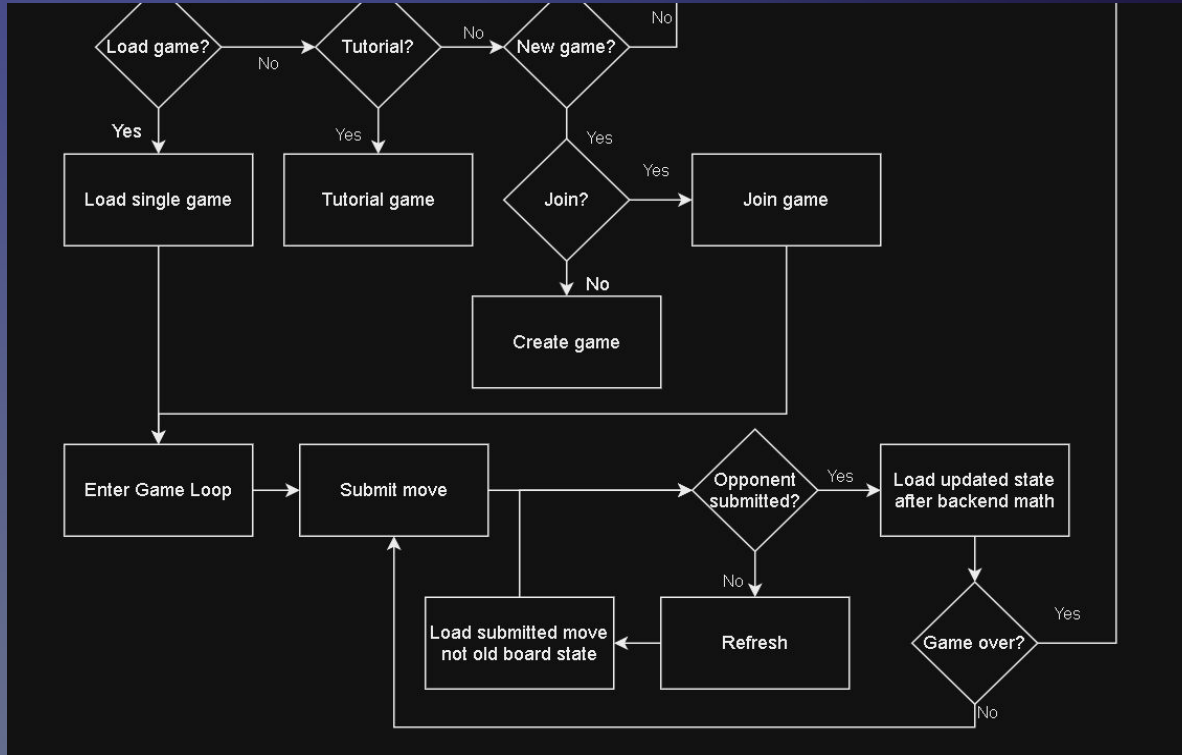
Functionality (Sample Exchange)

- Web application is used by cadets
- Cadets 1 and 2 use tutorial and learn software
- Cadet 1 is paired with cadet 2
- Game is created by cadet 1 and join code generated
- Cadet 1 gives cadet 2 the code
- Cadet 2 joins
- Both cadets make move on board and submit
- Backend calculates new board state and saves
- New state sent to cadets 1 and 2
- Repeat until game concludes

Functionality (Use Case Pt 1)



Functionality (Use Case Pt 2)



Technological Considerations

- Raspberry Pi Board (Future tech)
 - Easily and cheaply sustain Java backend app via Linux
- GameMaker Language
 - Game loop and UI heavy framework
- Springboot Java Library
 - HTTP/S handling and MVC framework
- Maria Database
 - Free install on Linux with simple setup

Areas of Concern/Development

- Wargame recreated 1 for 1
- Scenario logic easily computed
- Accessible from any laptop/pc
- Persistent storage is available
- Needs tutorial focus to meet teaching needs

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