



Five In A Row

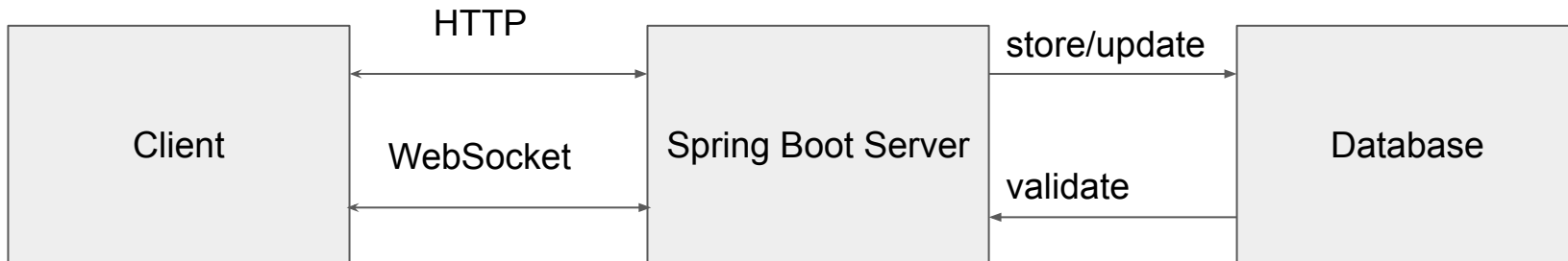
Team Goofy Object

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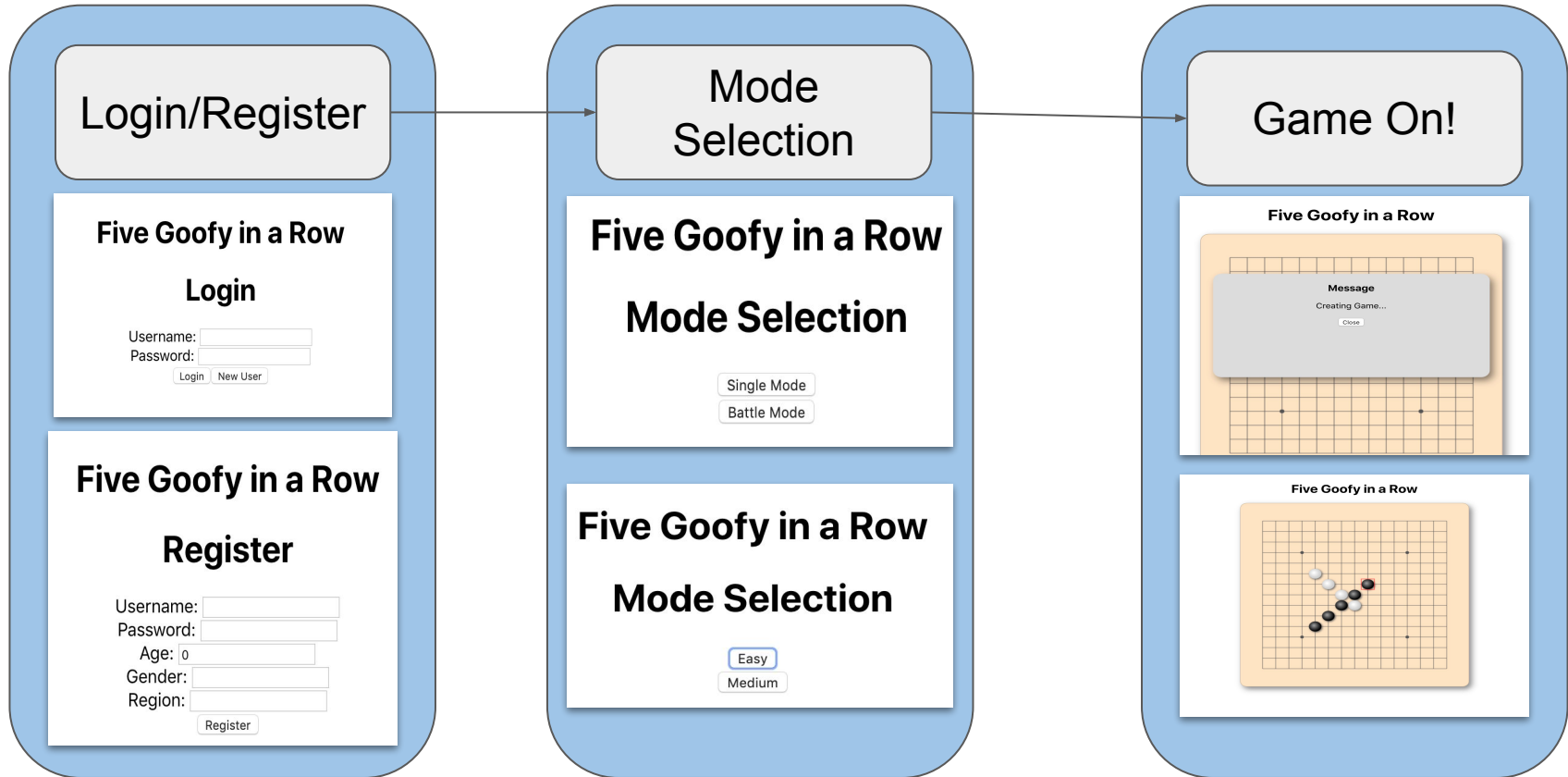
System Architecture

An interactive web game: multiplayer platform, AI player

React.Js, Spring Boot Framework, WebSocket, MySQL, Heroku Cloud



Component - Front End



Component - BackEnd Service

SpringBoot : RESTful HTTP service

“/register” : doPost, userInfo as request body.

userInfo: username, password, age, gender, region.

applied Builder Pattern to build userInfo entity and store into MySQL

“/login” : doGet, userInfo as request body

check input username and password matches with the one in database

after login, user is able to choose single mode or battle mode to play

Five Goofy in a Row

Register

Username:

Password:

Age:

Gender:

Region:

Five Goofy in a Row

Login

Username:

Password:

Component - Database

JdbcTemplate

data schema

Register/Login

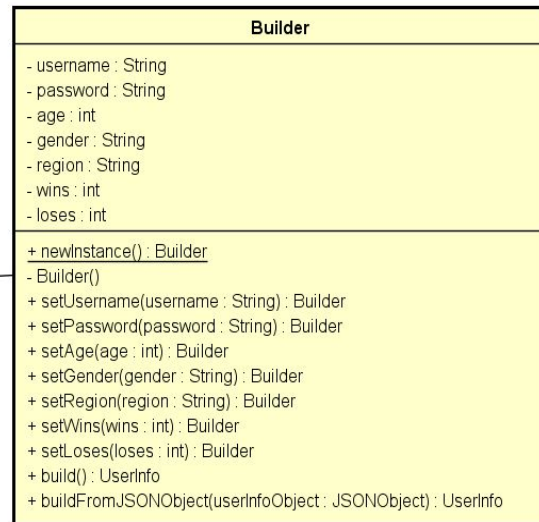
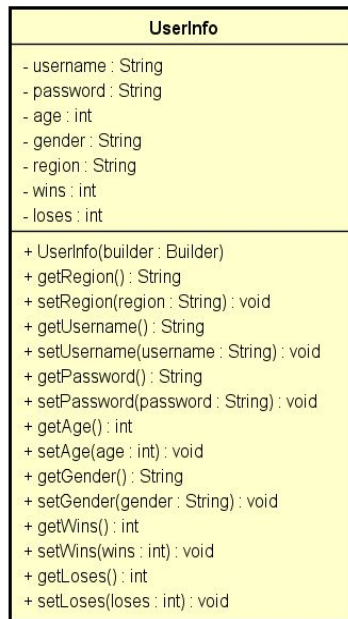
Win Rate - In Progress

Win rate: 99%

Ranking - In Progress

Rank: 3

User Table	
username	VARCHAR(255)
password	VARCHAR(255)
age	INT
gender	VARCHAR(255)
region	VARCHAR(255)
wins	INT
loses	INT



Component - Game Service

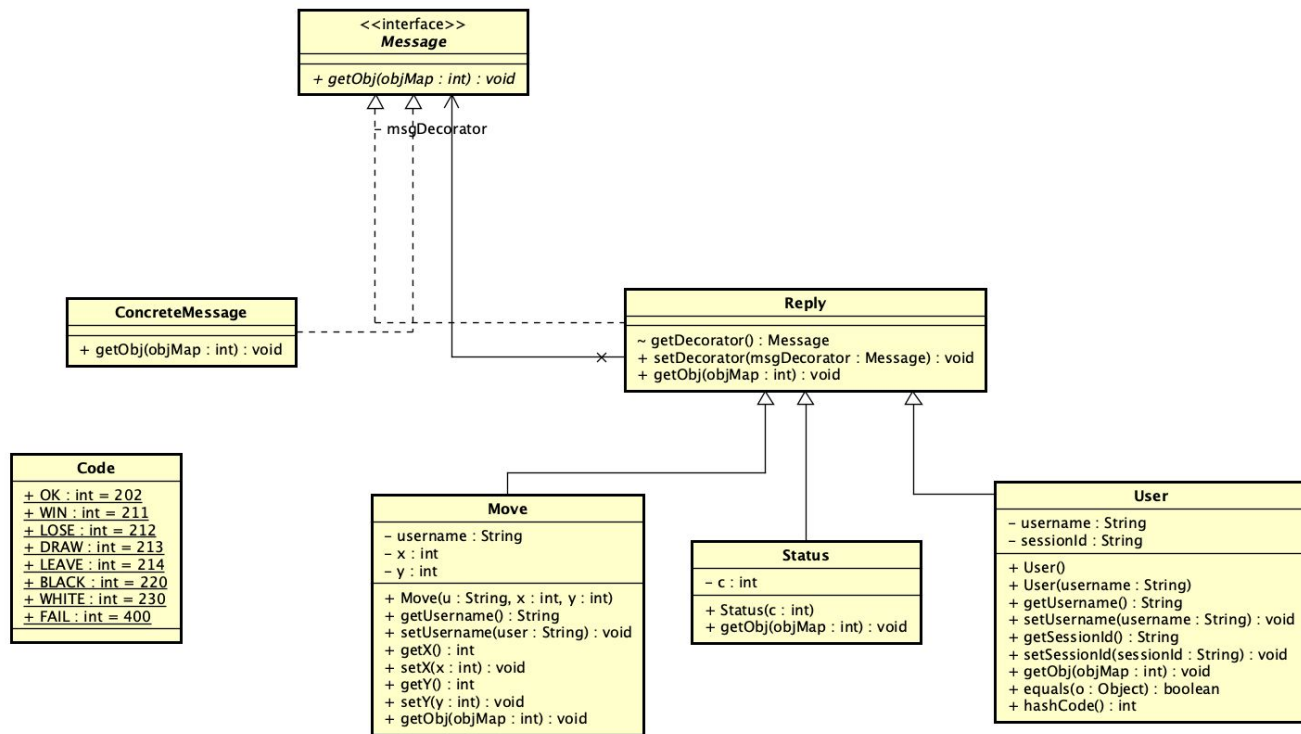
Game Controller:

- void createAiGame(User user)
- Void addToQueue(User user)
- void putPiece(Move move)

Web Socket:

- Join - notify players if game created
- Update - player's movement (WIN,LOSE,DRAW,MOVE)

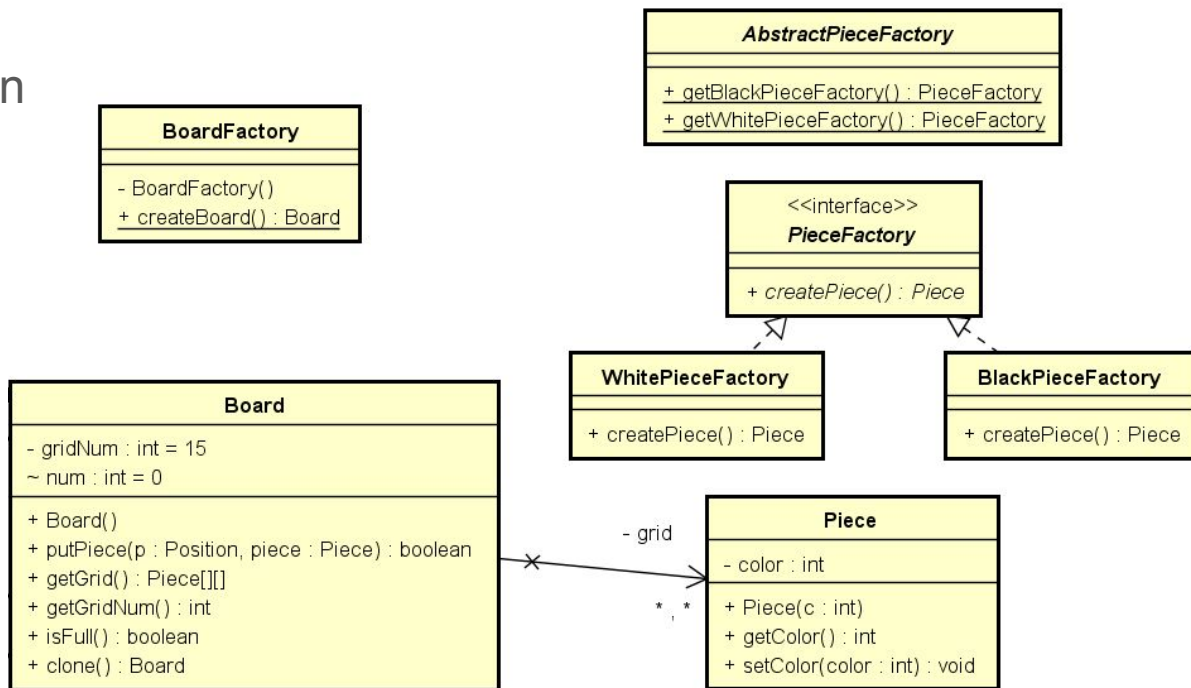
Design Pattern: Decorator



Component - GameLogic

Factory Pattern for Black/White Piece and Board

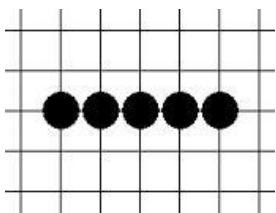
Abstract Factory Pattern



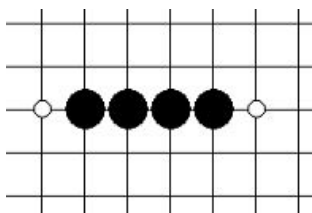
Component - AI

AICommonMethod:

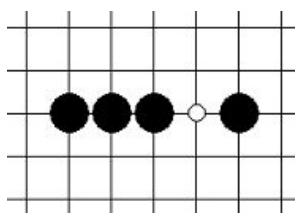
- `evaluateScore(Board board, int color)`
 - Evaluate current chess on the board and calculate scores for both black and white chess
- `getLineScore(String line, int color)`
 - Calculate total score for one direction (horizontal, vertical, diagonal)
- `matchNumer(String line, String pattern)`
 - Judge the type of chess shape (three in a line, four in a line, five in a line)



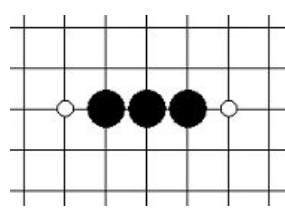
100,000



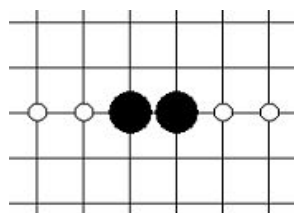
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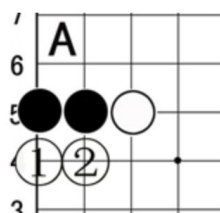
500



200



5

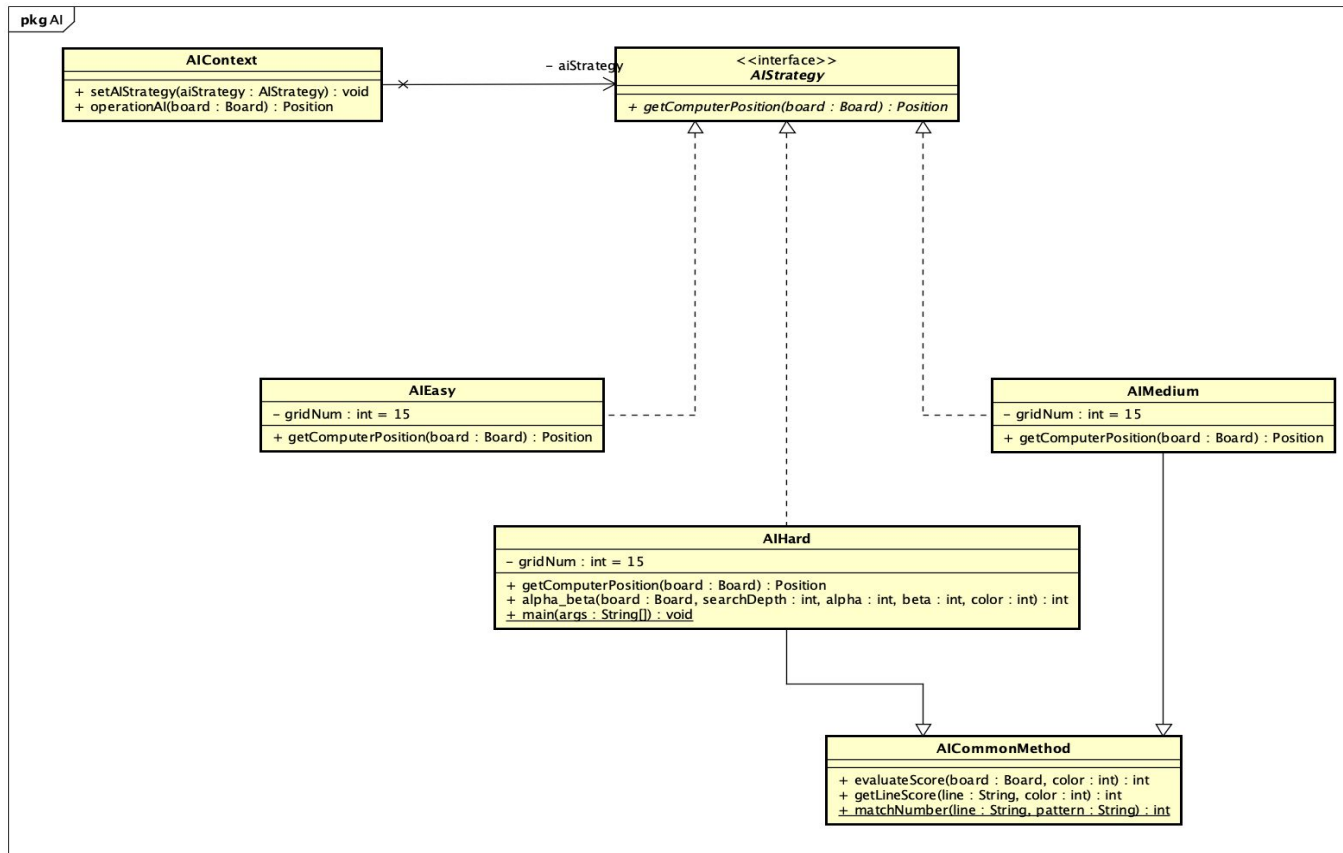


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Design Pattern - Strategy

Strategy Pattern

for AI



Scrum Board

nguyensjsu / sp19-202-goofy-object Private

Watch 4

Unstar 2

Fork 0

Code

Issues 0

Pull requests 0

Projects 1

Insights

Scrum Task Board

Updated 14 hours ago

Filter cards

+ Add cards

Fullscreen

Menu

+ ...

0 Testing

+ ...

16 Done

+ ...

WebSocket: Multiplayer API

Added by ckloi

WebSocket: Connection

Added by ckloi

Task Allocation

Added by southinsouth

Team discussion and agreement on the game: Gomoku

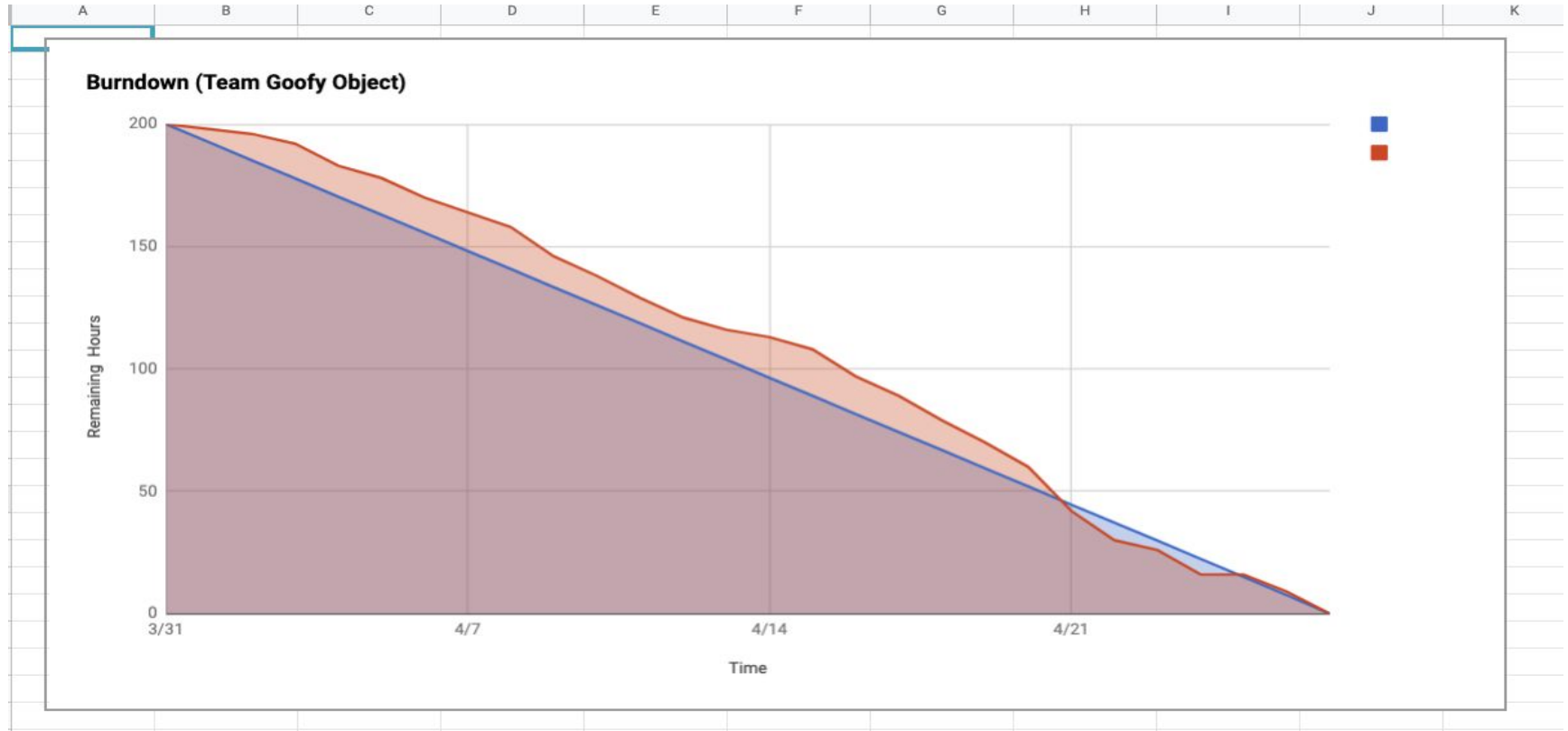
Added by southinsouth

+ Add column

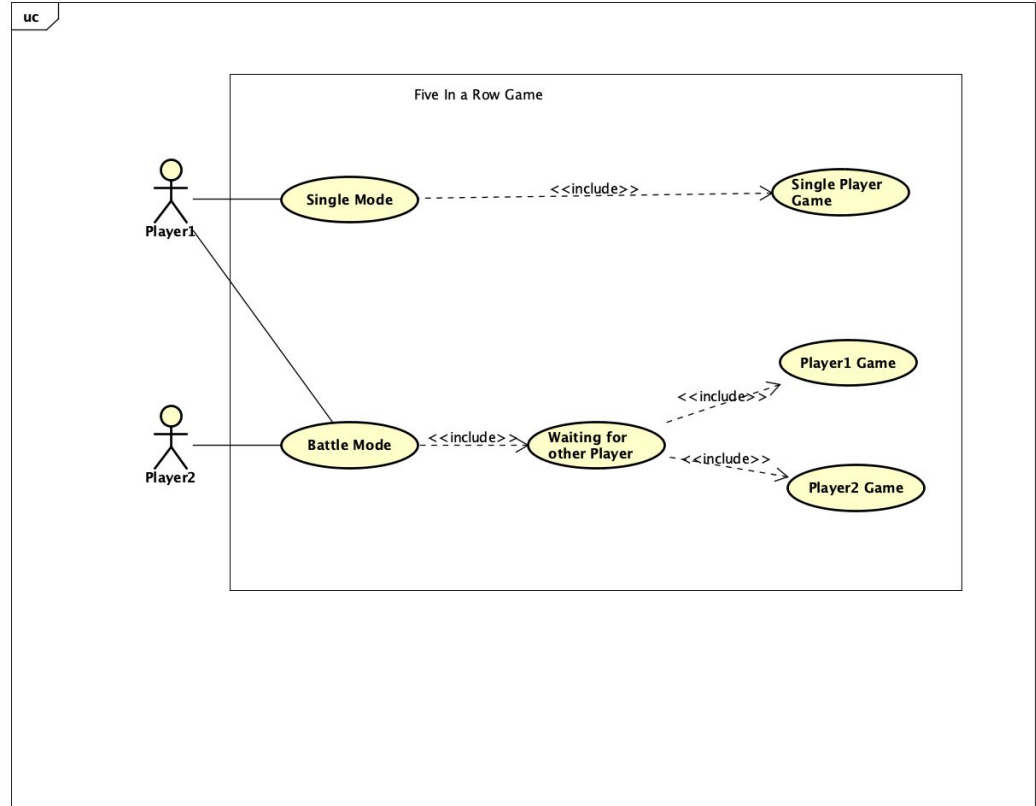
Automated as Done

Manage

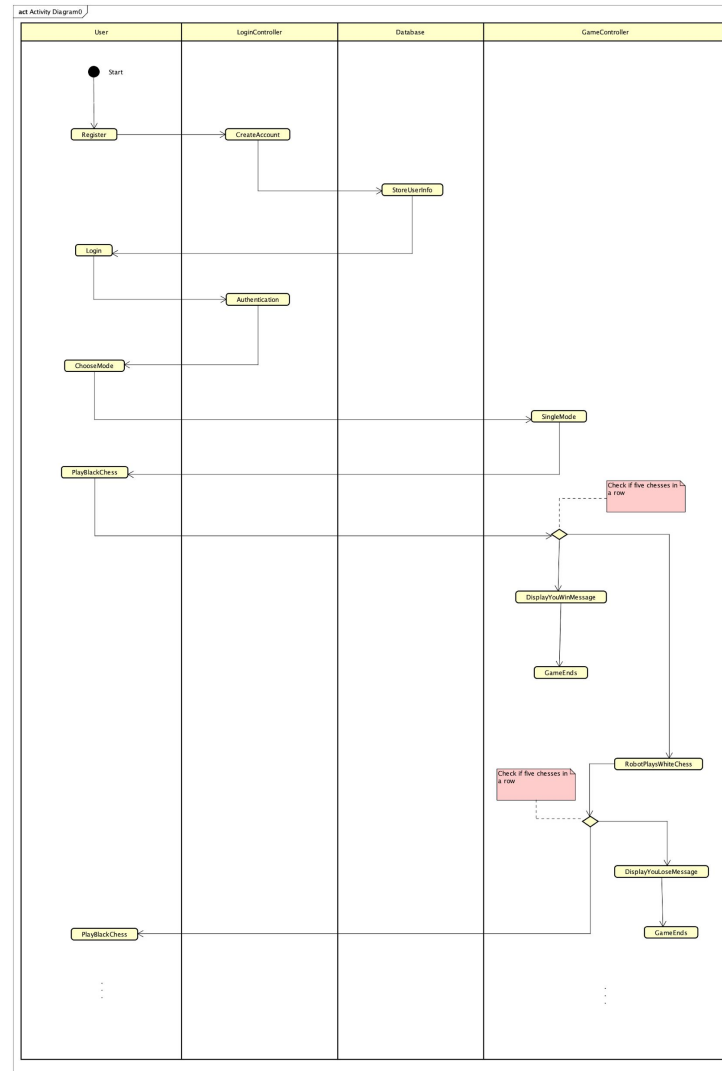
Burndown Chart



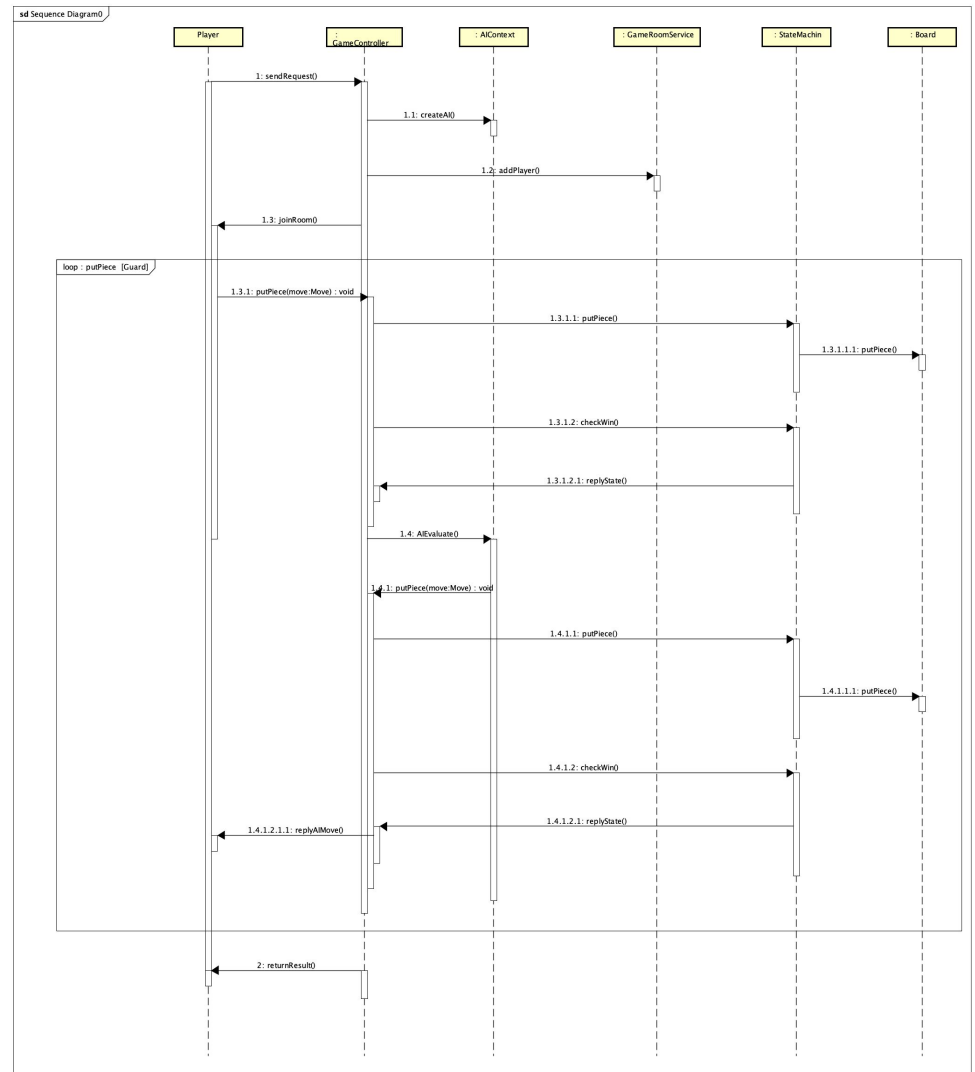
Use Case Diagram



Activity Diagram



Sequence Diagram



Demo

Thank you!

Try It Out!

<https://five-in-row-202.herokuapp.com>