



SET: The Online Version

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SET: The Online Version

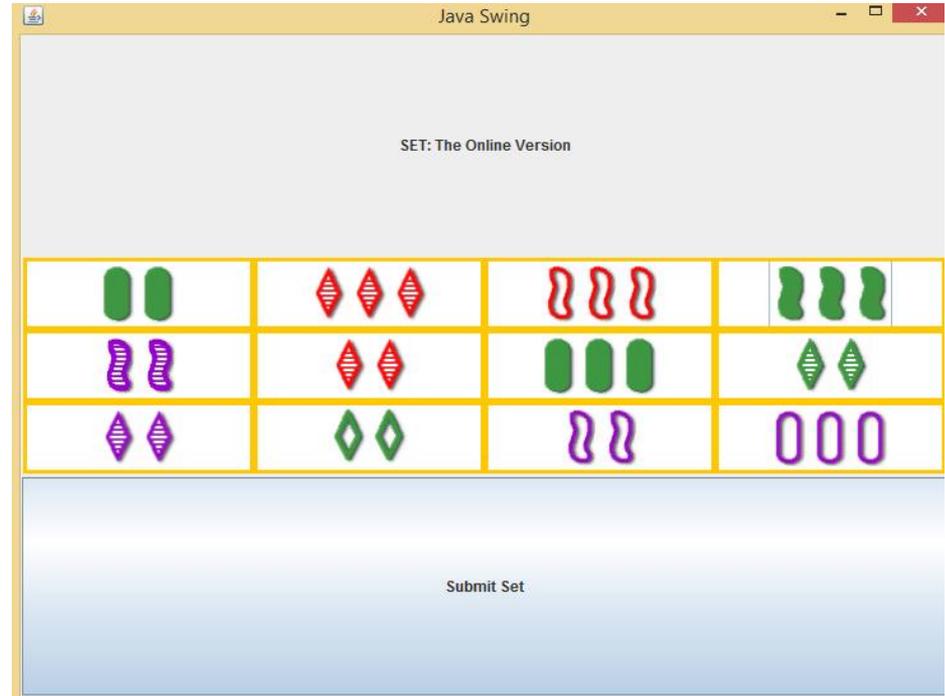
Game Website

Login Here	
User Name	<input type="text"/>
Password	<input type="password"/>
<input type="button" value="Login"/>	
Forget Your Password? Retrieve Here	
Not Yet Registered? Register Here	
Haven't Installed The Game? Download Here	
Game Tutorial Start Here	

Game Interface

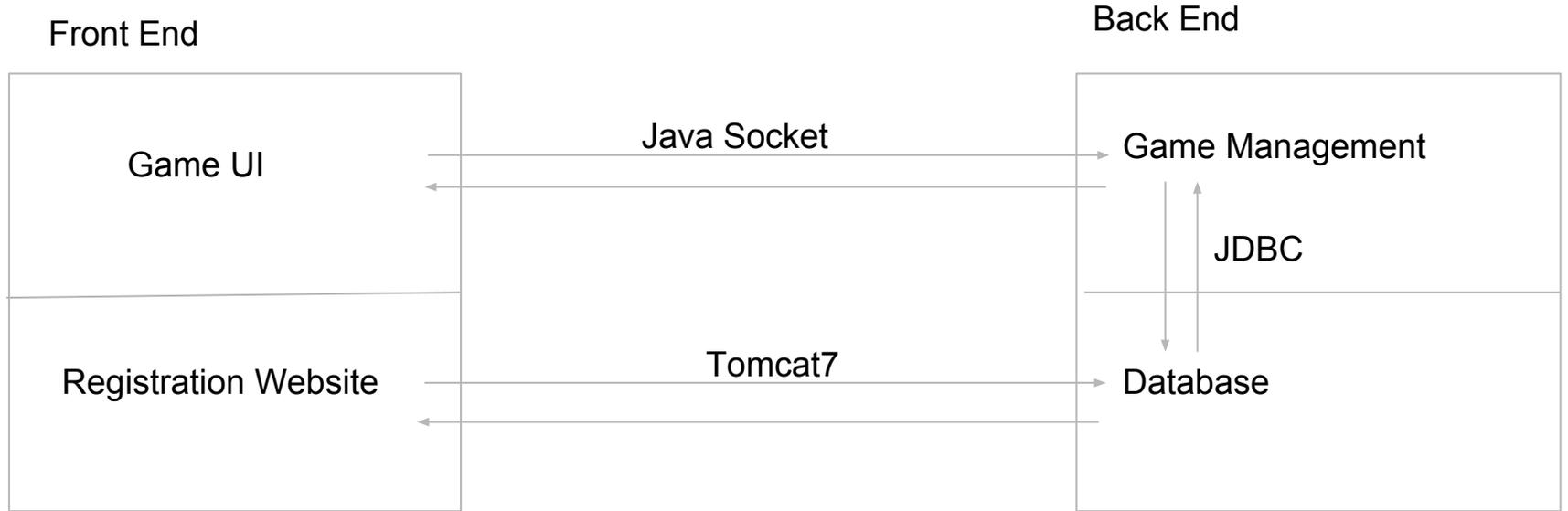


A Java Swing window titled "Set Online" with a standard Mac OS-style title bar (red, yellow, green buttons). It contains two text input fields: "Username:" and "Password:". Below the fields are two buttons: "Login" and "Register".



A Java Swing window titled "Java Swing" with a standard Mac OS-style title bar. The main content area is titled "SET: The Online Version". It displays a 3x4 grid of SET cards. Each card is represented by a set of three icons: a circle, a diamond, a squiggle, and a triangle. The icons are colored (green, red, purple, or blue) and have different orientations (up/down, left/right). Below the grid is a "Submit Set" button.

System Architecture

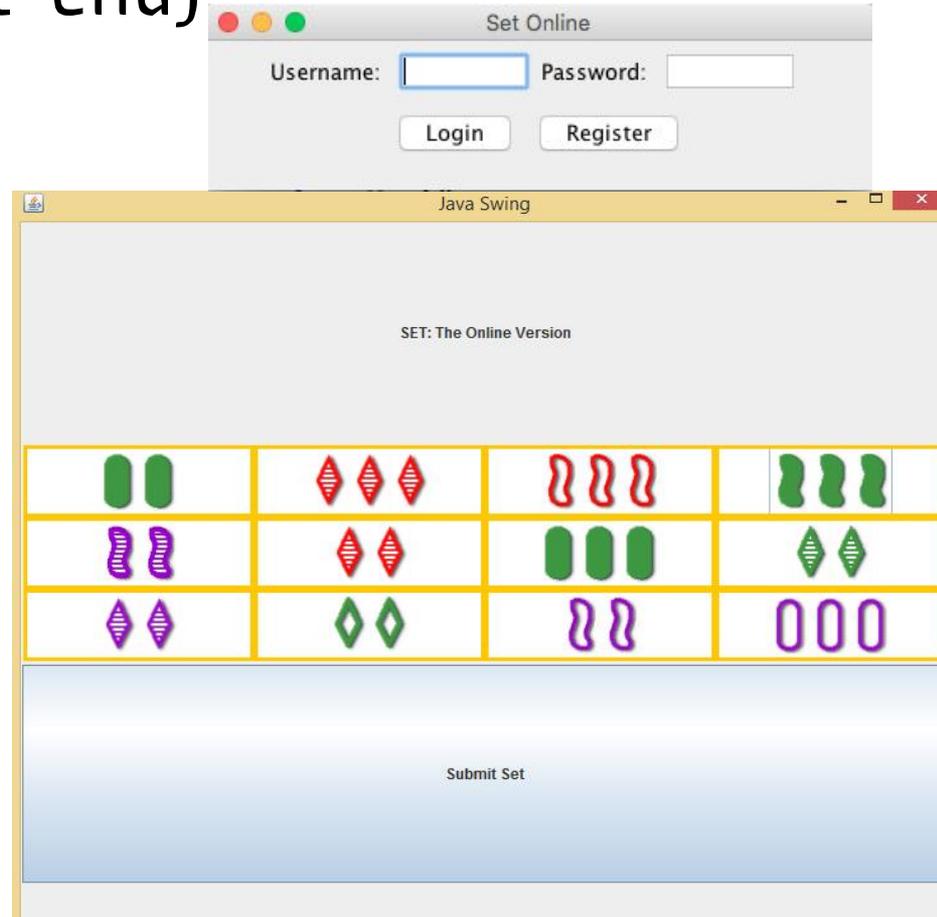


Design Decisions

- UI
 - Javasing, implementing cards as buttons in order to utilize ActionListener properties of buttons, able to enable or disable at ease.
 - JDBC connects it to the database
- Game Management
 - 2 players/game vs multi-players/game
 - Points System
 - Right set: +1
 - Wrong set: -1
 - How to handle some unexpected user case
 - Submit at the same time: Using synchronized functions
 - Game will lock for a couple seconds when set is found, showing a "SET FOUND!" alert
 - Players can't reenter game after exiting

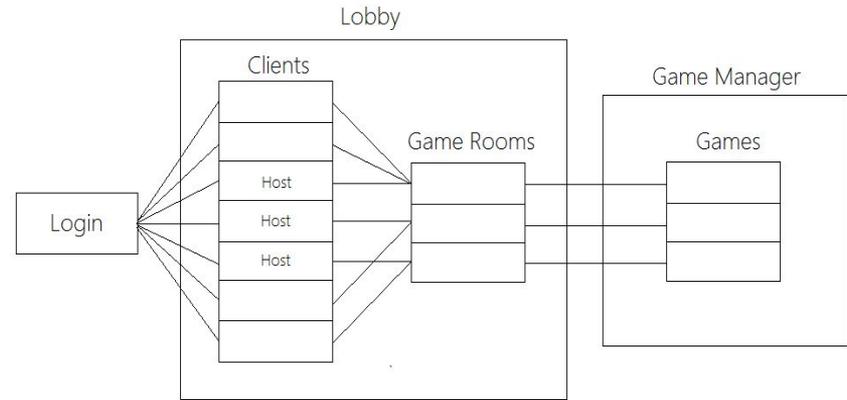
Game Components (Front-end)

- Login
 - Players enter username and password and submit
- Main lobby
 - List of open game rooms
 - List of players in lobby
 - Players can host games (specify game name)
 - Players can join game
 - Players can exit lobby
- Game rooms
 - List of players in game room
 - Host can start game
 - Can close/exit room
- Games
 - List of players in game
 - Deck, board, score
 - Players can select cards
 - Players can submit set of 3 cards
 - Players can exit



Game Components (Backend)

- Synchronized linked lists to keep track of clients and games
- Classes
 - GameLobby - Manages clients/game rooms in lobby, create/join game rooms
 - GameRoom - Manages clients in game room, start game
 - GameManager - Manages active games
 - Game - Manages clients in game, in-game functions like dealing
 - GameLogic - Stores all logic
- Statics - lobby, manager, logic



Game Data/Logic

Server side

- Card object
- Board - ArrayList
- Deck - Stack

Client side

- Card information stored as strings
- Easier for Swing to parse

Logic

- Checking if set: return false as soon as for one field, all three cards are neither all different or the same

Gameplay

- Start game -> Deal 12 cards
- When successful set has been submitted, displays alert to all players and then replaces 3 cards in the spots on the field
- Consistently update score
- Check for no more sets, automatically adds 3 more cards
- Game ends -> All user data is saved (number of wins, highscore)

Server

- Server
 - Initialize server socket with port
 - Multiuser server with multiple threads

- Client
 - Initialize socket with port and IP
 - Send packets through input/output stream of sockets

Packets

- Goal: Transfer bytes, not strings (ByteArrayOutputStream)
- Current: Combine different data types into one packet (DataInput/OutputStream)

Packet generator

- All message possibilities
- Packet format (header, body)
- Send packets (synchronized)

Packet interpreter

- Parse through packets
- Perform different functions based on type

Data reader/writer

- Overriden functions to write/read specific primitives

Database

- User Name
- Password
- ID
- Current Game Score
- Current Status (LoggedIn?
InGame? Player2ID
Player2Uname)
- Highest Game Score
- Number of Games
Played
- Wins
- First Name
- Last Name
- Email

Game Website

- Login
 - Normal Login
 - Retrieve Password
 - Reset Password
 - Review Account Summary
- Registration
 - Register a New Account
- Game Resources
 - Tutorial
 - Package Download

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Registration Web Page: <http://199.98.20.118:8080/Login1.3/index.jsp>

Breakdown

Server side classes

- Server, server thread
- Game lobby, game room, game manager, game, game logic
- Packet generator, packet interpreter, data writer/reader
- Database

Client side classes

- Client
- GUI classes
- Packet generator, packet interpreter, data writer/reader

Q&A