The Jungle Game

Chesshire Coders

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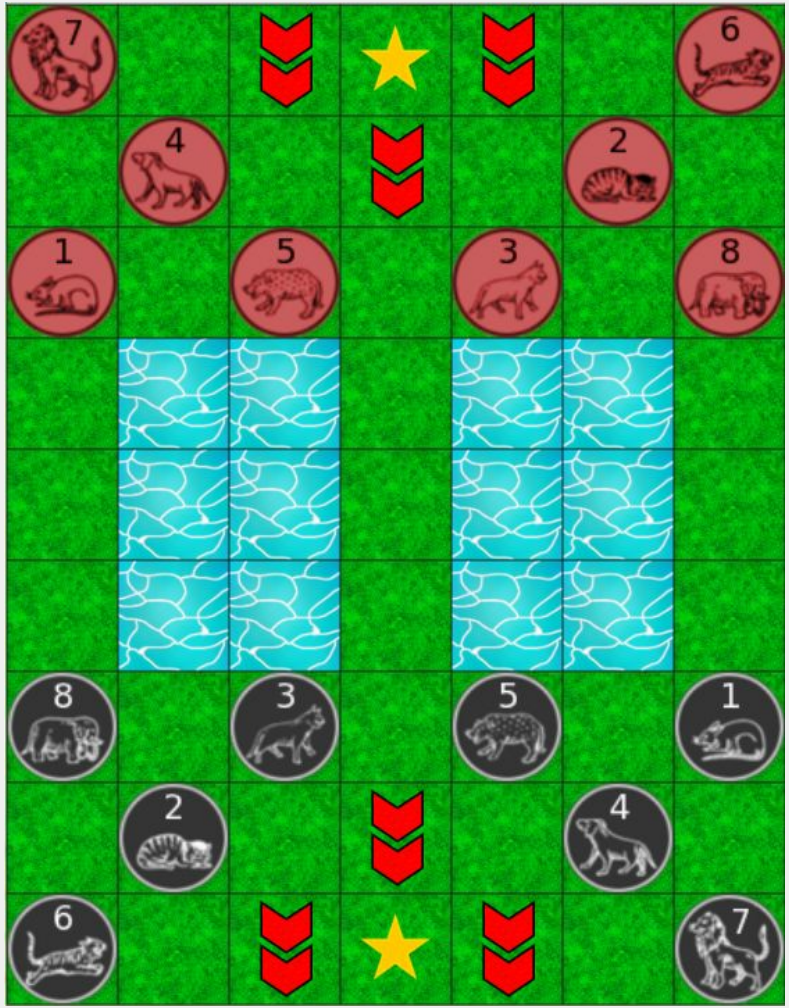
Image from: http://www.tattoodaze.com/tattoo-images/79/th_tiger-art-decor-mountain-tiger-tiger-hand-painting-original-bkLbwV.jpg



The Jungle Game

Jungle is a two-player strategy game.

Rat

Cat

Fox

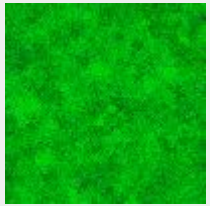
Dog

Leopard

Tiger

Lion

Elephant



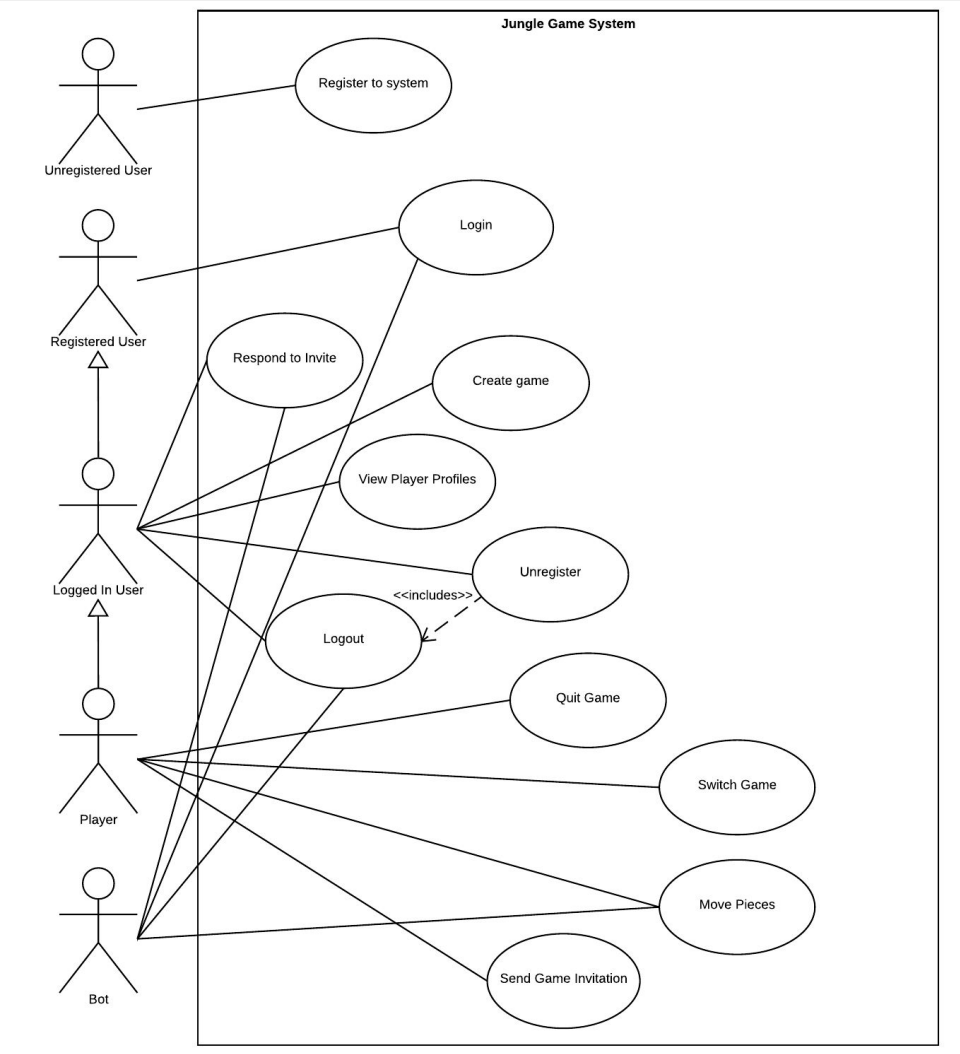
Normal

Den

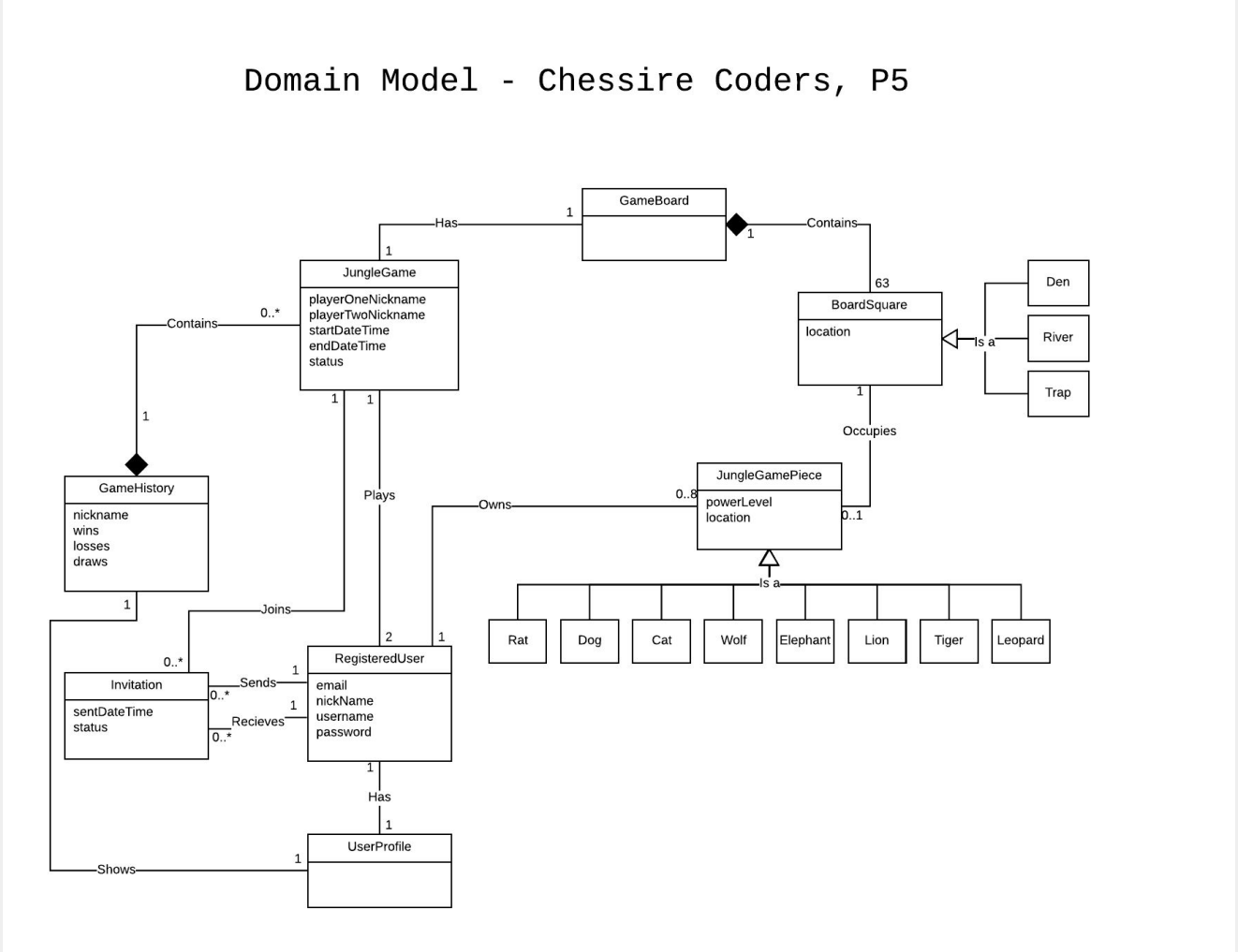
River

Trap

Use Case Diagram

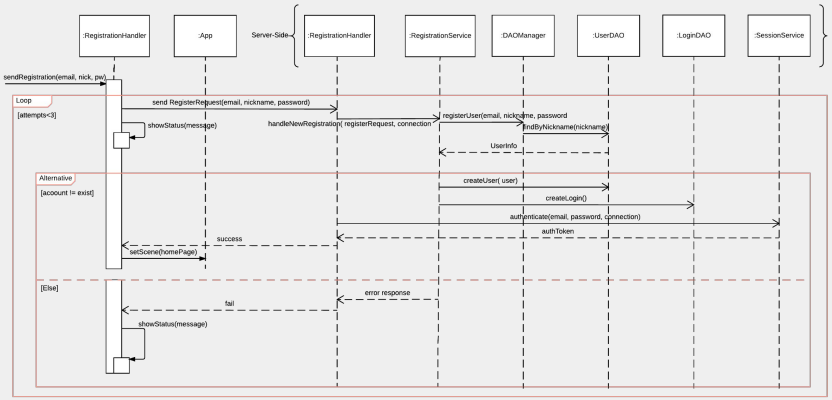


Domain Model

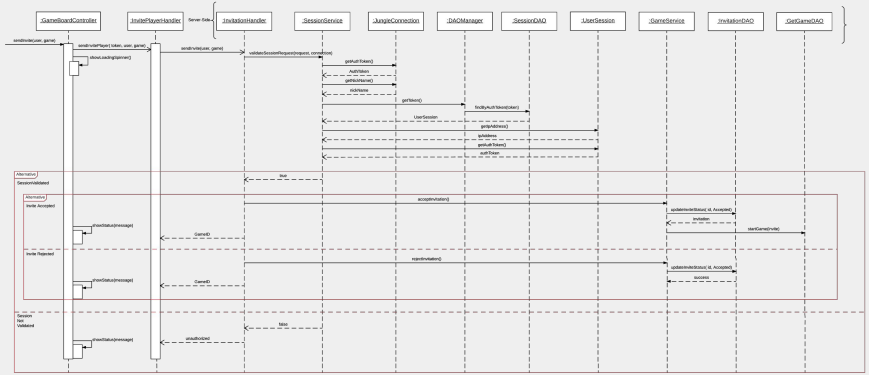


Sequence Diagrams

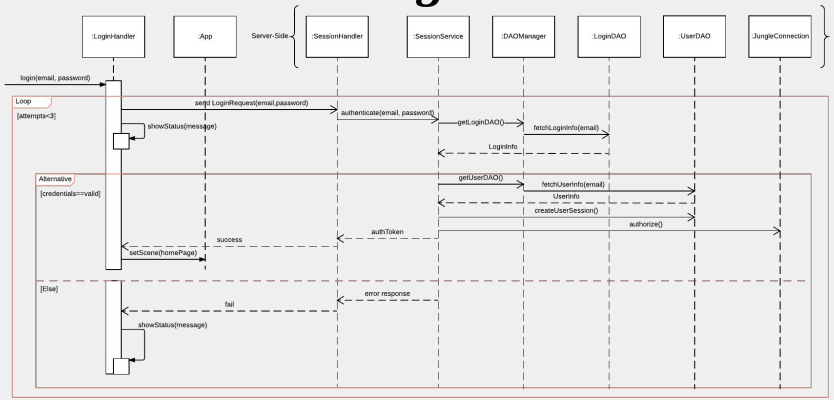
Register



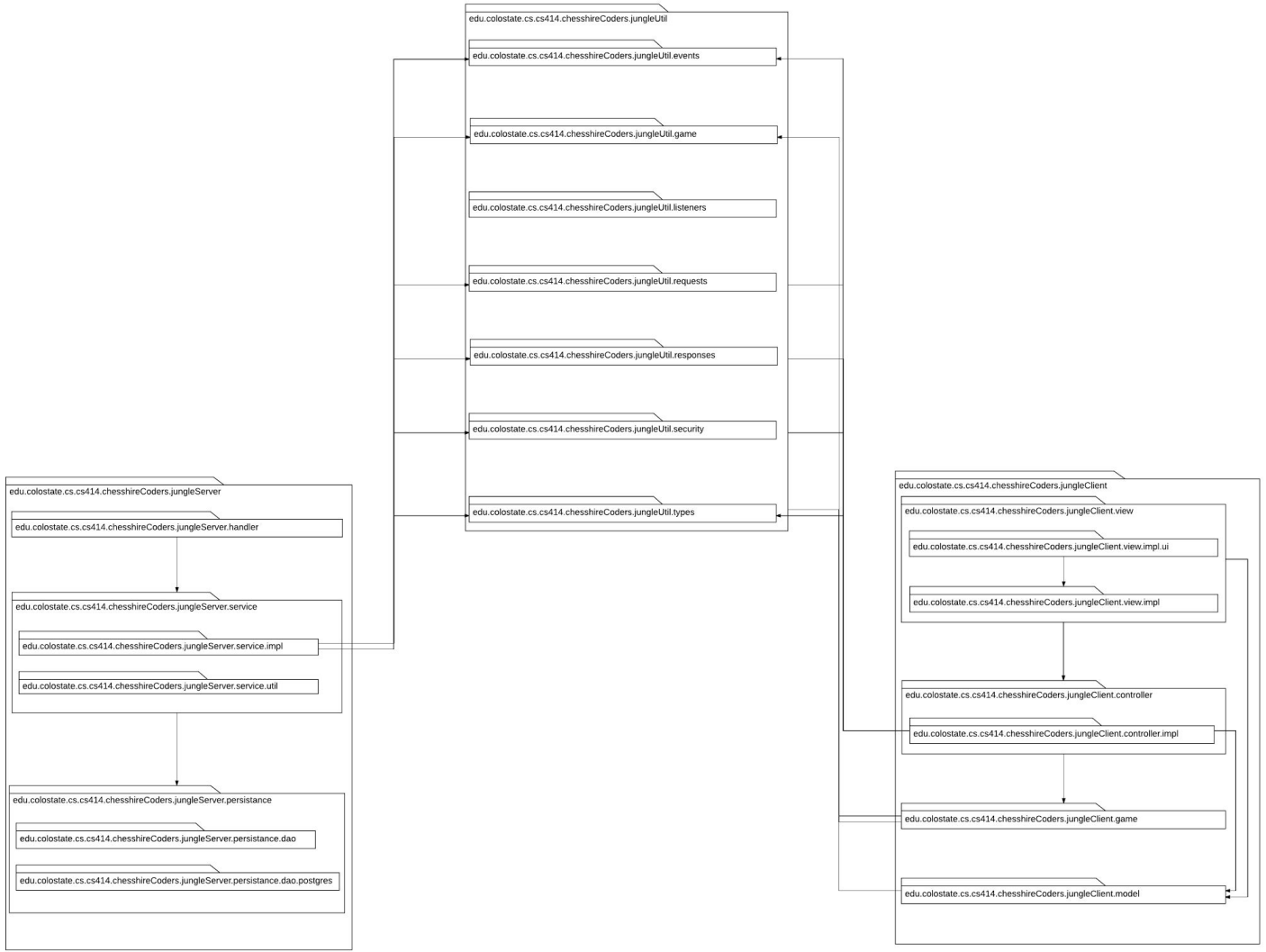
Game Invite



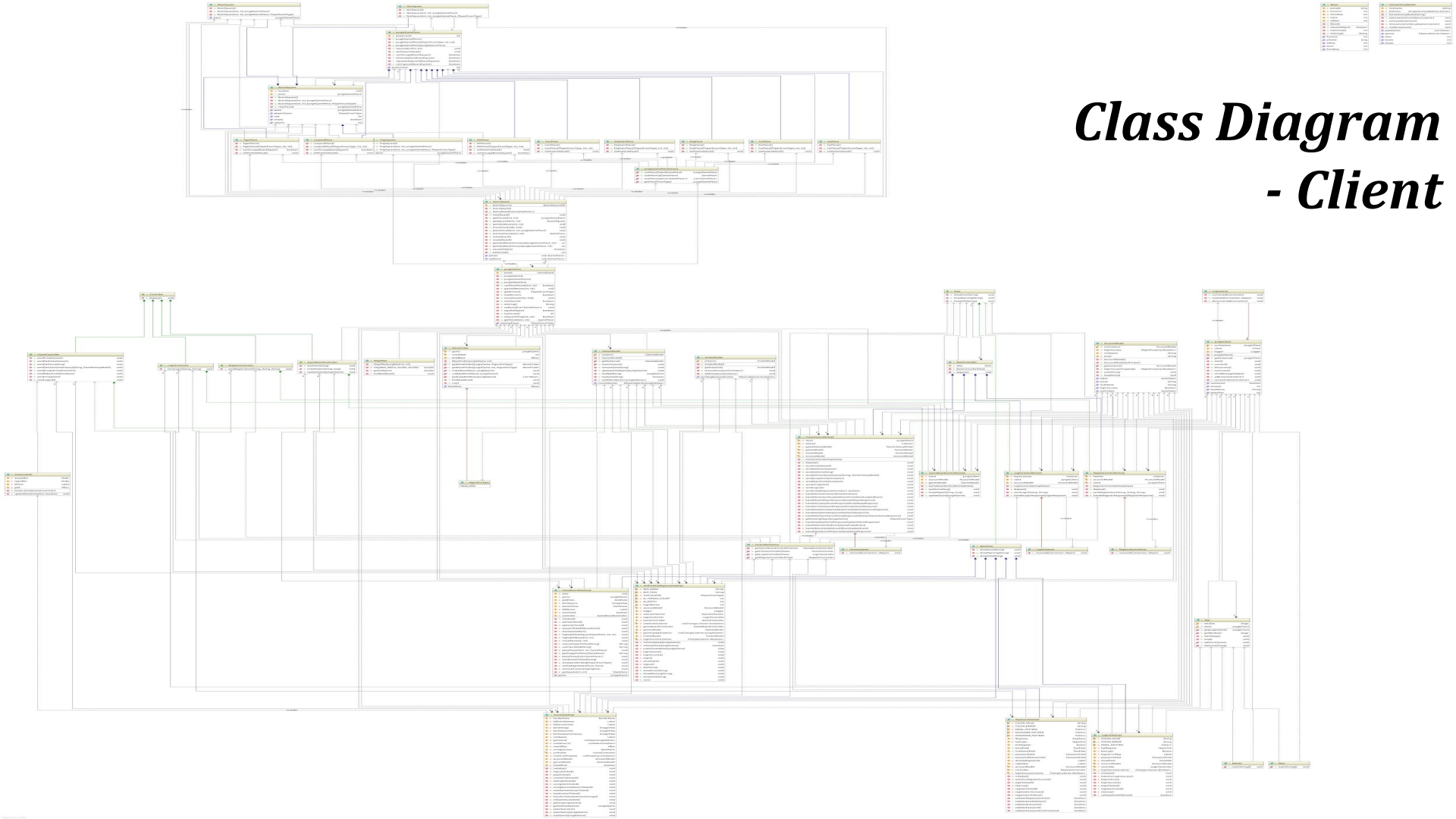
Login

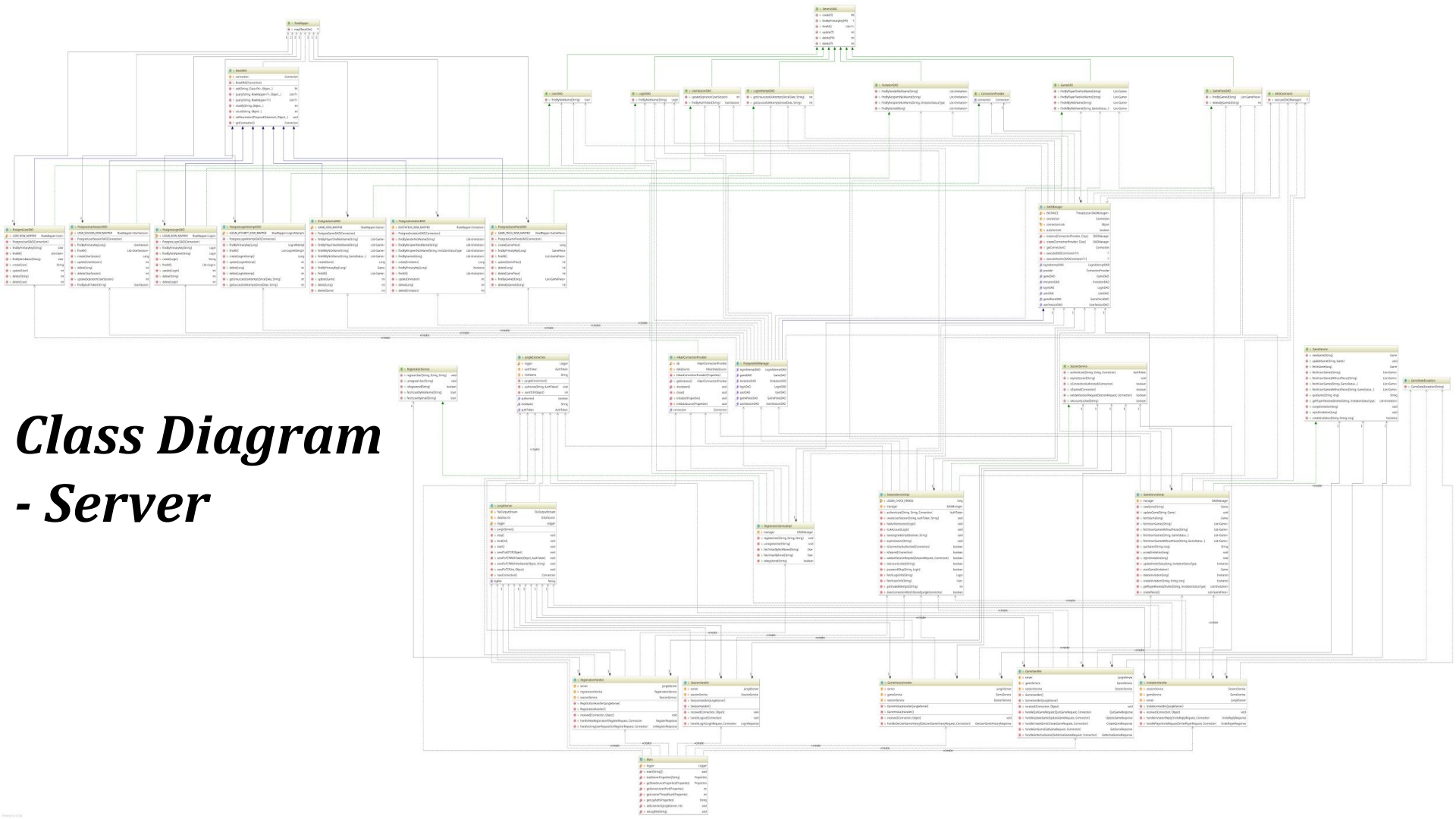


Package Diagram



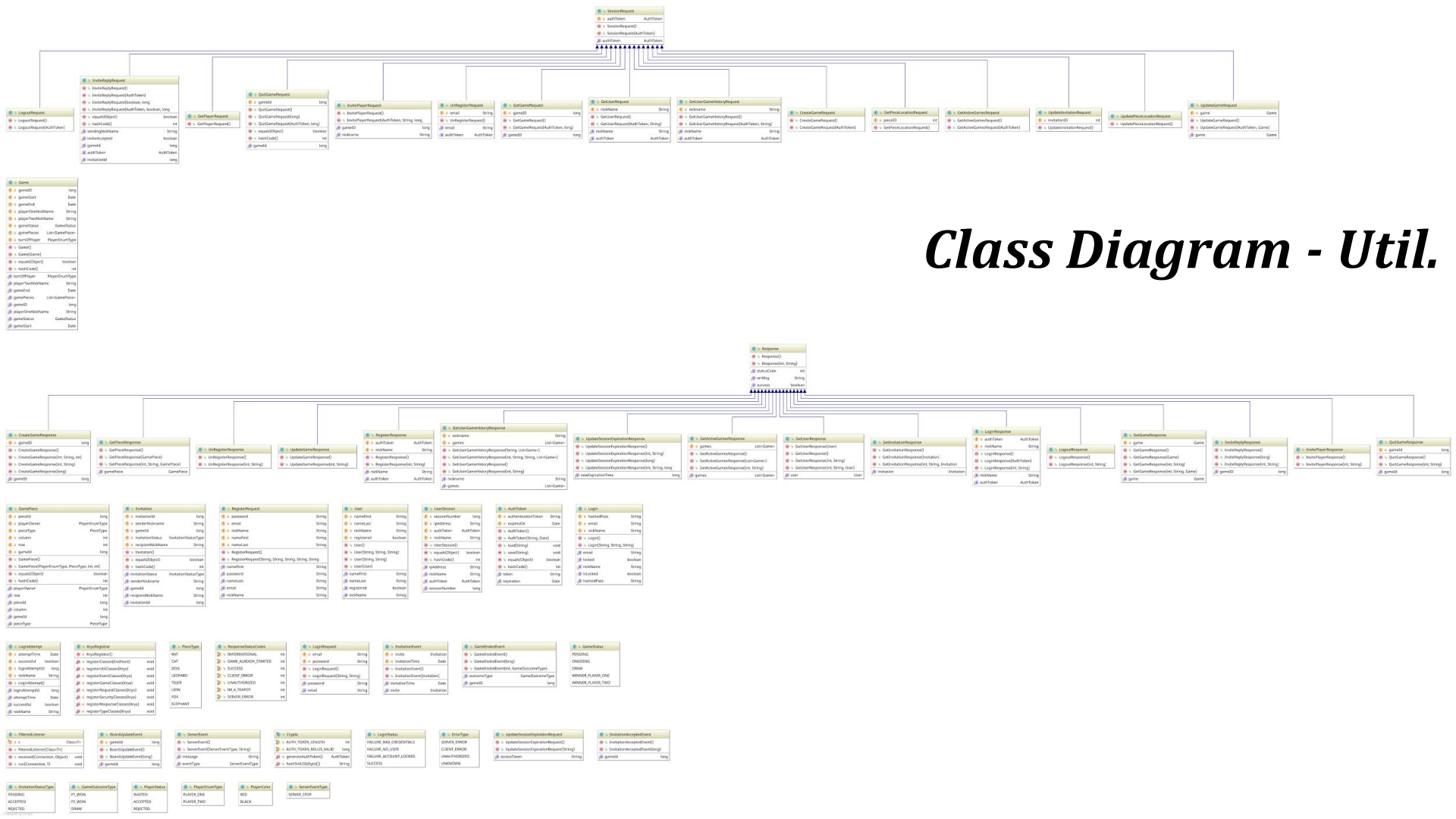
Class Diagram - Client





Class Diagram - Server

Class Diagram - Util.



Testing

Over 40 unique tests for Client side.

Over 25 unique, comprehensive Server side acceptance tests.

Development Manual Changes

- Now uses GitHub's Wiki.
- Added IDE specific instructions.
  - Eclipse
  - IntelliJ IDEA
- Added instructions for setting up database.
  - Using Docker + PostgreSQL
  - Using H2
- Added instructions for setting run configurations for all applications.

Refactoring & Design Patterns

Refactoring:

- Implemented MVC pattern in client
- Method and class extraction

New Design Patterns:

- Observer
- Factory/Abstract Factory
- Model-View-Controller

Existing Design Patterns

- Singleton
- Factory Method
- Abstract Factory Method
- Prototype
- Facade
- Decorator

Client Traceability Link Matrix

Client Traceability Link Matrix

	BaseController	Controller	GameBoardController	HomeController	LoginController	RegisterController	JungleGamePiece	BaseView	View
#1: Register to the system	x	x				x		x	x
#2: Create a new game	x	x		x			x	x	x
#3: Invite other users to a game	x	x	x					x	x
#4: Respond to Game Invitation	x	x		x				x	x
#5: Quit Game	x	x	x					x	x
#6: Unregister from System	x	x		x				x	x
#7: View Player Profile	x	x		x				x	x
#8: Log in to System	x	x			x			x	x
#9: Log out of System	x	x		x				x	x
#10: Move Game Piece	x	x	x				x	x	x
#11: Switch Game	x	x		x				x	x

Client Traceability Link Matrix

					Controllers			
	App	JungleClient	Main	ControllerFactory	GameBoardControllerImpl	HomeControllerImpl	LoginControllerImpl	RegisterControllerImpl
#1: Register to the system	x	x	x	x				x
#2: Create a new game	x	x	x	x		x		
#3: Invite other users to a game	x	x	x	x	x			
#4: Respond to Game Invitation	x	x	x	x		x		
#5: Quit Game	x	x	x	x	x			
#6: Unregister from System	x	x	x	x		x		
#7: View Player Profile	x	x	x	x		x		
#8: Log in to System	x	x	x	x			x	
#9: Log out of System	x	x	x	x		x		
#10: Move Game Piece	x	x	x	x	x			
#11: Switch Game	x	x	x	x		x		

	Game		Game Board Squares				Game Pieces							
	JungleGame	GameBoard	BoardSquare	DenSquare	RiverSquare	TrapSquare	CatPiece	DogPiece	ElephantPiece	FoxPiece	LeopardPiece	LionPiece	RatPiece	TigerPiece
#1: Register to the system														
#2: Create a new game	x	x	x	x	x	x	x	x	x	x	x	x	x	x
#3: Invite other users to a game														
#4: Respond to Game Invitation		x												
#5: Quit Game	x	x												
#6: Unregister from System														
#7: View Player Profile														
#8: Log in to System														
#9: Log out of System														
#10: Move Game Piece	x	x	x	x	x	x	x	x	x	x	x	x	x	x
#11: Switch Game	x	x												

	Models				Views				UI
	AccountModel	GameHistoryModel	GamesModel	InvitesModel	GameBoardViewImpl	HomeViewImpl	LoginViewImpl	RegisterViewImpl	InviteListCell
#1: Register to the system	x							x	
#2: Create a new game	x		x			x			
#3: Invite other users to a game	x			x	x				
#4: Respond to Game Invitation	x		x	x		x			x
#5: Quit Game	x		x		x				
#6: Unregister from System	x					x			
#7: View Player Profile	x	x				x			
#8: Log in to System	x						x	x	
#9: Log out of System	x					x			
#10: Move Game Piece	x		x		x				
#11: Switch Game	x		x			x			

Server Traceability Link Matrix

Server Traceability Link Matrix

	JungleConnection	JungleServer	Main	GameHandler	GameHistoryHandler	InvitationHandler	RegistrationHandler	SessionHandler	UserHandler	ConnectionProvider	DAOCommand	DAOManager	HikariConnectionProvider
#1: Register to the system	x	x	x				x			x	x	x	x
#2: Create a new game	x	x	x	x						x	x	x	x
#3: Invite other users to a game	x	x	x			x				x	x	x	x
#4: Respond to Game Invitation	x	x	x	x		x				x	x	x	x
#5: Quit Game	x	x	x							x	x	x	x
#6: Unregister from System	x	x	x				x			x	x	x	x
#7: View Player Profile	x	x	x		x					x	x	x	x
#8: Log in to System	x	x	x				x	x	x	x	x	x	x
#9: Log out of System	x	x	x					x		x	x	x	x
#10: Move Game Piece	x	x	x							x	x	x	x
#11: Switch Game	x	x	x	x						x	x	x	x

	RowMapper	BaseDAO	GameDAO	GamePieceDAO	GenericDAO	InvitationDAO	LoginAttemptDAO	LoginDAO	UserDAO	UserSessionDAO	PostgresDAOManager	PostgresGameDAO	PostgresGamePieceDAO
#1: Register to the system	x	x			x				x		x		
#2: Create a new game	x	x	x	x	x						x	x	x
#3: Invite other users to a game	x	x			x	x					x		
#4: Respond to Game Invitation	x	x	x		x	x					x	x	
#5: Quit Game	x	x	x		x						x	x	
#6: Unregister from System	x	x			x				x		x		
#7: View Player Profile	x	x			x						x		
#8: Log in to System	x	x			x		x	x	x	x	x		
#9: Log out of System	x	x			x			x	x	x	x		
#10: Move Game Piece	x	x	x	x	x						x	x	x
#11: Switch Game	x	x	x		x						x	x	

	PostgresInvitationDAO	PostgresLoginAttemptDAO	PostgresLoginDAO	PostgresUserDAO	PostgresUserSessionDAO	GameService	RegistrationService	SessionService	GameServiceImpl	InvitationServiceImpl	RegistrationServiceImpl	SessionServiceImpl	GameStateException
#1: Register to the system				x			x	x			x	x	
#2: Create a new game						x		x	x			x	
#3: Invite other users to a game	x							x		x		x	
#4: Respond to Game Invitation	x					x		x	x	x		x	x
#5: Quit Game						x		x	x			x	
#6: Unregister from System				x	x		x	x			x	x	
#7: View Player Profile						x		x	x			x	
#8: Log in to System		x	x	x	x		x	x			x	x	
#9: Log out of System			x	x	x			x				x	
#10: Move Game Piece						x		x	x			x	
#11: Switch Game						x		x	x			x	

Utility Traceability Link Matrix

Util Traceability Link Matrix

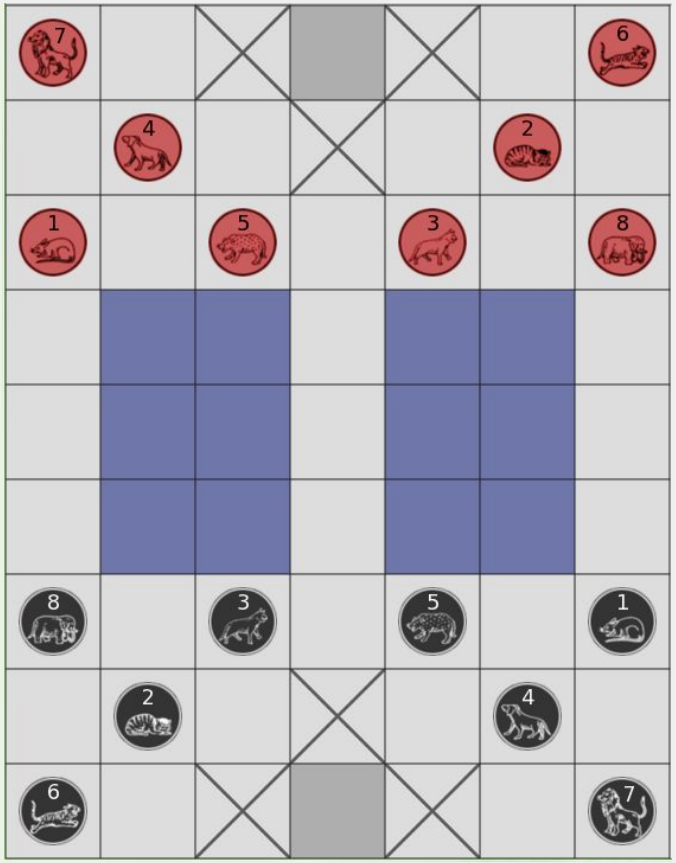
			Events					Data Objects					
	KryoRegistrar	FilteredListener	BoardUpdateEvent	GameEndedEvent	InvitationAcceptedEvent	InvitationEvent	ServerEvent	Game	GamePiece	Invitation	Login	Player	User
#1: Register to the system	x	x								x	x		x
#2: Create a new game	x	x						x	x	x	x		
#3: Invite other users to a game	x	x				x	x	x		x	x		
#4: Respond to Game Invitation	x	x			x		x	x		x	x	x	
#5: Quit Game	x	x		x			x	x			x	x	
#6: Unregister from System	x	x									x		x
#7: View Player Profile	x	x									x	x	
#8: Log in to System	x	x									x		x
#9: Log out of System	x	x									x		x
#10: Move Game Piece	x	x	x				x	x	x		x	x	
#11: Switch Game	x	x						x			x	x	

	Requests																		
	CreateGameRequest	GetActiveGamesRequest	GetGameRequest	GetPieceLocationRequest	GetPlayerRequest	GetUserGameHistoryRequest	GetUserRequest	InvitePlayerRequest	InviteReplyRequest	LoginRequest	LogoutRequest	QuitGameRequest	RegisterRequest	SessionRequest	UnRegisterRequest	UpdateGameRequest	UpdateInvitationRequest	UpdatePieceLocationRequest	UpdateSessionExpirationRequest
#1: Register to the system													x						
#2: Create a new game	x		x											x					
#3: Invite other users to a game								x						x					
#4: Respond to Game Invitation			x						x					x			x		
#5: Quit Game												x		x					
#6: Unregister from System														x	x				
#7: View Player Profile						x	x							x					
#8: Log in to System		x								x			x						x
#9: Log out of System											x			x	x				x
#10: Move Game Piece			x	x										x		x		x	
#11: Switch Game		x	x											x					

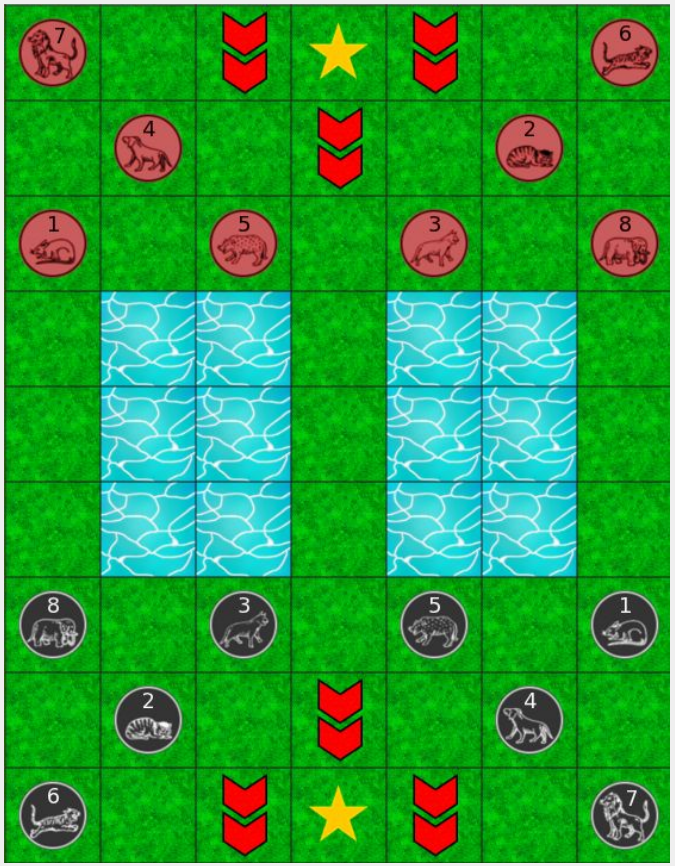
	Responses																	
	CreateGameResponse	GetActiveGamesResponse	GetGameResponse	GetInvitationResponse	GetPieceResponse	GetPlayerResponse	GetUserGameHistoryResponse	GetUserResponse	InvitePlayerResponse	InviteReplyResponse	LoginResponse	LogoutResponse	QuitGameResponse	RegisterResponse	Response	UnRegisterResponse	UpdateGameResponse	UpdateSessionExpirationResponse
#1: Register to the system														x	x			
#2: Create a new game	x		x												x			
#3: Invite other users to a game									x						x			
#4: Respond to Game Invitation			x							x					x			
#5: Quit Game													x		x			
#6: Unregister from System															x	x		
#7: View Player Profile							x	x							x			
#8: Log in to System		x									x			x	x			x
#9: Log out of System												x			x			x
#10: Move Game Piece					x										x		x	
#11: Switch Game		x	x												x			

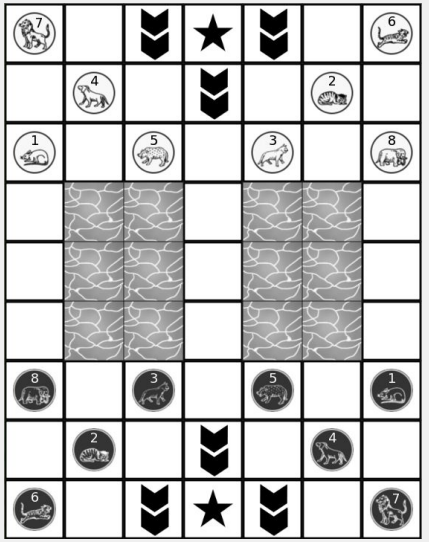
	Security			
	AuthToken	Crypto	LoginAttempt	UserSession
#1: Register to the system		x		
#2: Create a new game	x			x
#3: Invite other users to a game	x			x
#4: Respond to Game Invitation	x			x
#5: Quit Game	x			x
#6: Unregister from System	x			x
#7: View Player Profile	x			x
#8: Log in to System		x	x	
#9: Log out of System	x			x
#10: Move Game Piece	x			x
#11: Switch Game	x			x

Old Art



New Art





Challenges & Lessons Learned

Challenges:

- Using TDD.
- Automated Testing.
- Figuring out time and workload on github issues.
- Managing structure and operation on github branches.
- Constructing AI
- Clear communication across the three core sections to our code. (Client, Server, and UI)

Lessons Learned:

- Overlapping knowledge of the program code is critical to handling complications.
- An overall focus is more beneficial than working individually.
- Different perspectives and ideas improve the product when the main focus is maintained.
- Good design is critical too much quickly leads to complication.
- Wisely using your tools is helpful to manage shared knowledge.

Demonstration

Questions And Discussion