Large scale seeking game using android phones

Demonstration

ECE 651
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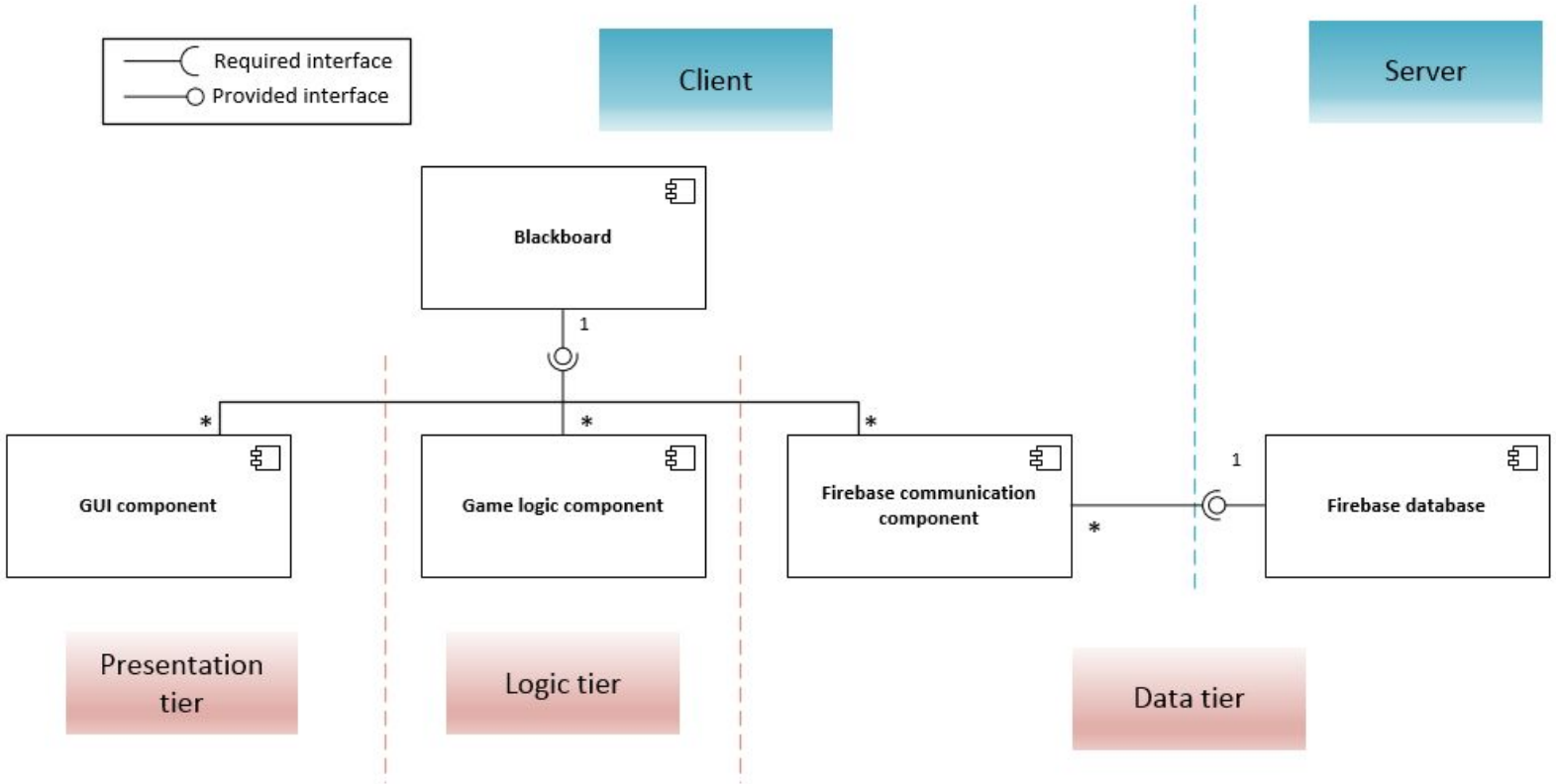
Agenda

- Project Description
- High Level Architecture
- Blackboard Motivation
- Observer Design Pattern Extension
- State Diagram
- Demonstration
- Design Challenges

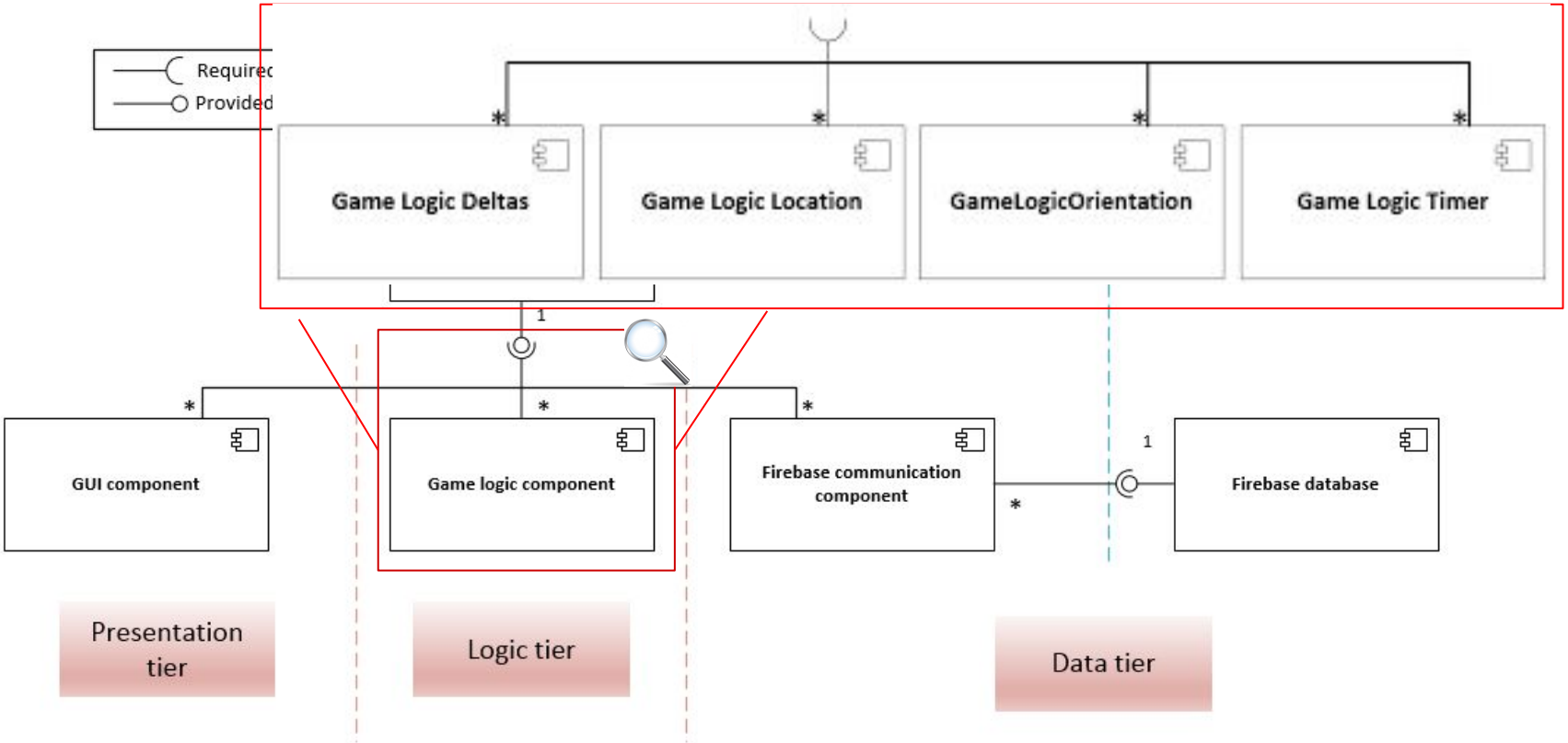
Project Description

- Android application
- Facilitates playing hide-and-seek style games
  - Over large areas
  - With many players
- Removes the onus of deciding who seeks whom from players
- Tracks when players are found

High Level Architecture



High Level Architecture

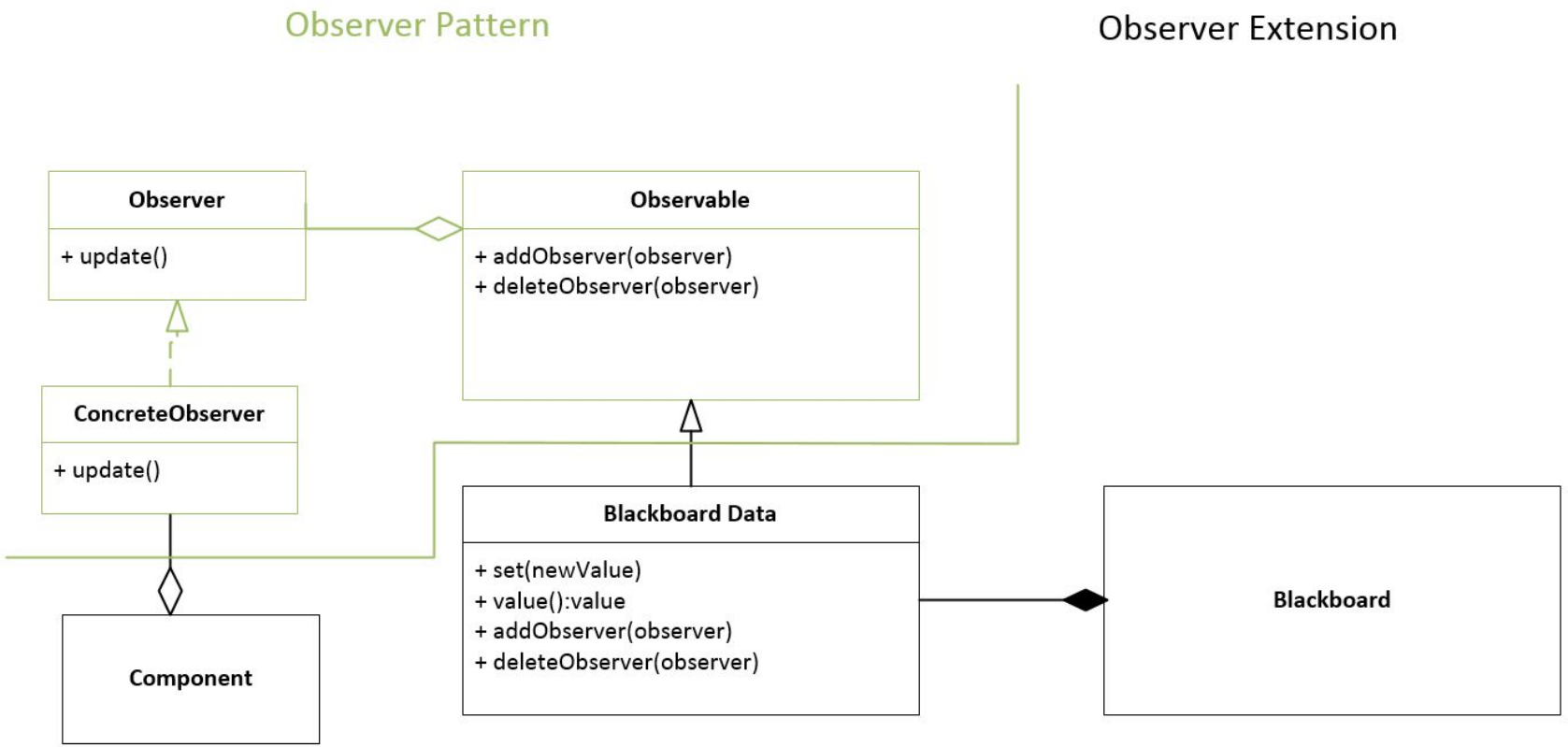


Blackboard Motivation

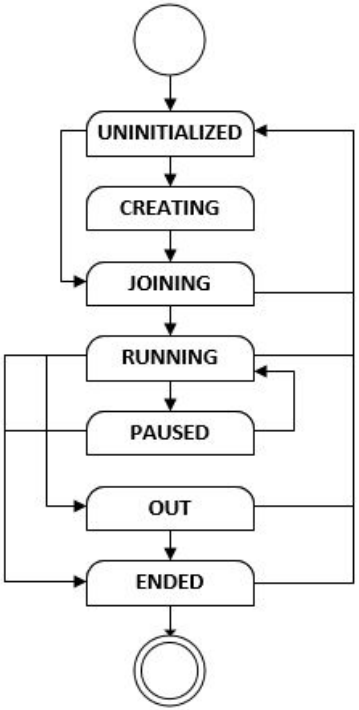
Why use a blackboard?

- Lowers coupling between and increases cohesion of components
- Standardizes communication interfaces
- Facilitates evolvability
- Enables modular unit testing
- Aids parallel development

Observer Design Pattern Extension

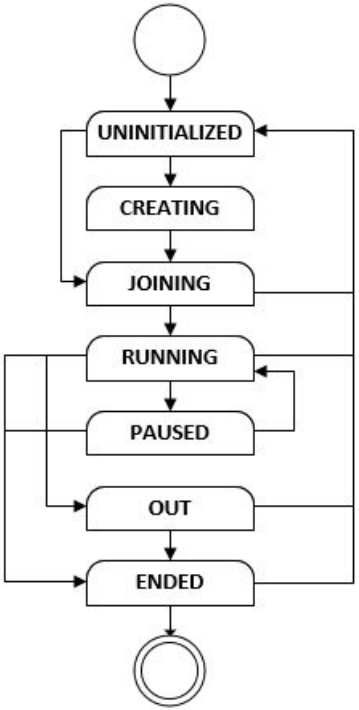


State Diagram



State	Description
UNINITIALIZED	Sets up the user in the database and logs the user into the game.
CREATING	Creates the game in the database and adds all users to the database. If necessary, generates the visibility matrix.
JOINING	Retrieves game information from the database. If the user is not already part of the game and there is space in the game, adds the user to the game.
RUNNING	Synchronizes user location to the server as well as locations of other users and calculates the delta to any users this user can see.
	Enables tagging of other users.

State Diagram



State	Description
PAUSED	Turns off all communication with the server
	Turns off location retrieval
	User cannot be tagged or tag other players
OUT	User has been tagged out. Removes user from the visibility matrix and transfers user's targets to tagger.
	Locations are no longer synced with the server
ENDED	Displays game statistics

Demonstration

Design Challenges

Communication concurrency

Real-time computation

Clearly defining gameplay

Writing testable/testing code

Working with the Android environment