3: Architectural Design

Contact

1. **Introduction and Context**
   There is a somewhat well known word game called Contact that exercises vocabulary and empathy, however it's commonly played in person. We intend to implement a version of the game that will allow players to connect to different games and play over the internet.

   Game Cycle
   7. Secret keeper starts by deciding on a word (secret word)
   8. First letter of secret word is revealed
   9. A guesser decides on a word that matches what's been revealed of the secret word (guess)
   10. Guesser announces a clue that implies the guess and either:
       a. other guessers infer the word and say contact
          or
       b. the secret keeper infers the word and if it does not match the secret word, can block by saying "it's not [guess]"
   11. If the secret keeper can't block, they call and the two guessers compare guesses. If the guesses match, another letter of the secret word is revealed
   12. Game continues until guess word is the secret word, or all the secret word is revealed

2. **Users and their Goals**
   - multiple (N) players
     - one secret keeper
     - N-1 guessers
   - game server
     - Manages contact game state data
     - Receive messages from players, update the game state, and broadcast the game state back to the players
   - Lobby
     - serves as directory of games not yet started
   - All 3 actors are probable processes, multiple game servers and player clients will be running, likely only 1 lobby process.

3. **Major Components and Their Relationship**
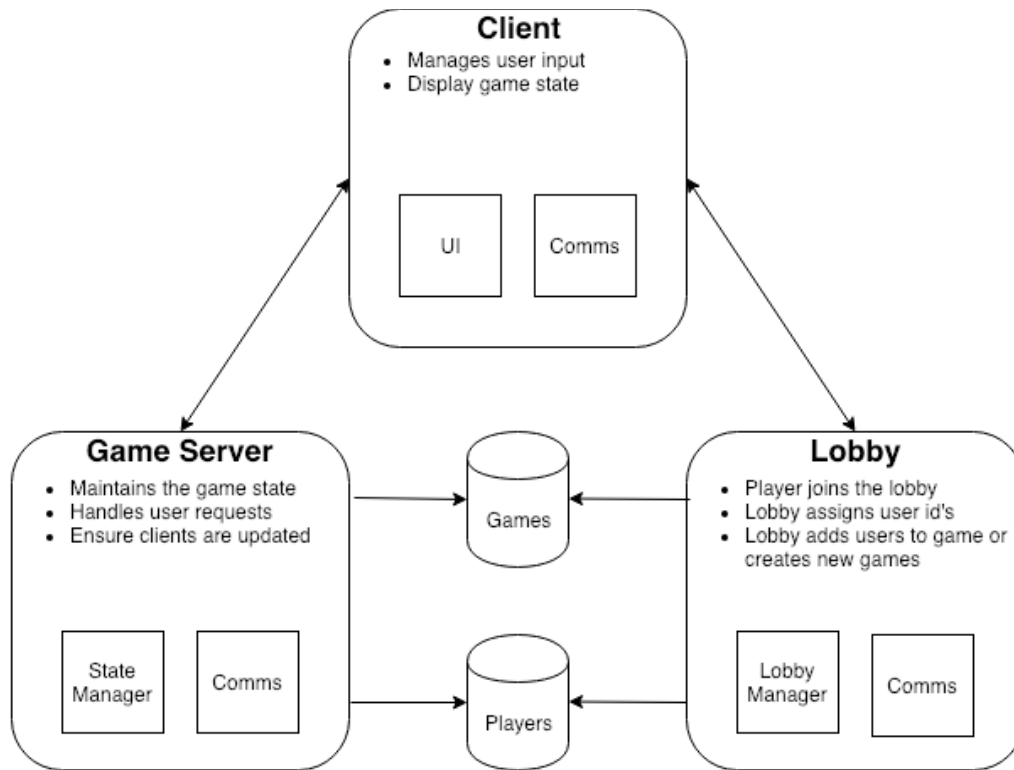
Game Server (possibly multiple)

- Manages game state
- Manages player list
- Communicates with each player client
- Communicates with lobby to update status,players

Lobby

- Resource Manager for the game list
- Communicates with each game server
- Communicates with each player client

Player Client (possibly multiple)

- Communicates with lobby when not in a game
- Communicates with game server while in game

draft data structure for components/objects

game server entity

int : game id
int : game mode id
  0 no secret word selected
  1 no clues have more than 1 contact
  2 secret keeper is currently attempting to block a contact
array of int-string tuples : player id's and aliases
int : secret_keeper_id
string : secret word
int : number of characters revealed
array of clue objects : active clues
int : current clue being resolved ID
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miscellaneous networking info

clue entity

int: clue id
str: hint
array of strings: blocks
array of int-str tuples : player ids and contact guesses

Player Entity

int: player id
str: alias
int: participating game id
array of clues: active clues
str: partial secret word

lobby entity

array of ints : game ids
array of int-address pairs : game ids and their connection info
array of int-alias parts : player ids and their alias