Introductions

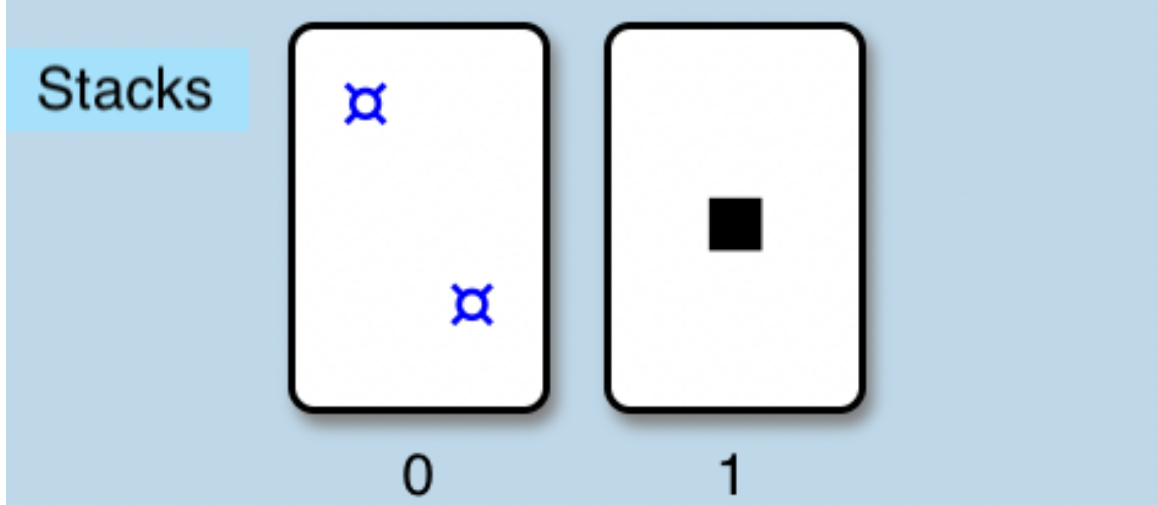
- About me
  - Always wanted to build something cool (not sure if I ever succeeded before today)
  - Started programming by building iPhone apps with friends and going to hackathons
  - Currently at Meta as a Software Engineer
  - Got Repetitive Strain Injury and have been transitioning to voice coding for the past year. Prepared this presentation without touching my keyboard
- What did you learn in this class so far?
- Today we will be building a multiplayer web browser version of the game called Blink
- Lets first try playing the table version!

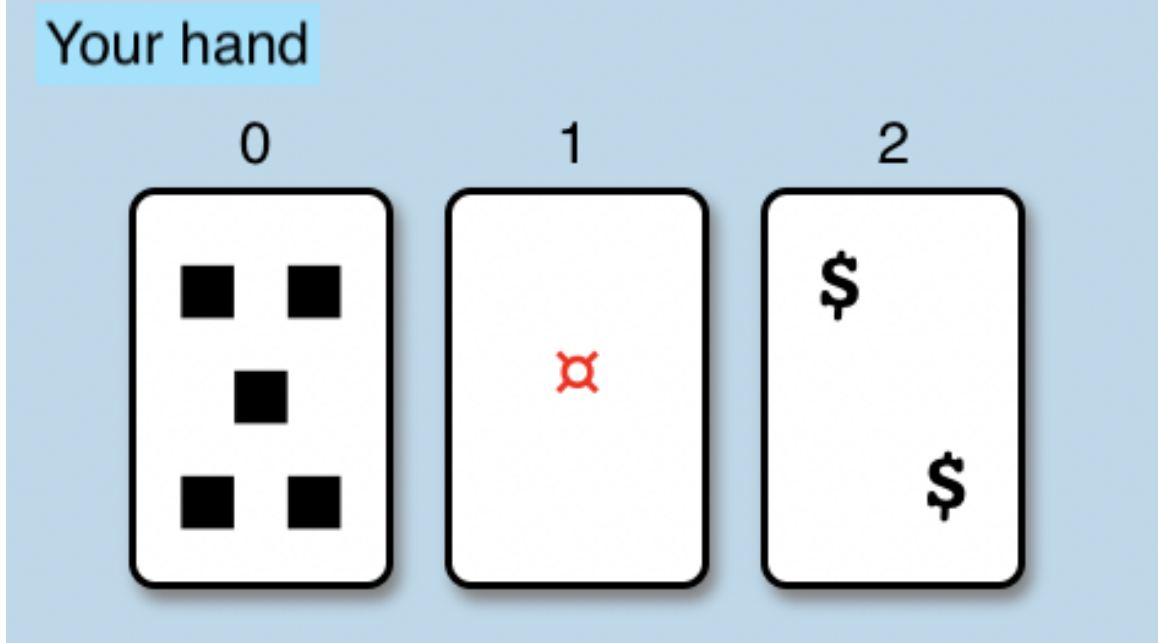
Understanding Blink

- How does our game start?
- How do a player make a move?
- How does one win?

Starting

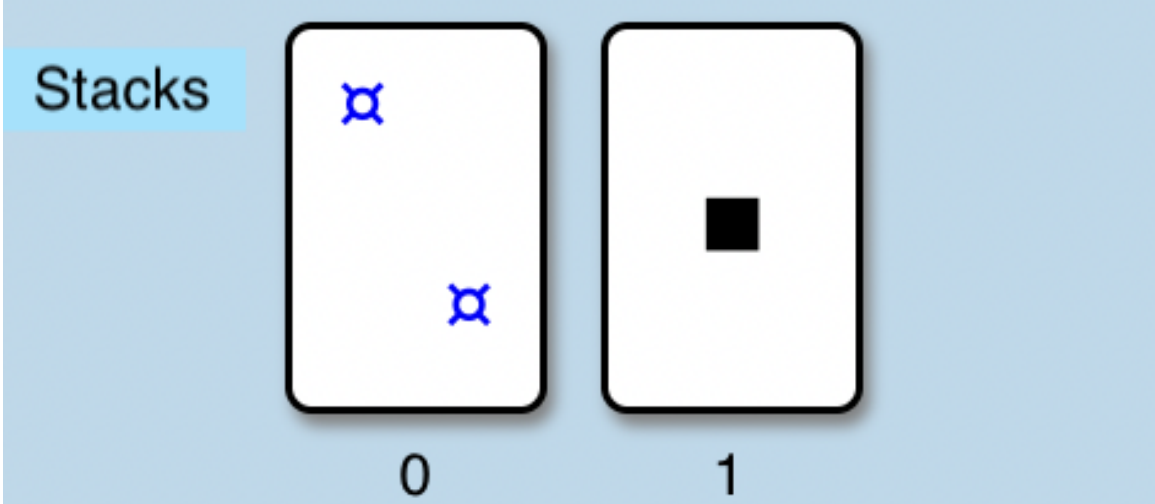
- Split in groups of 3 or less people and sit at the table
- Each player gets a deck of 19 cards each (face down)
- 2 cards are placed face up on the table, these are `stacks`
- Get 3 cards from your deck and hold them in your `hand`

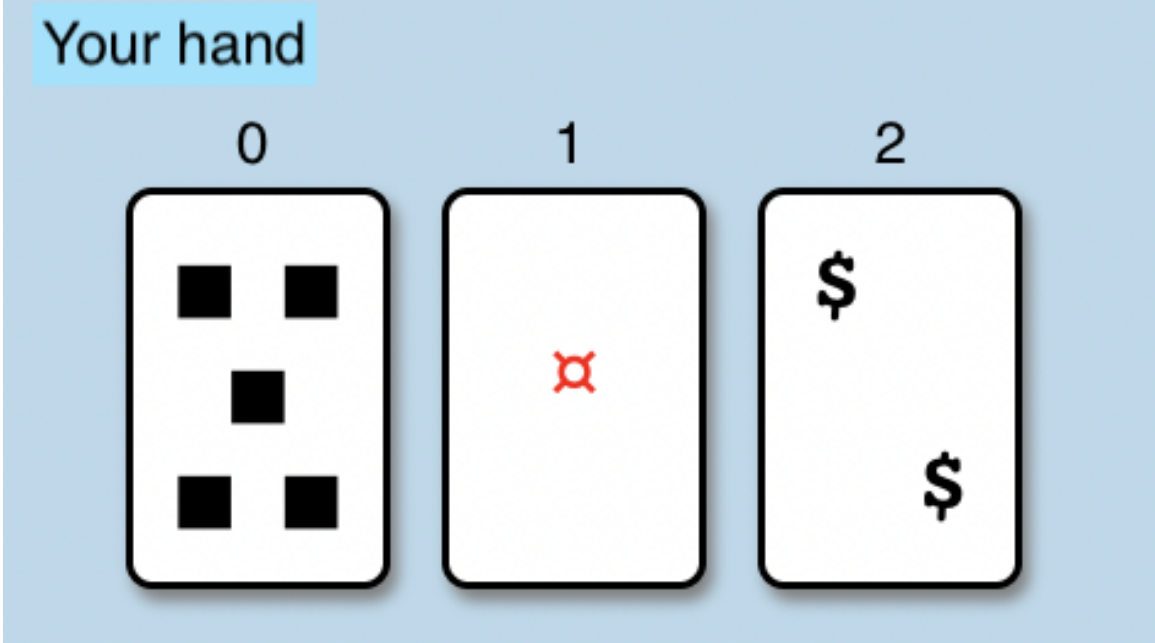




Moving

- You can play a card from your `hand` to a `stack`
- **If your card matches one of the features (shape, color or count)** of the card on top of a `stack`
- Which moves can you make here?





- The first player to run out of cards wins
- Let's play a round!

Modeling the game

What does the minimal version of our game need?

What does our player need to play?

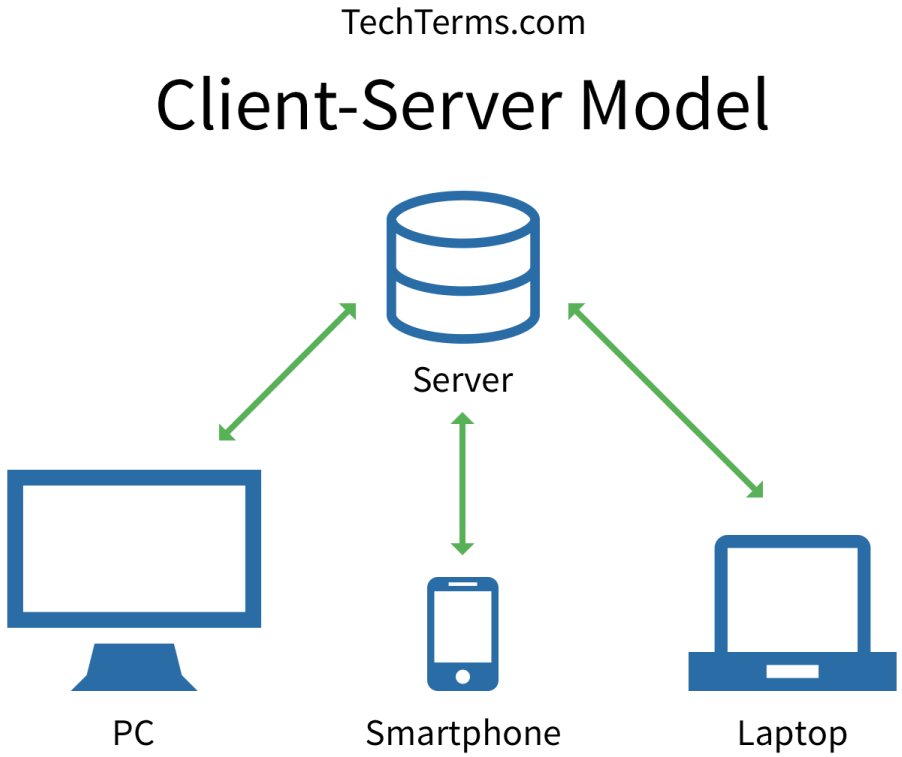
- Ability to create and join virtual tables
- Ability to see cards on the table - `stacks`
- Ability to see their cards - `hand`
- Ability to to make a move
- Ability to know when they won or lost

What will the website 👶 look like for our game?

- Supports entering a room name and user name
- **Given information** about what `stacks` are on the table, display top cards from each stack
- Display top 3 cards from user's `hand`
- Provide someway to move a card from player's `hand` to a `stack`
- Why did I highlight **given information**?
  - Because with every move the `stack` contents change!
  - How do the other players know a `stack` has changed?
  - We need a **magic server** 🧙

SERVER 🧙 WHAAT??

- 🦉 Knows everything about the game (stacks, players hands)
- 👂 Waits for players (clients) to make a move
- 👮 Verifies the move is allowed and makes it on behalf of the player
- 📢 Notifies each player that the game has changed
- 🏆 Detects when a player runs out of cards and declares them a winner



Knowing everything about the game 🦉

A server is just a computer, in our case my computer is the server. How does a computer know stuff?

- Knowing `==` storing data
- What data do we need to store?
  - `Stacks` on the table
  - Cards players have

How do we store things?

A data structure that stores each card stack is called a `List`

- It looks like this: `[ card 1, card 2, ... ]`
- > Pro tip: lists support operations like "Give me the first card!" or "Insert a new first card!"

A data structure that allows us to look up cards for a given player is called a `Dictionary`

```
{
  💩 : poopy cards,
  🤡 : clowny cards
}
```

- What else can we store with a Dictionary?

Testing the game

Go to blink.loca.lt

- With your team decide on a room name and enter in the text box
- Choose your warriors (cannot join with the same user)
- Once everyone is in start the game
- If you have any problems - ASK

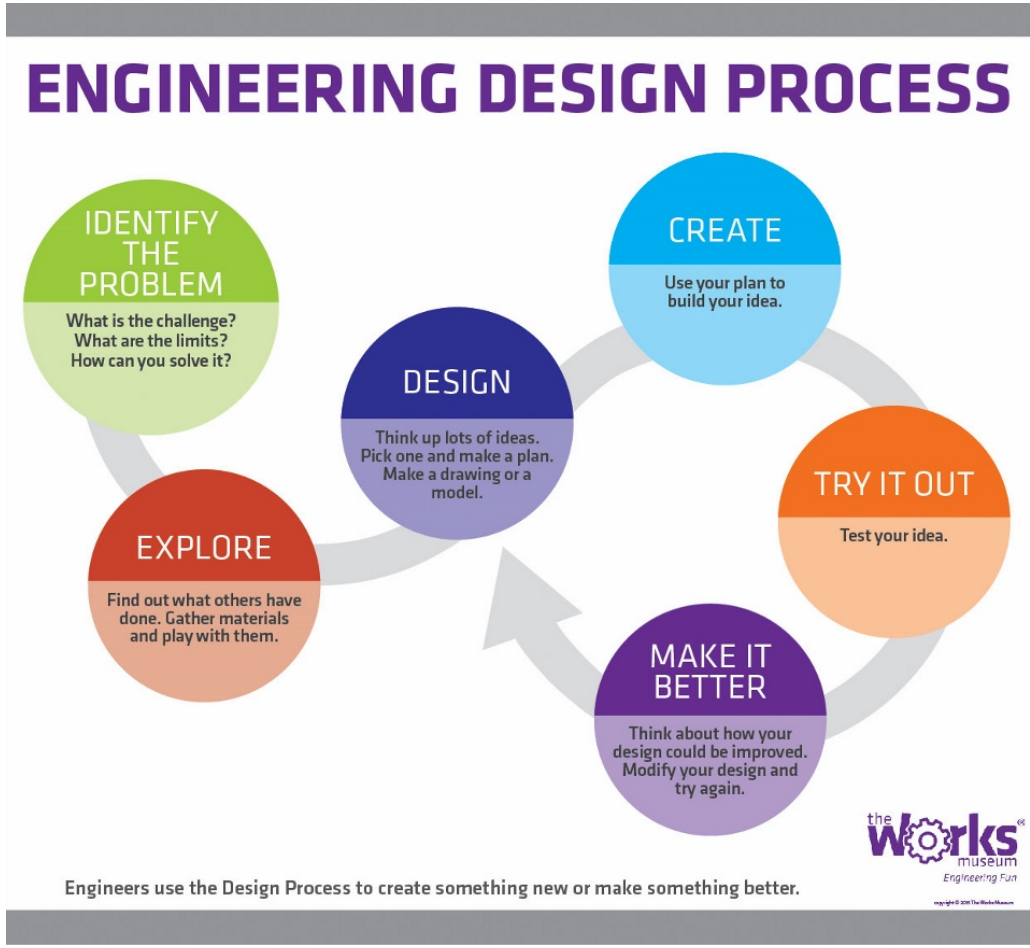
Changing the game

How can we change the game? Would this change go on the client 👶 or the server 🧙?

- Display remaining card count of other players.
- Reveal an additional card
- Display emoji of the player who's card is on top of the stack
- If player makes a wrong turn, give them an extra card

Closing notes

- How did we apply engineering design process today?
  - Explore - played the game
  - Design - described in plain english how the game would work
  - Create - implemented the first draft
  - Try it out - tested
  - Make it better - improved it as a group



Q&A

- Presentation link
- Tools used colyseus, react, ngrok
- It took me ~24 hours to prepare this