



# INSTRUCTABLES CONCEPT

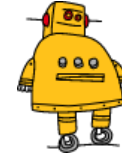
## DESIGN P1

Michael Yung

3 February 2023

ENP 166 SPRING 2023

# BACKGROUND



**AUTODESK**  
Instructables

*Instructables is a website that provides basic instructions for how to complete a task or learn a skill of the user's choice. The goal of this assignment is to transform the traditionally desktop-based website, Instructables, into an app optimized for smartphones. This assignment also seeks to teach the user about a specific topic, how to accomplish it, and what you should not do to accomplish it.*

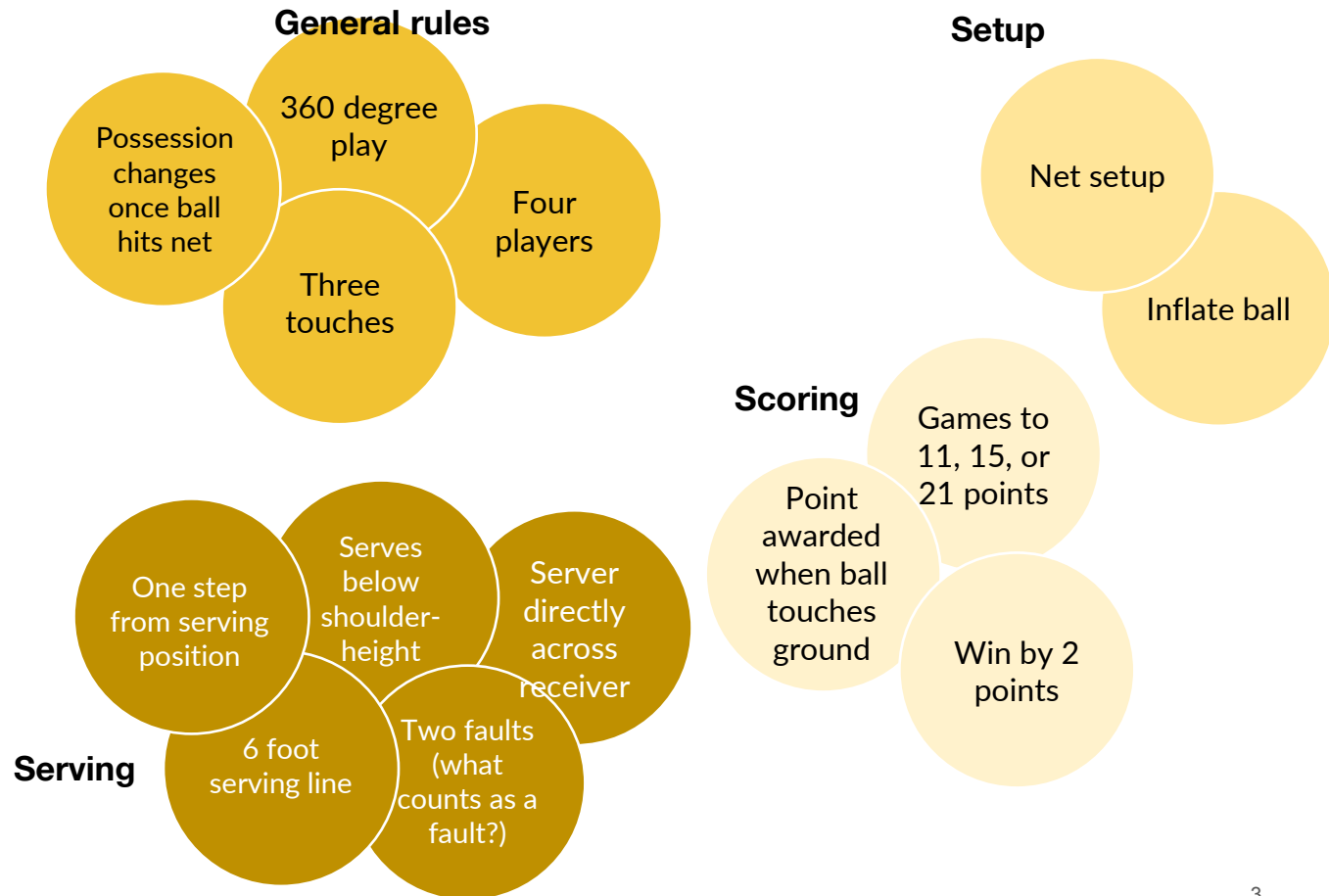
*For the first half of this assignment, we are tasked with ideating three distinct ideas and then further developing one of the three. This involves developing personas, mapping and walking through the customer's journey, exploring potential features, and developing a basic site map. My topic of choice was teaching users how to play the popular outdoor sport known as Spikeball. This deliverable will discuss important topics pertaining to learning Spikeball and walk through the ideation process in developing an Instructables app for this sport.*

**Enclosed in this submission are:**

1. Background statement
2. Three concept explorations and their affinity diagrams
3. Chosen concept rationale
4. Two Persona sheets
5. Journey Map
6. Potential features exploration
7. Site map

### Concept 1: How to Play Spikeball

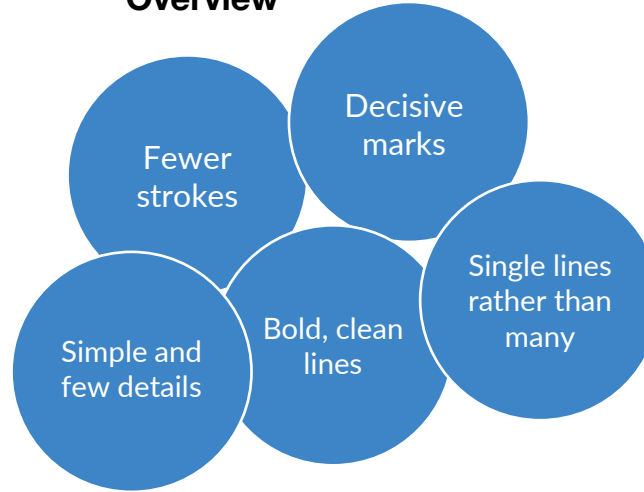
Spikeball is a dynamic outdoor sport in which two pairs of players alternate hitting a ball onto an elevated net on the ground. Similar to volleyball, each team has three touches to get the ball on the net. It's a fantastic and competitive sport to play with friends and is great for team building and collaboration. Given the game's simplicity, it offers a fast-learning curve that appeals to beginners and advanced players alike.



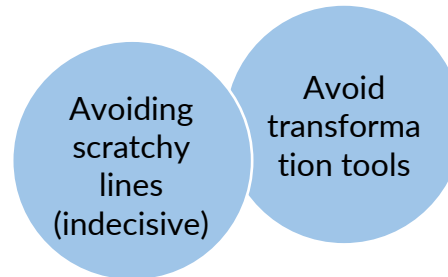
### Concept 2: Drawing Confident Lines

Whether you are a seasoned artist or just starting out, learning how to control your pencil strokes is essential to developing confidence and speed in your marks. Most beginners start with a scratchy form of sketching characterized by many tight and inconsistent lines; this results in messy and incoherent drawings. Learning confident lines involves learning how to use your entire arm when drawing and committing to a single pencil stroke. It creates improved line quality and is more effective for getting your ideas across.

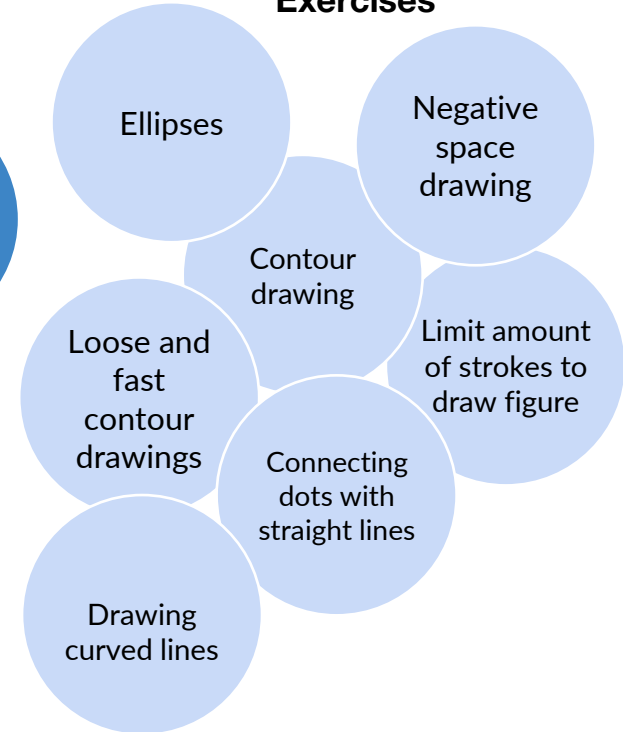
#### Overview



#### Avoiding Habits

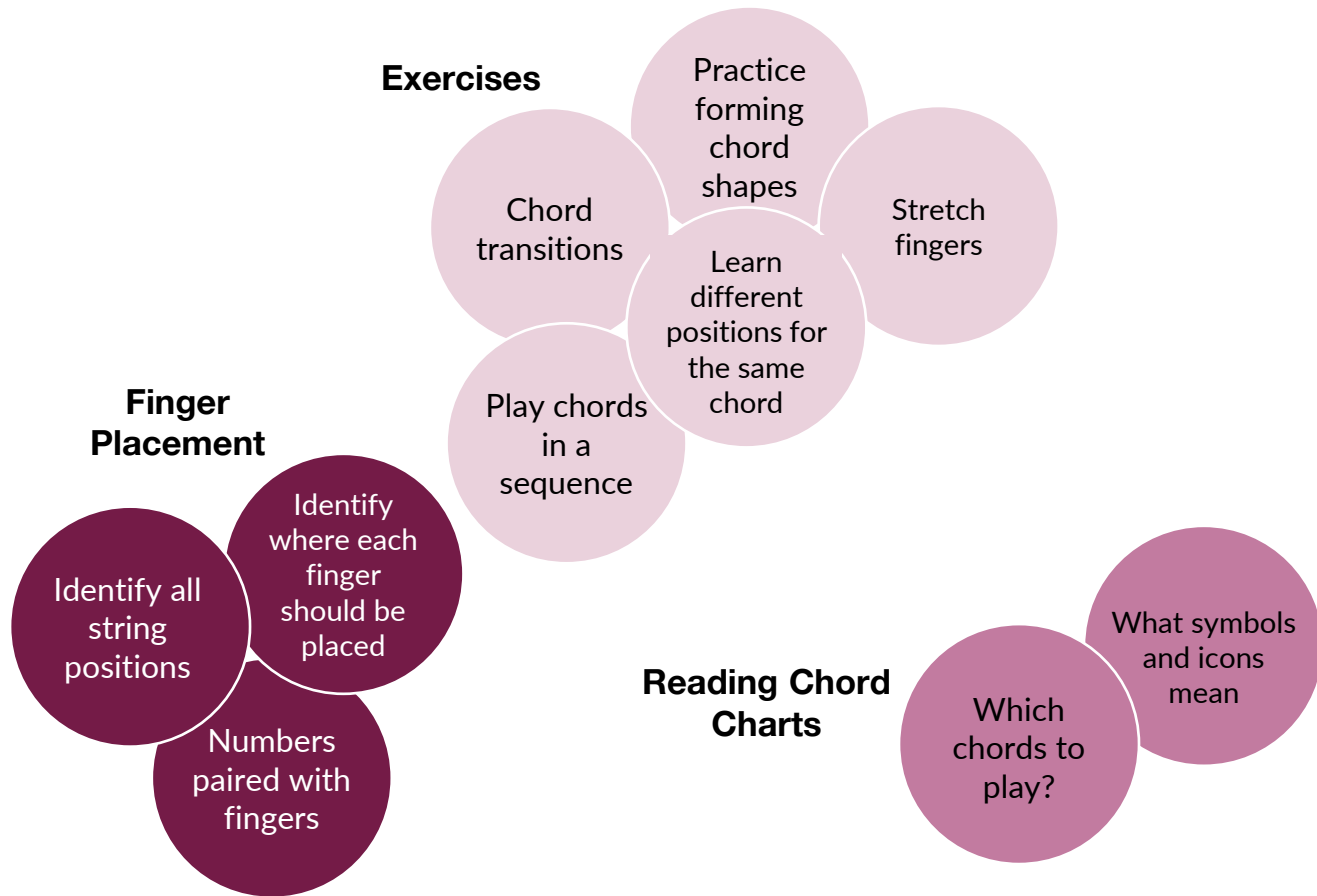


#### Exercises



### Concept 3: Playing Chords on the Ukulele

Learning chords on the ukulele is often the gateway to getting into music and learning how to play songs. Given its accessibility and approachability, many people turn to it as their first instrument. Learning chords involves memorizing a variety of different patterns across the four strings and numerous frets across the fretboard. Practicing your muscle memory of these chord shapes and learning how to quickly transition between these shapes is essential for being able to play a variety of songs.

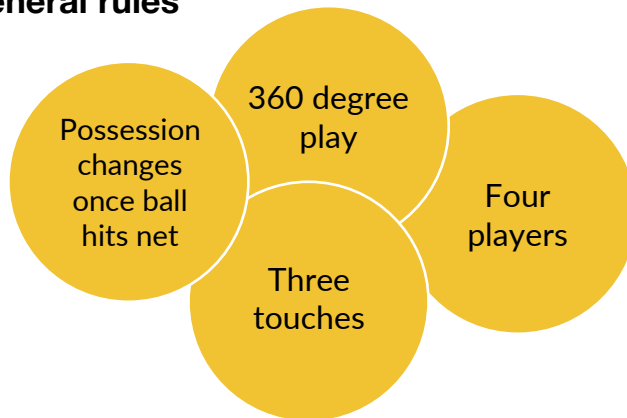


### SELECTED CONCEPT: How to Play Spikeball

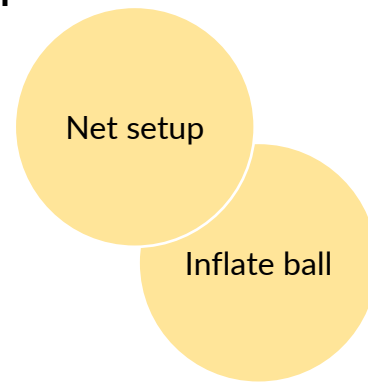
Although Spikeball is a relatively simple and easy-to-pick-up game, there are a variety of topics that can be further explored to elevate one's skills. While the main focus will be teaching how to play the game, certain elements such as serving and scoring will be further developed in order to provide an in-depth understanding of the task. Developing a thorough Instructables app will provide a comprehensive overview of the sport which will provide an easier learning experience for beginners.

I decided to further develop this idea because given my experience being on the Tufts club Spikeball team and my relative competency and knowledge of the sport, I feel that I would be able to fully flesh out certain details and understand a variety of different user needs.

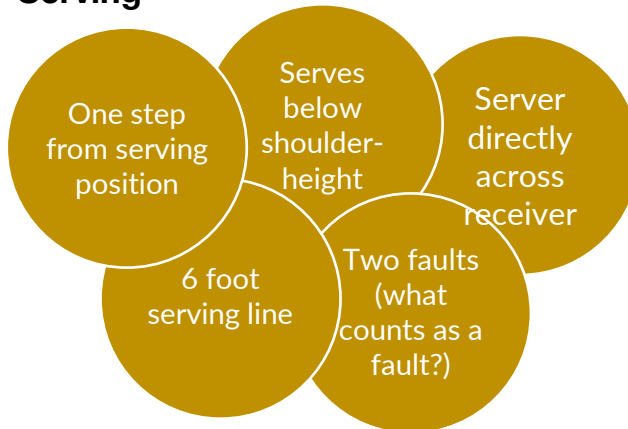
#### General rules



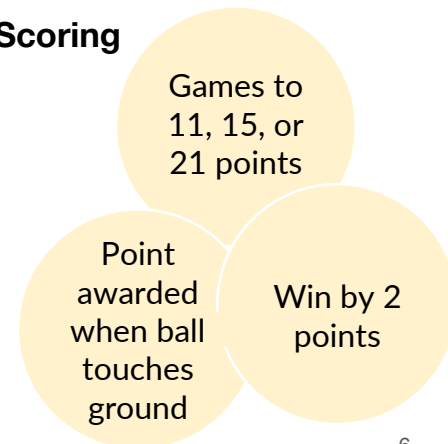
#### Setup



#### Serving



#### Scoring



# Persona 1: Evan

- Occupation: Full-time student
- Age: 20
- Location: Medford, MA
- Natural athlete

Athleticism

High



Smartphone Familiarity

Expert



## About

Evan is a highly competitive 20-year-old college student who is always looking for new and exciting sports and games to play. Given his tight schedule, he is looking for an easy-to-set-up, fast, and exciting new sport to try out with his friends.

## Motivations

- Evan is very sociable and wants to spend more time with friends
- He also wants to stay active and try out a new and accessible sport
- Enjoys the challenge of learning and improving his skills. He is motivated by competition and the thrill of winning

## Behaviors

- Evan has previously played varsity tennis and volleyball for his highschool's team; he still plays recreationally; he recently tried out parkour and acrobatics classes
- He almost always uses his phone and laptop to watch shows, text, and work
- Evan works out frequently (4 days a week)

## Goals

1. Evan's main goal is to become very skilled at Spikeball and win a tournament
2. In order to stay competitive and have an edge on his friends, he wants to learn new techniques to improve his skills
3. He needs a way of connecting and organizing events more easily with friends

## Challenges

- Since Evan has a heavy class load, he often doesn't have enough free time to practice or play sports
- His friend's schedules often don't align which means he struggles with finding consistent group members to play with

# Persona 2: Sarah

- Occupation: Yoga instructor
- Age: 36
- Location: Concord, NH
- Fitness enthusiast

## Athleticism

Moderate



## Smartphone Familiarity



Novice

## About

Sarah is a 36-year-old yoga instructor looking for new ways of staying active and challenging herself physically. She also has dyslexia and struggles with reading instructions; she often uses audiobooks and videos to learn.

## Motivations

- Sarah enjoys hiking, going for runs, and playing a variety of different sports recreationally
- She is motivated to stay active in order to maintain her health, stay in a positive mood and connect with others
- She is always looking for new activities to add to her daily routine

## Behaviors

- Sarah does not work out often but frequently goes for runs and hikes
- She isn't too familiar with her smartphone and uses it mainly for calling and texting friends
- In her free time, she enjoys listening to audiobooks, watching the latest shows on TV, and preparing lessons for her clients

## Goals

1. Sarah wants to be able to have a full understanding of how to play Spikeball
2. She wants to play and connect with new people
3. She wants to challenge herself to win a game either with friends or other people

## Challenges

- Given that Sarah has dyslexia, she struggles with reading and requires other forms of accessible communication
- She is not the most tech-savvy and requires help when using apps



# Spikeball Journey Map



Learning

What kind of set? What are the differences?

Playing

How do you evenly attach the net? Tip/tricks?

Improving

## 1. Preparation

- Purchase a Spikeball set

## 2. Learn to Play

- General rules (what is the objective of the game; how do you win?)
- How to serve the ball (two faults allowed; serve from 6 feet away from net; serving mechanics)
- Scoring (games to 11, 15, or 21; how are points scored?)
- Rallies (any part of body can be used; touches alternate between teammates)
- Hinders (interference)

## 3. Setup

- Assemble the frame of the net
- Evenly attach the net to each of the hooks around the net frame
- Inflate the ball to around 12 in circumference

## 4. Assemble a Team

- Find three other people to play with
- Form teams of two

## 5. Play

- Find an open indoor or outdoor space
- Center the net
- All players position in a "plus" shape
- First team initiates the game by serving the ball onto the net

## 6. Learn strategy and improve skills

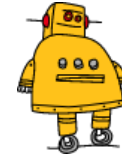
- Defensive strategies
- How to hit the ball lower and faster
- Serving strategies
- Common errors and how to solve them

## 7. Implementation

- Practice improving skills by setting up the net and working on drills independently
- Play with others to implement learning and try out new skills

Where and how can I get better at playing?

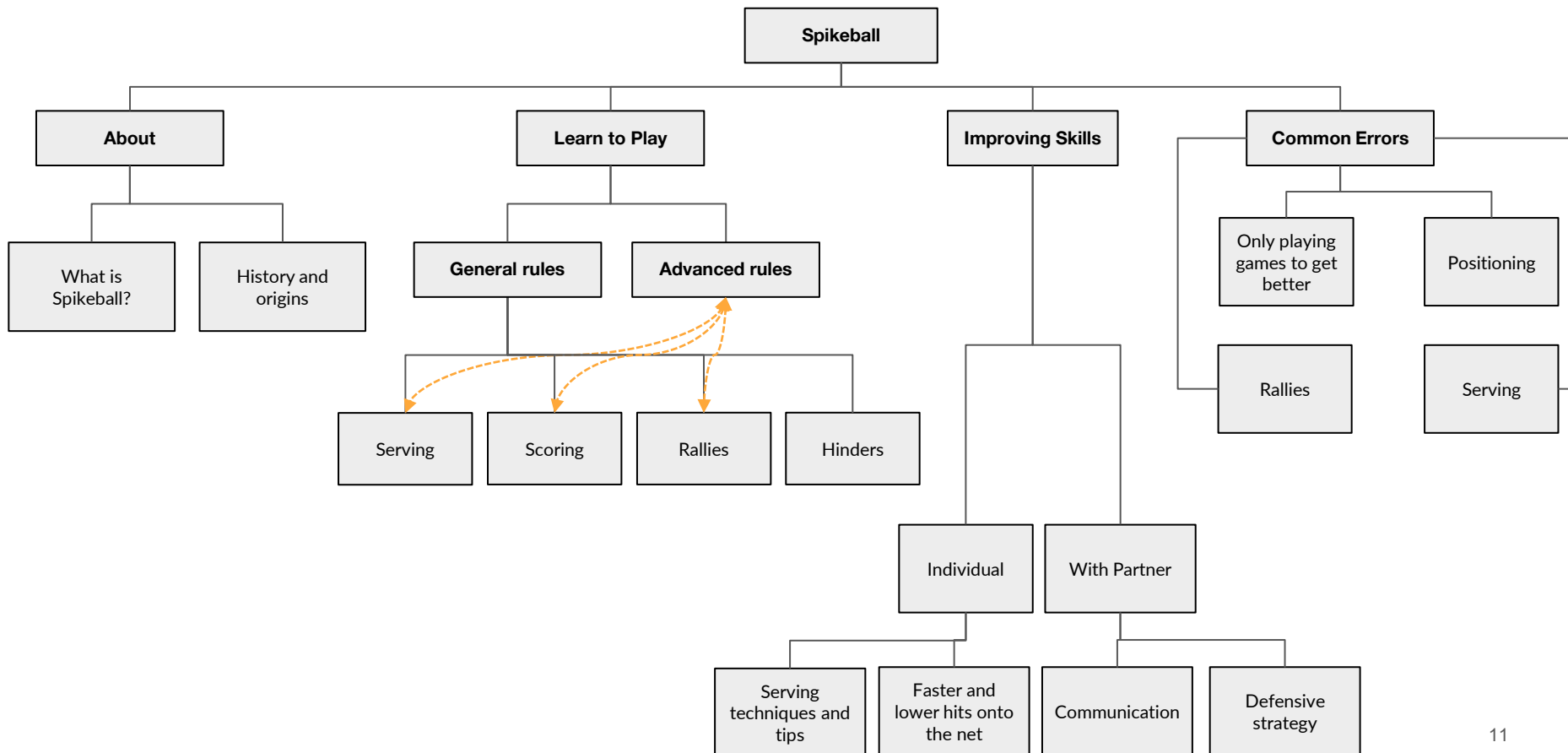
What kinds of drills can I do?



# POTENTIAL FEATURES

1. The app will inform the user about the rules of the game so that they can successfully play with others.
2. The app will provide detailed explanations on specific topics so that users can better improve their understanding and skills in that field.
3. The app will provide detailed and accurate visuals that can help the user visualize and accurately replicate tasks.
4. The app will offer an adaptive text-to-speech feature so that users can actively listen to the tasks without having to use their hands.
5. When learning specific skills, users will be able to scroll vertically through a gallery of photos and tutorials so that they can learn and have access to a variety of options.
6. The app will have a search bar feature so that users can input keywords and find specific topics they want to learn.
7. The app will have a simple and well-tested UI design so that users can easily navigate and access resources.
8. The app will offer screen magnifiers and options to increase the text size to best suit the user so that they can accurately read and understand the content.
9. The app will offer an optional advanced rules section so that more advanced players are able to elevate and improve their gameplay (adaptive settings).
10. The app will include a resources and news page so that players can have access to reputable external resources and keep up do date with important Spikeball events.

## Instuctables - Site Map





# INSTRUCTABLES CONCEPT

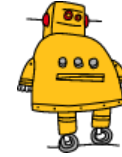
## DESIGN P2

Michael Yung

13 February 2023

ENP 166 SPRING 2023

# BACKGROUND



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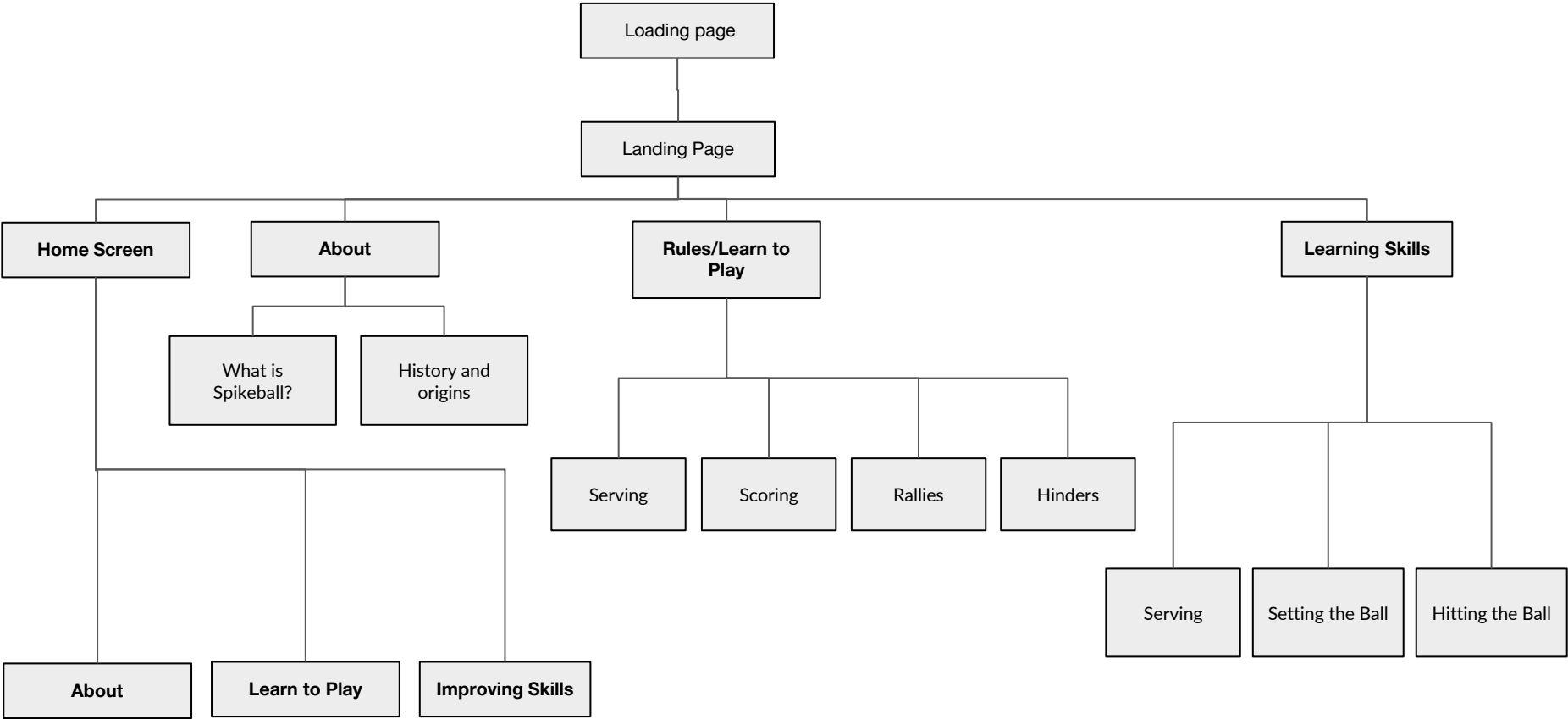
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*For the second half of this assignment, we are tasked with developing a low-fidelity wireframe for our app using the site map we created in part one. With each page, we were asked to provide a rationale for the screen and describe the key features and interactions. Additionally, we were tasked with conducting a usability test by having participants independently navigate the app and then documenting what sorts of difficulties or questions that arose.*

**Enclosed in this submission are:**

1. Background statement
2. Updated site map
3. Wireframe overview
4. Wireframe pages and their respective rationale
5. Usability test documentation

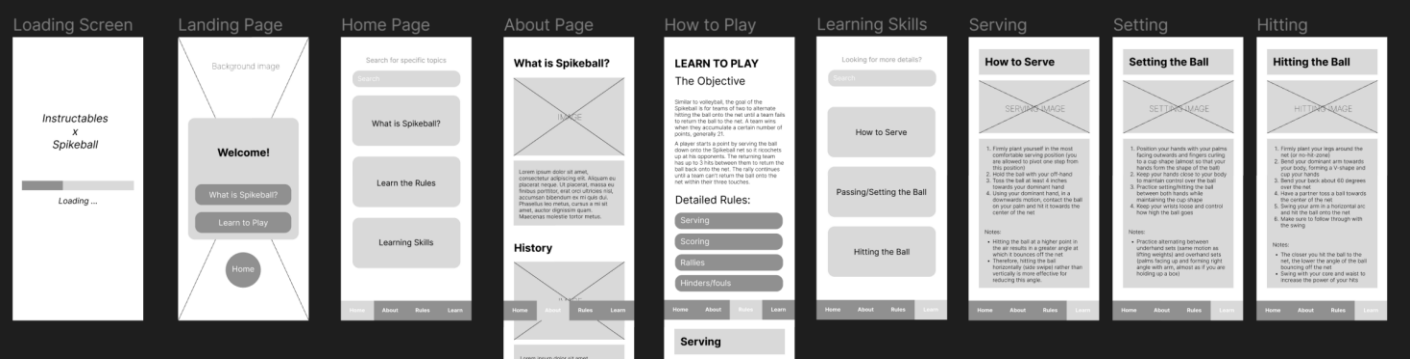
Instuctables – Updated Site Map



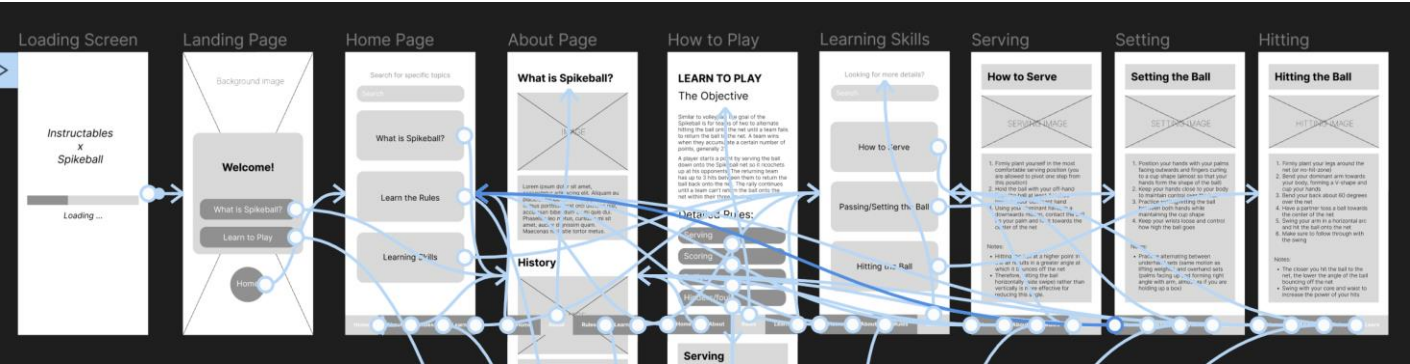


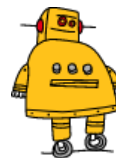
# WIREFRAME OVERVIEW

## Primary pages

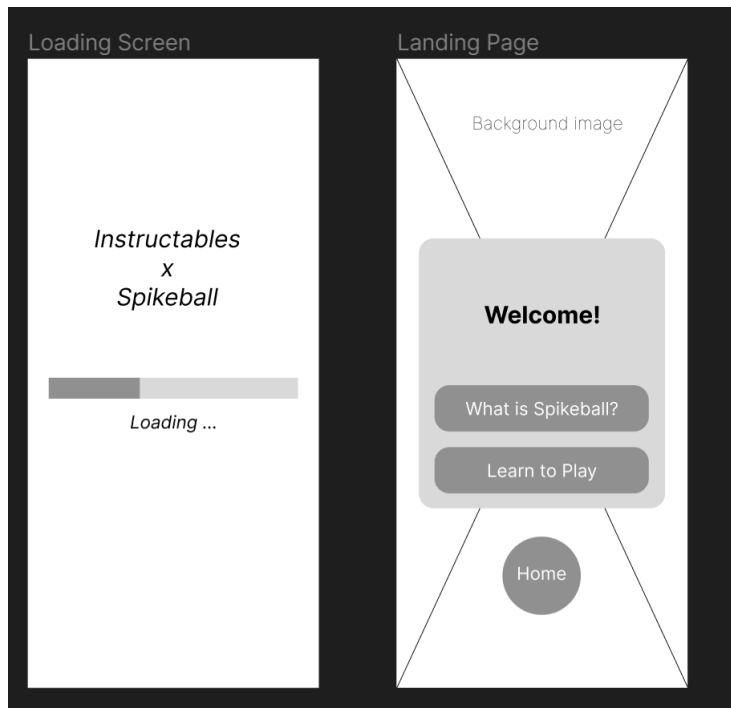


## Interaction Overview





# Loading and Landing Frames

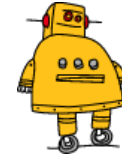


The first aspect of the wireframe included the loading and landing pages. I kept the loading page simple by including the title of the website and Spikeball while also including a loading bar to provide feedback about the system's status. This page is necessary because in an actual app, it is necessary that it has sufficient time to load its content; creating a page to indicate this status is essential for letting the user know that the app has been opened and is functioning. In the Figma prototype, I added a 5 second delay between both pages to simulate this.

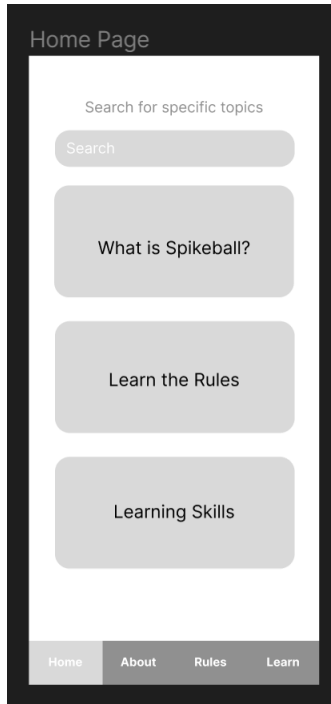
The second page is the landing page, an introductory page that offers a navigational hub for new and returning users to access what they need. New users can learn about Spikeball by clicking the first button while those interested in learning how to play can click the "learn to play" button. This frame also has a home button to allow returning users to have immediate access to other features offered on the home page.



# Home Frame



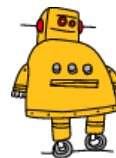
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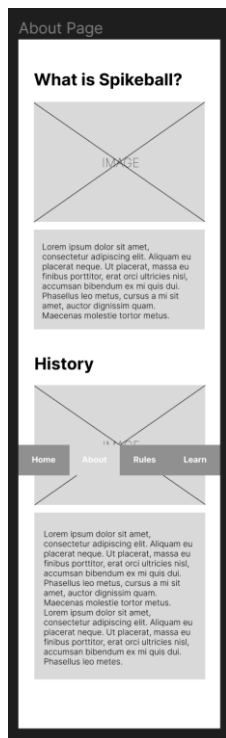
The home screen is the main navigational hub that can be accessed via the landing page. The purpose of this frame is to provide easy access to all the content in the app and as a “home base” for the user’s reference. Additional features, if added, would be included on this page. The design was kept to a minimum in order to reduce any confusion and provide easy access to different pages on the app.

The key features on this frame include the search bar, key feature buttons, and the features bar located at the bottom. The purpose of the search bar is to allow users to search keywords that they are interested in or unable to find on the home screen. This will pull up relevant information from the app and navigate the user there. The key feature buttons mirror what was displayed on the landing page but also include the learning skills button. This is meant for intermediate players who are interested in learning more about a particular skill. The features bar on the bottom is included in all subsequent pages and is meant to as a shorthand for the home screen. While not as detailed and more concise, it will allow users to navigate between pages easily. The user’s current page will be highlighted in light gray (immediate feedback); clicking this button will take the user to the top of the page.

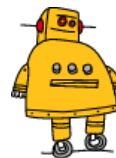
# About Frame



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The “about” frame can be accessed via the features bar, the home screen, and the landing page. The purpose of this frame is to offer introductory information about what Spikeball is and its general history. The layout and general design of each section include the title, a relevant photo, and text about the respective topic. This layout is used throughout the app as a way to create a consistent design. The key features include the ability to scroll vertically and the features bar. The ability to scroll vertically allows the user to access more relevant information about Spikeball and its history. The features bar will allow easy navigation to other pages.



# “Learn to Play” Frame

## How to Play

### LEARN TO PLAY

#### The Objective

Similar to volleyball, the goal of the Spikeball is for teams of two to alternate hitting the ball onto the net until a team fails to return the ball to the net. A team wins when they accumulate a certain number of points, generally 21.

A player starts a point by serving the ball down onto the Spikeball net so it ricochets up at his opponents. The returning team has up to 3 hits between them to return the ball back onto the net. The rally continues until a team can't return the ball onto the net within their three touches.

#### Detailed Rules:

Serving

Scoring

Rallies

Hinders/fouls

Home About Rules Learn

#### Serving

SERVING IMAGE

##### General

- All players except the receiver must stand at least 6 feet from the net.
- The server must stand 180 degrees across from the receiver.
- Servers may be struck with any amount of force or spin when servers are allowed.
- The ball must be tossed at least 4 inches and have a clean contact.
- A server is allowed to touch the ball.
- A ball is out when the ball touches the ground, hits the rim of the net, hits a point of the net (does not move in a straight line), bounces on the net or rim, or if the ball goes over shoulder height of the receiver.

##### Advanced

- Server is allowed one pivot step from their starting position.
- The server must announce the score, whether it is their first or second serve, and then have the receiver acknowledge before serving.
- Prevents servers from catching the receiver off-guard.

#### Rallies

RALLIES IMAGE

##### General

- Teams have 3 touches to return the ball to the net.
- Touches must alternate between teammates. Consecutive touches by one player result in a loss of a point.
- The ball must be contacted directly, not caught, held, or thrown. Players may not hit the ball with two hands, even if placed together "volleyball-style".
- Players may use any material part of their body to hit the ball.
- When the server and receiver touch the ball, the server must not touch the ball.
- A shot which lands on the net, rolls over the net and then off the net is a roll-up to played as a pocket, not a direct touch.
- If teams cannot determine the legitimacy of a roll-up, replay the point.

##### Advanced

- A "no-ice zone" must be drawn 1.5 feet around the center of the ball.
- Players are not allowed to step into this zone when hitting the ball. No-ice zone violation will result in a loss of a point.

#### Scoring

SCORING IMAGE

##### General

- Games are played by 11, 15 or 21.
- Games must be won by two points unless otherwise agreed upon or specified.
- The rally ends and a point is awarded when:
  - The ball contacts the ground or otherwise isn't returned onto the net within 3 touches.
  - The ball is hit directly into the net at any time, unless it is the first serve.
  - The ball bounces and falls back onto the net or rim.
  - The ball rolls across the net.
- If the receiving team wins the point, the next designated player serves according to the initial sequence. Otherwise, the server switches places with their partner and serves to the other receiving team member.

##### Advanced

- The person who serves first is always on the right in relation to their partner.
- When the score is even, the person on the right should be the server and vice versa.

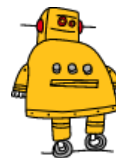
#### Hinders/fouls

HINDERS IMAGE

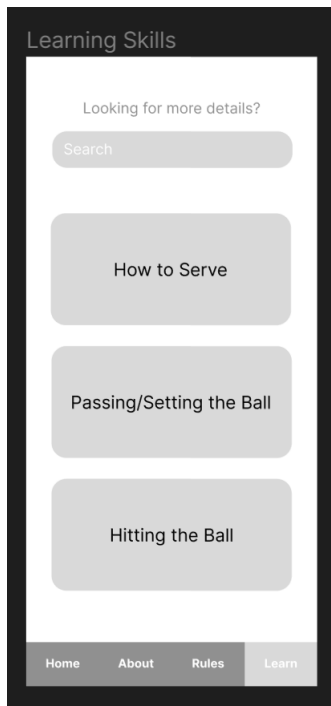
##### General

- Defending players must make an effort not to impede the offending team's preparation or play of the ball.
- If an offender collides with a defender, or a defender's position prevents a reasonable offensive play on the ball, the infractions player may call "hinder" to have a replay of the point.

The “Learn to Play” frame includes a general framework of all the primary rules for playing Spikeball. The entire frame extends vertically down so that users and scroll down to access more detailed rules. The top of the page provides a basic description of the objective of the game and the bare minimum rules that could be used to play. Below this description is a set of buttons that act as shortcuts. Clicking these buttons will rapidly scroll the user down to their respective sections. As with other buttons on this app, they are colored in a dark gray to indicate that they can be interacted with.

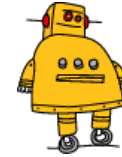


# Learning Skills Frame

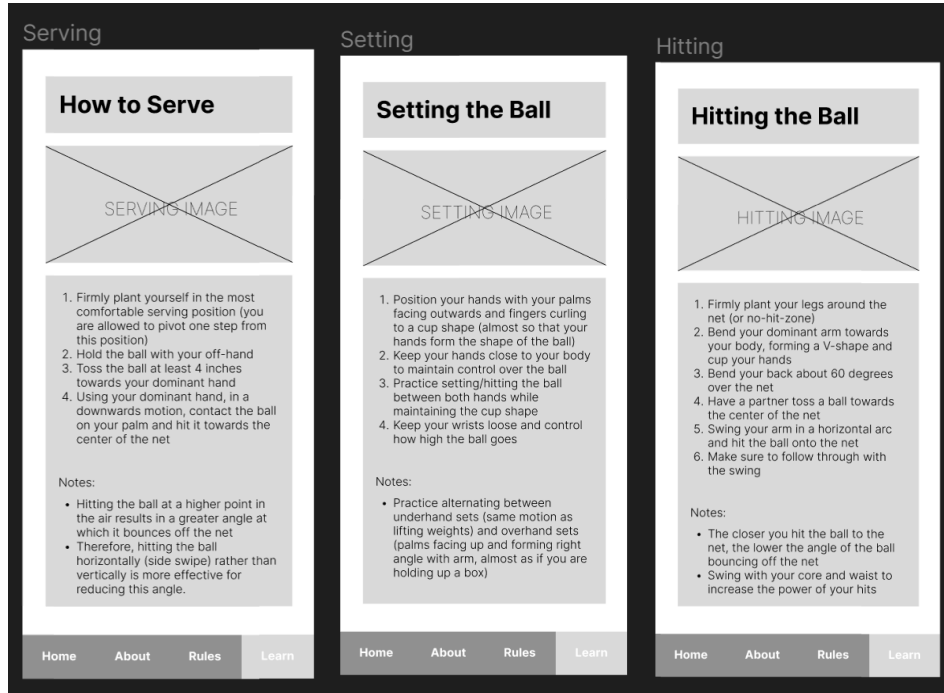


Similar to the layout of the home screen, the “learning skills” frame includes a search bar and skill buttons that will navigate users to more descriptive pages on their respective topics. The purpose of this frame is to allow users to access more detailed information about skills referenced in the rules. The key skills include serving, passing/setting the ball, and hitting the ball onto the net. While the search bar will offer a more refined way for users to find information about specific skills, the skill buttons will take them to separate pages with their respective information.

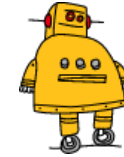
# Specific Skill Frames



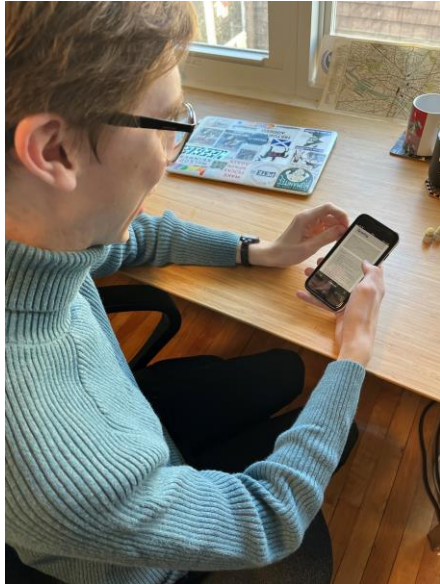
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These frames offer more detailed explanations of specific skills like serving, passing/setting the ball and hitting the ball. The general layout includes the title, detailed visuals, and an explanation of the task. The use of detailed visuals will allow the user to accurately follow along and replicate tasks. In addition to the basic instructions for the task, additional tips are included to provide a more in-depth explanation. Additional features not included in the wireframe but might be included in a higher fidelity wireframe would be separate photo/video galleries and an adaptive text-to-voice button that will read out the text. Users will be able to scroll down this page to access these galleries. Incorporating these features will allow for a variety of different perspectives which could help the user complete the task if they initially had trouble interpreting the instructions. They will follow a similar design to the information presented in this frame.



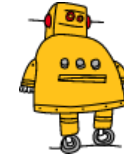
# USABILITY TESTING



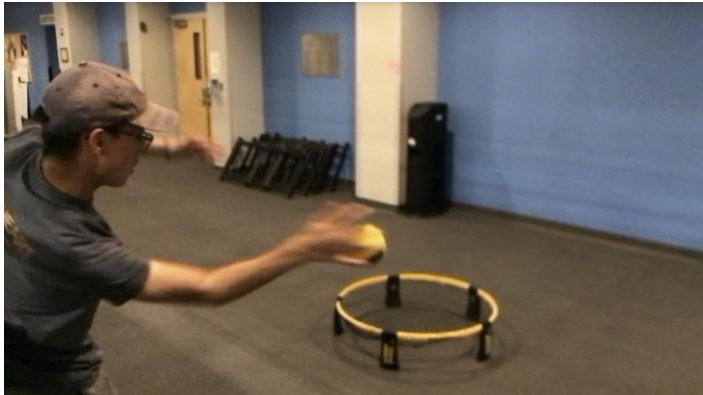
For the usability testing of my app, I conducted a cognitive walkthrough of the app and had two of my roommates speak about their actions out loud. Given that both have no experience playing Spikeball, when asked about their goals, they responded that they wanted to learn the rules and how to play. Both were successfully able to navigate to the rules (“how to play”) page and find the necessary information. Although both took different routes (one via the landing page and the other via the home screen), they both arrived on the same page.

One of them noted that the features bar on the button was helpful when navigating because it was similar to existing designs on apps like SideChat and Instagram and was familiar to him. Including that bar allowed him to understand how to exit a specific page and identify where he could find information about other topics. In terms of content, both noted that the rules were very comprehensive and thorough. They did mention that there was almost too much information and that it might be helpful to condense it for new users. Additionally, they noted that photos and videos would help with visualizing certain rules and tasks.

# USABILITY TESTING



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Additionally, I had one of my roommates try to serve the ball based on the explanation from the app. Although there were no visual photos to work with, he was able to successfully serve the ball onto the net. He noted that the use of tangible and accessible references in the descriptions was helpful in visually understanding how to hit the ball the correct way. In terms of content, he mentioned that for learning specific tasks, it would be helpful to have photos alongside an explanation.



# **INSTRUCTABLES CONCEPT**

## **DESIGN P3**

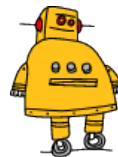
Michael Yung

18 February 2023

ENP 166 SPRING 2023



# BACKGROUND



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Instructables

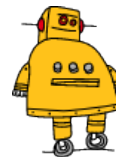
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*For the third part of this assignment, we were tasked with developing three distinct moodboards, applying one of the three to our low-fidelity wireframe, developing a final full-fidelity version of our app, and conducting a usability test with this app. The primary focus of this assignment is to learn how to create moodboards and really consider why we chose certain design choices; this involves selecting colors, fonts, and visual inspirations that best suit our topic. We then use these boards as a template to inform the design process for our final-full fidelity app.*

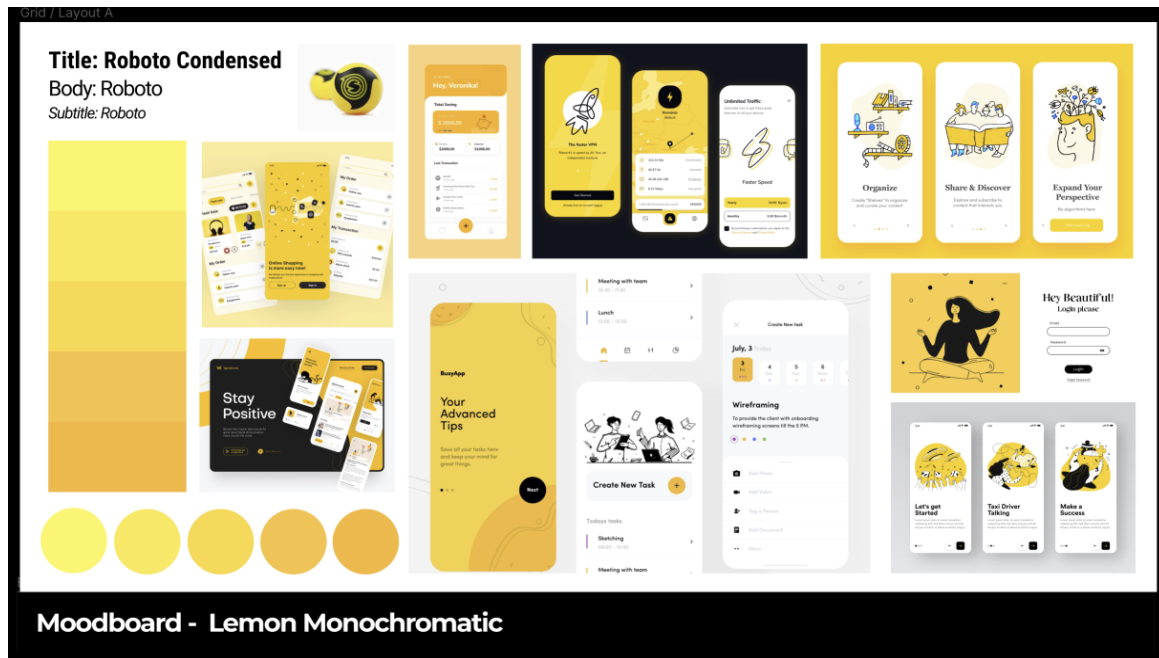
**Enclosed in this submission are:**

1. Background statement
2. Moodboard exploration
3. Final moodboard rationale
4. Finished full-fidelity app
5. Usability testing

# MOODBOARD #1



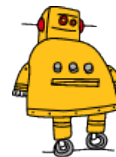
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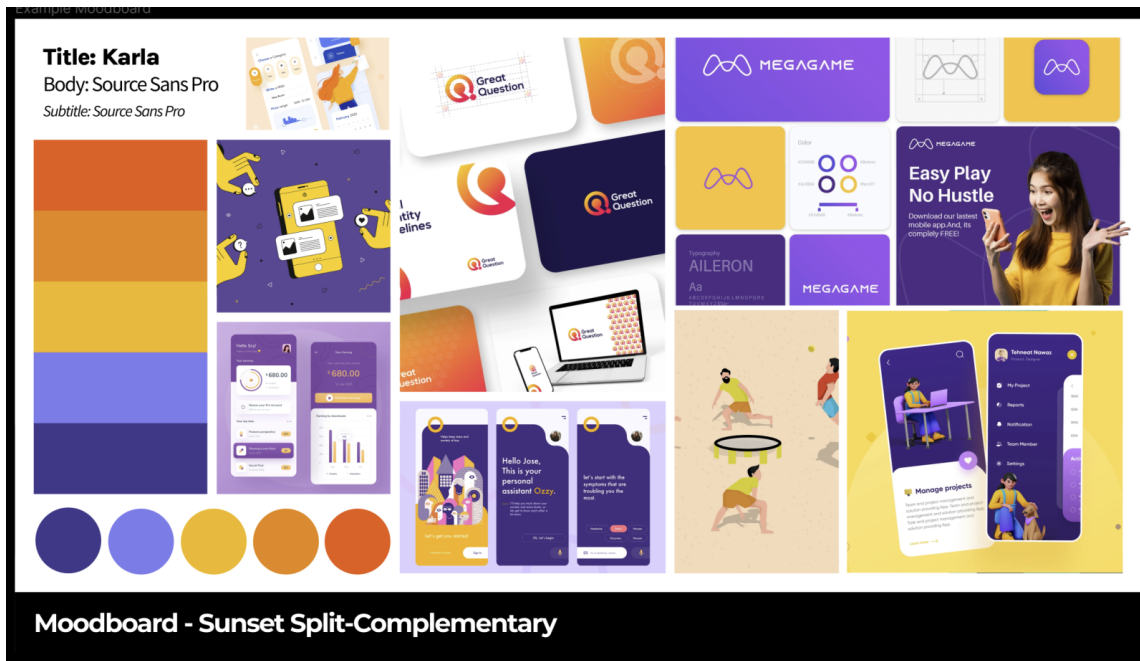
The first moodboard takes inspiration from the color palette of the rubber ball used in Spikeball. The key color palette uses a yellow color gradient but additionally uses black fonts and tints as a contrast to the bright yellow colors. The moodboard also takes inspiration from various different UI designs and how the black and yellow palettes are used. The major titles of pages will use the font Roboto Condensed bold; while the subtitles will use Roboto. This font choice was selected because it uses a bold and easy-to-read typeface that bares resemblance to the Spikeball logo font. Especially for an instructional app, readability is the primary concern.



# MOODBOARD #3

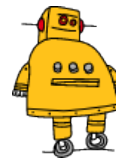


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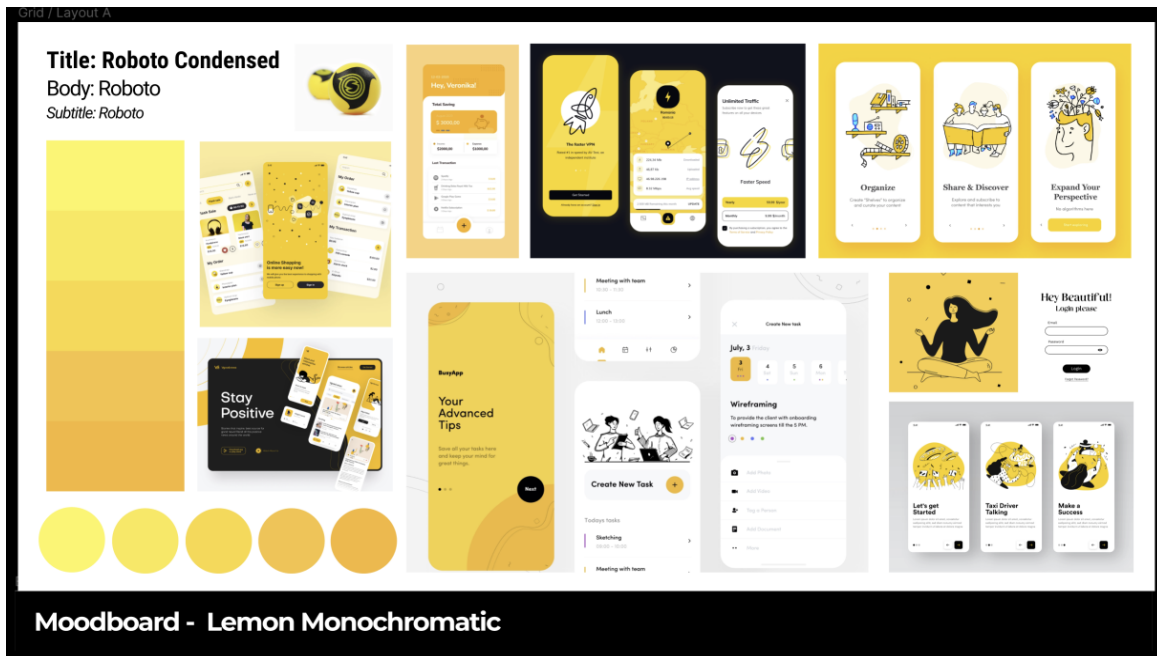


The third moodboard uses yellow from the Spikeball brand but additionally draws upon two complimentary colors to create a harmonic design language. While purple is a direct compliment to yellow (across the color wheel), orange is adjacent to it which results in an appealing and high-contrast color palette. The combination of these colors is most well-known for its use by the Lakers, Insomnia cookies, and Cadbury. In terms of font, the titles will use Karla bold while the subtitles will use variations of Source Sans Pro. As emphasized previously, these fonts were primarily chosen for their ease of readability and simple font style.

# FINAL MOODBOARD RATIONALE

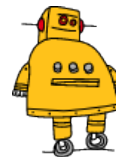


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The final moodboard I decided to follow through with was the yellow and black color scheme. Not only does this color palette best resemble Spikeball's brand, but the black offers great contrast against the bright yellow and white colors. Using this palette will allow for improved recognition of Spikeball's brand and its relation to this app and will also result in improved readability. Additionally, given the simplicity of the palette, it will allow me to focus on designing pages around the content and developing a consistent design language.

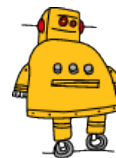
# FINISHED FULL-FIDELITY APP



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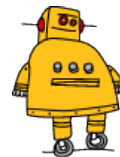


# FINISHED FULL-FIDELITY APP





# USABILITY TESTING



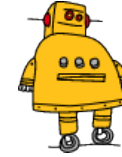
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For the final round of testing for my high-fidelity app, I had my two younger brothers test out the app and attempt to learn some of the skills. As a disclaimer, my brothers have no prior experience with playing Spikeball.

After interviewing and observing their actions, it was found that both were able to successfully navigate through the app and learn how to practice skills like serving and hitting the ball. Given that both have no prior experience, they initially navigated to the rules page in order to better understand the goals of the game and how to play. A summary of their comments included that the different sections on the rules page were well divided, the app was easy to move around and find the right information, and the app felt “professional” in that it looked like it could have been made by Spikeball. Their only suggestions were to use more videos or GIFs so that they could figure out how to replicate skills easier.



# USABILITY TESTING



**AUTODESK**  
**Instructables**

One of the main changes I made between the low-fidelity and high-fidelity apps was including photos to better depict certain actions and reworking the wording of descriptions. Pictured on the left is my younger brother attempting to serve the ball. I had him read the rules aloud and describe in his own words how he would complete the task. Though it took a few attempts, he was successfully able to serve the ball. He mentioned that the visuals and description were really helpful in fixing and improving how he contacted the ball.

The visual direction of the app did help the users because it offered a look that was consistent with the Spikeball brand and made it easy to read and interpret information. Using high-contrast colors like yellow, white, and black improved readability and also allowed me to define which buttons could be interacted with (black buttons). My brothers felt that the design was appropriate for the topic because they mentioned that it resembled the style and look of the Spikeball ball and net.