World Games

The Gamebreakers

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Welcome to World Games!

Link to the website:
http://quickcocktails.dk/kea/wg/

Link to the user list:
https://camillagejl.com/kea/3-semester/world-games/user-list/

Link to GitHub:
https://github.com/cami32d9/3rd_semester_exam

Link to zip file with original code:
https://drive.google.com/file/d/1LkXAuubethfHzDBo-i8xrXtKRumX2Tnw/view?usp=sharing

Link to screen casts:

Camilla Olsen	Andrei Marius	Julie Levin
https://drive.google.com/file/d/12zyxgW42zu40eg_oXkYfddMtya7w7qGm/view?usp=sharing	https://drive.google.com/file/d/1Nyj8MFsvSCh6NHXtbBmv22D7LbSYb2OY/view?usp=sharing	https://drive.google.com/file/d/1rRcfumApYWnA--EWo7hMcqTFeo6MshW7/view?usp=sharing

Total character count: 44.413 (18.5 pages)

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Forewords

The assignment

Our assignment is to create an onboarding page for an imaginary gambling website. For this, we need to create a small browser game, a sign up- and login form, and work on a way to convince the users to sign up.

The final idea

For our final concept, we decided on "World Games". This concept includes a gambling website where all the games have specific themes based on different parts and cultures of the world. What we have focused on within this concept is: how do we demonstrate our concept to the users before they are signed up/logged in, and how do we prompt them to sign up?

Research and preparation

Concept idea

The idea for World Games came up naturally during our research phase. After our initial brainstorming, we used dot vote to decide which kind of game to make. We had a lot of different ideas, but ultimately we agreed on making a slot machine game, since it seemed realistic to make with the amount of time we had and it would make sense with our "World Games" concept. We decided that the slot machine would have 3 different themes that represent a culture or country and that all game assets will match the

selected theme. The aim of the game is to make a fun experience that celebrates different cultures and is addictive enough to make users want to sign up and play more games.
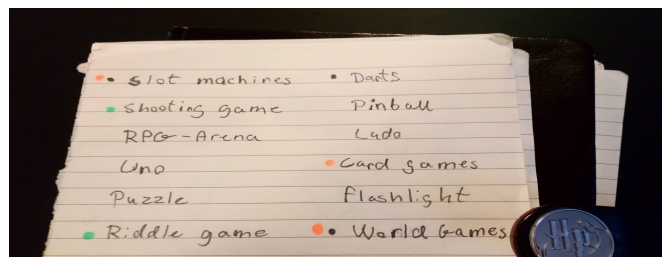
Sketches and ideas

We are making a World Games casino onboarding site hosting a slot machine game. As such we needed a lot of assets for our 3 themes. We have viking, mexican and native american themes and various assets for each one. We sketched our initial ideas on paper before taking them into illustrator. We have 6 symbols for each of the 3 themes for the slot machine. Each symbol matches the selected theme and they are as follows:

Vikings:

1. Helmet
2. Drinking horn
3. Shield
4. Raven
5. Ship
6. Hammer

Mexicans:

1. Cactus
2. Sombrero
3. Chili
4. Guitar
5. Maracas
6. Taco

Native Americans:

1. Bonfire
2. Tippi
3. Dream catcher
4. Long pipe
5. Horse
6. Traditional feather headdress

Additionally, we also have a background for each theme, logos and various buttons and icons for the game.

We have created all assets in illustrator and have a cartoony colorful style using gradients. We decided to use this style because it's easy to draw and it matches the fun/playful tone that we want to create on our site. It's also easy to make expressive and lively characters using this style of illustration. The cartoony style has a chance to put off some people but overall we wanted a fun style that we are familiar with creating, which would also communicate our World Games theme as clearly as possible.

More image documentation in Appendix 9

Design Concept

At the beginning of the project, we spent some time looking for sources of inspiration for our gaming site. We came across danskespil.dk which makes use of green a lot in its design. Green is the typical color you find on game tables in casinos and there are several reasons why. The color green is associated with prosperity and wealth. It is also the color of american dollar bills, which most people around the world knows, and casinos want you to spend as much money as possible. Green also offers a sense of stability and calmness, so that people feel comfortable sitting down with a table of strangers to play poker. (**Source: Bibliography 3**)

We want green to be a part of our design, so that we follow the industry standards and are able to attract as many users as possible. In addition, our concept is going to bring a different dynamic to the traditional formula - more on that at Concept idea, page 5. At the beginning of the project, we wanted to use a very dynamic background design with gradients, but when we saw it implemented, we decided that it was too distracting from the content. Instead we made some adjustments in a new mockup.

The overall design choices are based around not distracting the user from the important content, meaning the slot game. We want users to see the game clearly and become invested in playing it as soon as possible. To that end, det overall design is simple and clean.

Moodboard

After we decided to work on the "World Games" theme for our project, we wanted to use 3 different themes that each represent a certain culture. Our 3 themes are based on mexican culture, viking culture and native americans We are using 2d character models made using shapes, pen-tool and gradients. Our style is cartoony and inspired by traditional cartoons, flat design and chibi-anime all mixed together with a personal touch. Outside of our game, the style we have chosen is inspired by casinos and gametables, with a clean and modern touch. We want the slot-game to be the main attraction on our site. As such, we don't want the other elements to be too distracting from the game.

Our moodboard is a selection of styles we were inspired by when creating the various graphics, but they are all our original designs.
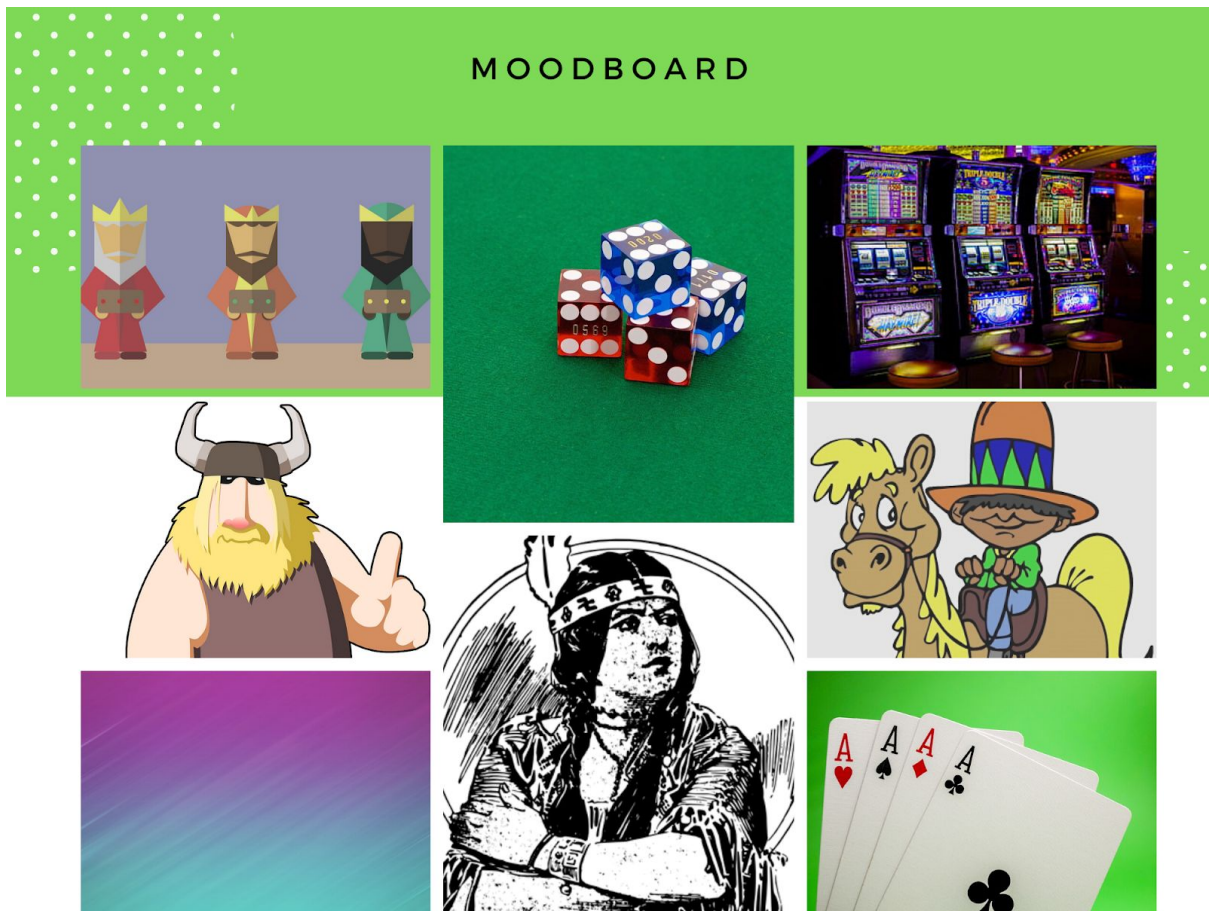

View the moodboard in the Appendix 12

Mockups for the website

We made several different mockups during the design process. Our idea stayed roughly the same during the process, with minor changes here and there. At first we wanted to use a dynamic green background with gradients, but we decided against that, in favor of a more neutral textured background. Our first mockup we made to get a sense of layout (the one on the top left), and we haven't changed anything about the basic design since then. In our second mockup (top right) we spent more time nailing down the design. We wanted to use green colors, a big rotating earth as our logo, and the slot machine game as the centerpiece of the page. In our third mockup (bottom left), we chose to remove this background, as we realized that it took up too much attention.

We never created a design file for the finished design, but fine-tuned the design while we were coding the website.
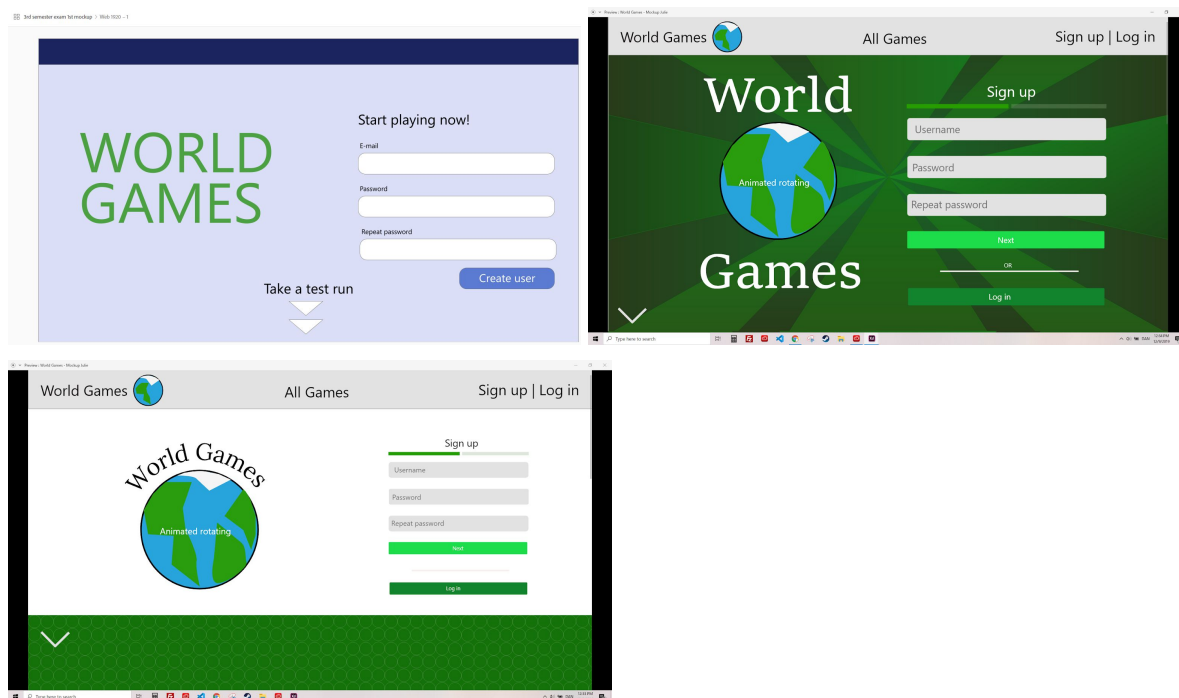
Links to all mockups: Appendices 1-4

Styletile

We have summarized our chosen visual style in a styletile; fonts, colors, buttons and logo for our World Games casino website.

View the styletile in Appendix 13

Principles of Persuasion

Robert Cialdini's six principles of persuasion is widely used in the sales industry. These six principles can be applied to almost any kind of business and it is relevant for our casino project as well.

In this section, we explain the principles, how we have used them and how we could use them in future work on the website.

1. **Reciprocity**: The act of doing something or giving something to another person for free, without expecting anything in return, means that they will be more inclined to do something for you.

We allow users to play the slot machine game for free, without asking them to sign up or do anything else. They can play for free until they have won, after which they are prompted to either sign-up and keep their coins, or keep playing and lose the coins they just won. They will be more likely to sign up for our site if they win a prize. The coins can be spent after creating an account, to play other games on the site and possibly win real prizes.

2. **Commitment/Consistency:** People unconsciously want to behave in a manner that is consistent with past behavior.

By giving the user a chance to keep their coins, we've made a commitment to the user. When the user wins their coins, they will be more likely to do our company a favor by signing up, since we already gave them the option to play for free. This principle can be applied both on our website or in a social media marketing strategy.

3. **Social proof:** You can use social proof in your sales process by referencing customer case studies, third-party reviews, or even leverage willing customers as references your prospects can speak with.

Letting the user know that "1000 people have already signed up for World Games" can encourage other users to sign-up as well. This is called social proof. Humans are a social species and we are often more likely to do something that a lot of other people are doing. We won't have time to implement this system on our site in this project, but it's definitely something we could make use of in a later iteration or as part of our social media launch strategy.

4. **Authority:** People defer to those in authority -- officials, professors, doctors, and experts in a field.

Making a person with expertise talk positively about a product or service is a good way to encourage more people to sign up. Studies have shown that people trust authority figures more easily, and are therefore more likely to do what they say. This is often made use of in commercials, on social media or even on websites. It not something we have made use of in this iteration, but it's a good option we could use later, by getting official statements from someone within the field.

5. **Liking:** Making it seem like the company and the user have a lot of interests in common.

This is widely used in a social media setting where it's easy to communicate with the customer and build community. Sharing pictures or interesting updates can be used to build liking between the company and the users, by making it seem like the company and user base have common goals or interests. We haven't used this strategy in this current version, but an example we could use later could be sharing ideas on social media about how people can spend the money they win - on vacations, their pets etc. This is something many people want and can relate to.

6. **Scarcity:** Making something seem rare or unique in order to motivate users to take action.

This could be implemented in a variety of ways. One option could be a promotion "Sign up today and get 20 coins directly added to your account!" - it's rare and unique, since you only get one day to take advantage of the offer and the user is motivated because they earn something.
We have not directly used this strategy in terms of scarcity, however we have used the principles behind it - making the user want to jump on the chance to get something now, instead of risking missing out. We are using this in our game by offering the user that they can sign up and keep the prize they win. People know slot machines and know that the chances of winning are small, so they get more likely to sign up when they win because they don't want to lose their prize. This is not "limited" but still special and hard to reach.
For later versions, other examples might be running campaigns where they user will get an amount of coins if they sign up within a limited time period.

Link to web-source about the principles: Bibliography 2

Project management

Trello

In this project, we have used Trello to keep up-to-date with things we have to do, problems we may encounter, and coach meetings. Trello is a great tool to keep track of what everyone is doing and how far along in the process we are. It makes a big difference in work efficiency when everyone has a clear idea of what needs to be done and what the other team-members are doing. It also prevents issues where we might have accidentally been working on the same things, since we have been able to "add" ourselves to tasks when we start on them.

Link to trello board: Appendix 14

Git and Github

We have used GitHub and branches to ensure that we don't create conflicts in our project and that everyone is able to work on separate parts of the site. We were each working on our separate branches until we decide that we want to merge and see how it looks.

We merged a few times during the project, and each time, we merged all parts of the website into master (except the user list, which is separate). When we were done merging, and had fixed the few obvious problems this could have caused, we copied this new version into all branches where we then kept working separately.

General communication

For general communication, we have used facebook messenger to communicate and ask questions, when we have not been working together. We have made sure to keep up to date with both our separate progresses and shared ideas.

Document sharing

For document sharing, we have made a shared folder in Google Drive. We have used this for sharing the questionnaire, noting down questions for our coach, brainstorming etc. This is also where we have uploaded our final files for our appendices, such as user testing videos.

Specific parts of the website

The game

Our concept for the game is a simple slot machine, where the user has three spins per game to win. After the first spin, the user can choose to hold one or more of the symbols, to make their chances of winning greater.

When the user has used their three spins, they need to press play to start the game over again. This will also release any wheels on hold.

The reason for having the game on the landing page of the website is to encourage the user to sign up and play the rest of the games on the website - and in the end, spend money on the website. We do this specifically in two ways:

1. The user wins coins in the game, which they can spend to win real money in our games. When they win a prize in the slot machine, they need to sign up to keep the coins and be able to use them. Especially when they win the jackpot, we encourage them to sign up now so they don't lose their coins.

2. The user can choose between three different themes in the game, which demonstrates the concept of our website and other games - as described below.

The themes

The game has three different themes: Mexican, Native Americans and Viking. We have created those themes to be able to demonstrate the concept or our website: "World Games", in which each game has a theme based on a specific culture from somewhere in the world.

The game is, from the user's point of view, relatively simple, but the themes add an interesting aspect, which also helps the user understand our concept.

For changing the themes in the game, we have added three buttons to the HTML, each with a data-attribute that is targeted with JavaScript. When the user clicks a button, this attribute is added to the game container, and the CSS switches over to a different set of custom properties.

```
84        // Activating all three theme buttons
85    function activateThemeButtons() {
86        document.querySelectorAll(".theme_button").forEach(button => {
87            button.addEventListener("click", function () {
88                // Gives the game_container a data-attribute to set the theme for the whole game.
89                document.querySelector(".game_container").setAttribute("data-game-theme", button.getAttribute("data-theme"));
90            });
91        });
92    }
```

```
305        /* For each theme, a group of custom properties is created with sources to the graphics from the theme. */
306
307    [data-game-theme="mexican"] {
308        --background-image: url("elements/mexican/mexican_background.svg");
309        --symbol-1: url("elements/mexican/mexican_1.svg");
310        --symbol-2: url("elements/mexican/mexican_2.svg");
311        --symbol-3: url("elements/mexican/mexican_3.svg");
312        --symbol-4: url("elements/mexican/mexican_4.svg");
313        --symbol-5: url("elements/mexican/mexican_5.svg");
314        --symbol-6: url("elements/mexican/mexican_6.svg");
315        --character: url("elements/mexican/mexican_char.svg");
316        --options_color: #d19865;
317        --slot_machine_color: #763e19;
318        --slot_machine_color_dark: #4f2910;
```

Wheel- and symbol objects

For the symbols in the wheels, we have a json-file with all the symbols in an array. Each symbol is an object in this array.

```
1    [
2        {
3            "id": "1",
4            "price": 4
5        },
6        {
7            "id": "2",
8            "price": 8
9        },
```

Each symbol object contains of only two keys:
- an **id**, which is used to compare the symbols and whether the user wins, and to add the correct image (as described in the *Themes* section).
- a **price**, which is the payout if the user gets three in a row with the same **id**s.

We then define how many of each symbol we want to have in a wheel. This way, we don't need to add all the details to the symbols every time we want to add an extra.

```
47    function buildWheels() {
48        // Initial state of wheels.
49        let wheel1 = {
50            id: 1,
51
52            // This line of symbols is only used when we want to test the winning popup.
53            // symbols: [symbols[0], symbols[0], symbols[5], symbols[5]],
54
55            // The symbols are fetched from a json-file. Symbols can be added several times, and order doesn't matter.
56            symbols: [symbols[3], symbols[2], symbols[3], symbols[0], symbols[5], symbols[1], symbols[0], symbols[5], symbols[1], symbols[2], symbols[0], symbols[4], symbols[0], symbols[5]],
57            isHolding: false,
58
59            // "active" refers to the active symbol in the wheel array. This starts on 1 (i.e. the second symbol in the
60            // array), so that the "active" symbol is the second in the visual wheel, and these are the symbols that will be
61            // compared for winning.
62            active: 1
```

Other than the symbols, the wheels also contain:
- and **id**, which is used to know which wheel we are working with.
- **active**, which is used to see which symbol is "active" and should be compared with **active** from the other wheels, to see if the user has won.

Winning

The user wins when they have "three in a row" of the same symbol on the machine.

When they win a price, they will receive one of two messages:
- **If they win the jackpot**, it is made clear that they have won the highest price, and they are prompted to sign up to use their coins to win real prizes.
- **If they win another prize**, they are presented to the choice of either signing up to spend their coins, or to keep playing and aim for the jackpot.

Winning chances

When thinking about the winning chances, we have decided to take a different approach than in a normal slot machine.

We have done some research on the winning chances on slot machines, and as explained by Dennis Bailey from *Stop Predatory Gambling* (Source: **Bibliography 1**), a typical, old slot machine has about 20 symbols on each of the three wheels, with one of those symbols being the jackpot. This gives an approximate chance of winning the jackpot of 1 in 8,000. As he continues explaining, the actual chance of winning on computerized jackpots (like online gambling) is far worse.

Since our goal for this slot machine is to make the user sign up to the page, we have no interest in making the jackpot near impossible to win. Instead, we actually want to give the user a good chance of winning the jackpot, so they will sign up to spend the coins before they lose them. Also, the more coins the user has received when they sign up (if they go for the jackpot instead of a smaller price), the more coins they have to play for, and the more tries we have to get them interested in all the games the website has to offer, so they will spend real money to play more.

However, we also want the user to get interested in the game and thus the website, which will not happen if they get the jackpot too easily, so we needed to only make the winning chances descent, and not too high. It is important to remember, that the user does not know the winning chances, so even though we want them to win the jackpot, we also want them to feel lucky when they do.

For the three wheels, we have ended up with the following amount of each symbol:

4 coins	8 coins	10 coins	12 coins	14 coins	20 coin
3, 3, 3	3, 3, 2	3, 2, 2	2, 2, 4	1, 2, 1	3, 3, 3

As you can see, the user has the best chance of winning either 4 or 20 coins. This is, as mentioned, so that the user will get the jackpot and want to sign up. Since there are many other symbols, the chance of getting the jackpot in the first win is still slim, but there's a good chance the user will get it within a few wins.

The chances of getting 10, 12 and 14 coins are smaller. This is mainly to improve the chances of generally winning any price, since it improves the chances of winning 4, 8 or 20 coins. The user needs to feel that there is a chance of winning, so they want to keep playing.

The least likeable price is 14 coins. We have chosen this in the hopes that the user will not be likely to settle for the next best price, but go for the jackpot.
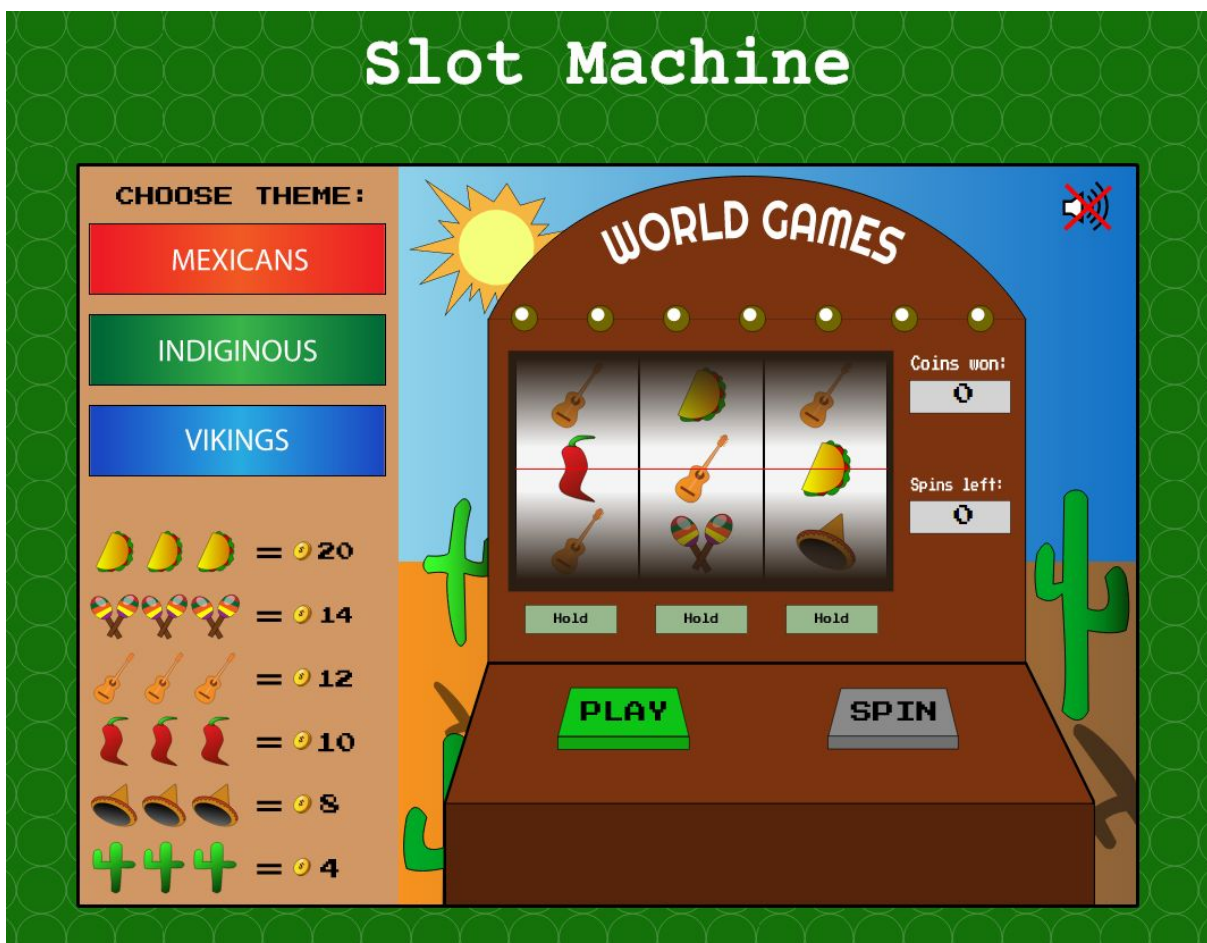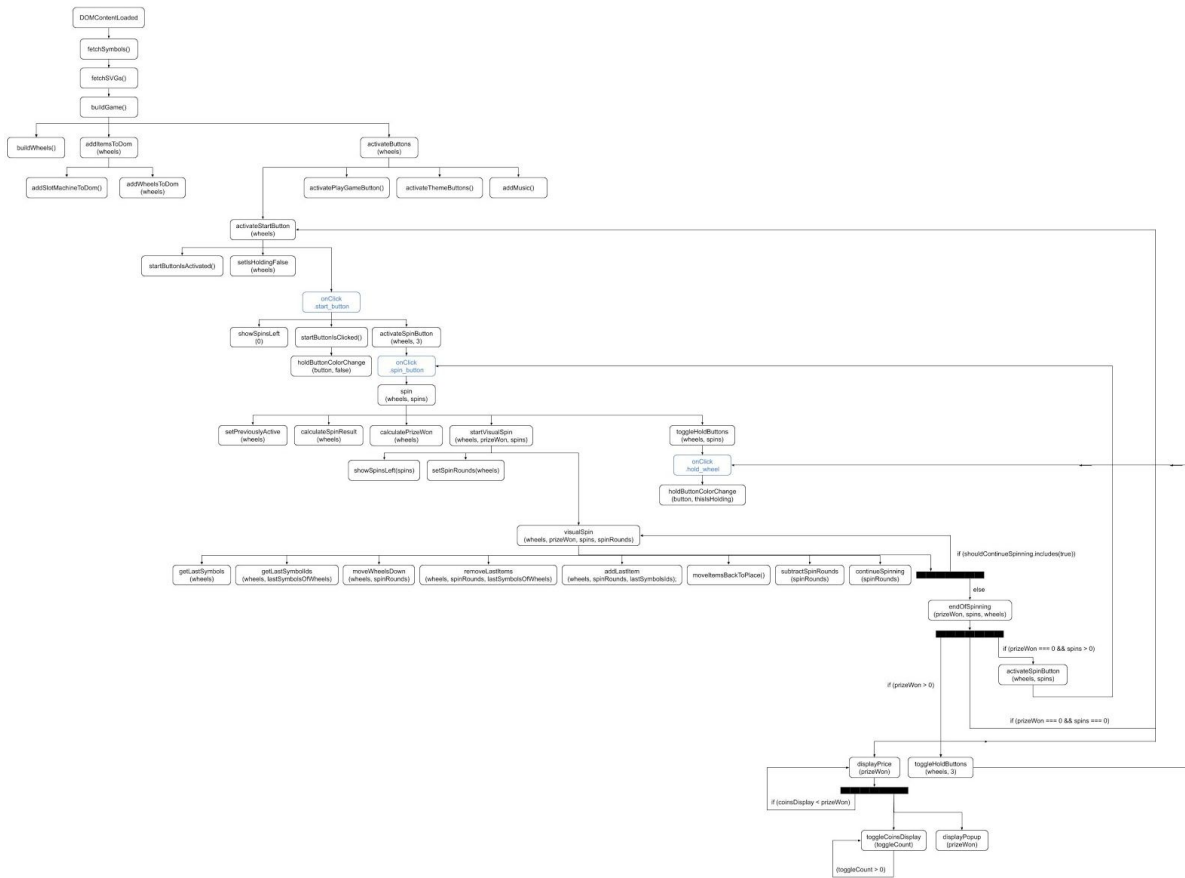
Activity diagram

This activity diagram is based on the visual part of the game, e.i. how the user experiences the game and what choices they have.
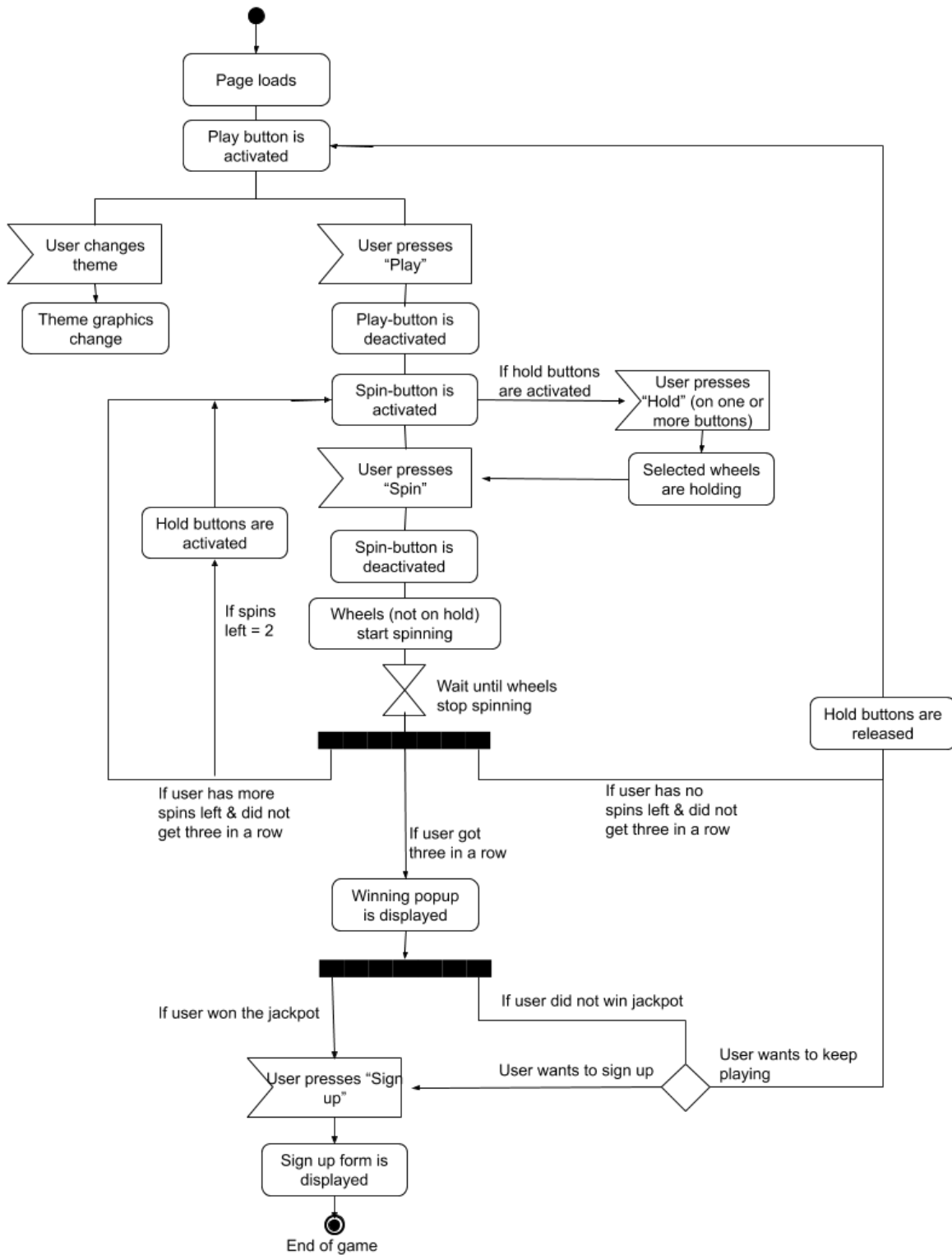
View in full size: Appendix 5

Call graph

This call graph demonstrates the JavaScript behind the game. The game is created in vanilla JavaScript, HTML and CSS without any frameworks or libraries.

See the call graph in full size in Appendix 8

Testing and iterations

We have chosen to do the testing of the game and the website as a whole together, since it's important that these work closely together. For this reason, please see the testing part in the "The website as a whole"-section of this report.

For future work

The sign up buttons

In the current version, the sign up buttons in the game sends the user to the top of the page, where they can sign up. We have chosen this for functionality, however this is not how we intend for it to be in the final version.

In the final version, we want the sign up form to show up within the game popup. We would prefer this to the current solution, because the user might get confused that they are suddenly scrolled away from the game when they click a button inside the game. Also, with the current solution, we would have the scale the game outside the actual game, and somehow implement the coins won in the sign up form at the top. We don't find this ideal because we want what happens in the game to stay within the game.

Testing and symbol count

Ideally, we would have liked to work out the math for the winning chances more thoroughly, and programmed a proper looping test to see how many times a user would play on average to get the jackpot. This would help us to a more precise amount of symbols, based on the result we are going for.

The sign up and login

We decided to go for fully functional user registration and login systems. We have 2 forms, one for the sign up and one for the login. The sign up form contains 2 steps, so the form can be shorter and have a bit more complexity.

There are 8 fields and 2 checkboxes for the sign up and only 2 fields for the login.
The first checkbox is mandatory because the user has to agree with the terms of use of the website and the second checkbox is a free subscription (newsletters) and it depends on the user.

We decided to go for a Repeat Password field for the sign up because of security reasons and because it would be helpful to the user.

Concept and persuasion

One strategy we have used for persuading the user to sign up is to split the sign up form into two. At first, the user is only presented to a small form where they add username and password - and only after that, they see that they need to submit more information. At this point, they are already in the process, so we are more likely to get them to submit the information than if they were presented to a long form at first.

To make sure that the user still trusts us after they see they have to submit more information, we have a progress bar at the top of the form showing that the second step is indeed the last step.

Database structure

The only thing that happens in the form, which os not sent to the database, is the "Terms of use" checkbox. This is not sent, because the user simply won't be able to sign up and submit information to the database, if this is not checked.

The data we have in the database are as follows:

username (text)
password (text)
email (email)
firstname (text)
lastname (text)
dateofbirth (date)
country (text)
subscription (text)

We have chosen these fields, because they are what we feel we would need at the immediate sign up through the form. In later iterations, we would also need to keep coins and payment details.

Form validation

We have a few conditions for the sign up. So, in order to create an account:

- The users have to fill out all the input fields (all of them are set as required in the code) - the only optional field is the email subscription
- The username and password must be at least 6 characters long
- The users must be 18 years old, or older [*]
- The users have to agree with our terms of use - by checking the "I accept the Terms of Use" checkbox
- The username must not already exist in the database
- The email must not already exist in the database

* We have added this condition, but unfortunately, it does not work perfectly.

Logging in and out

We have created a functional log in system, where the user can log in with their username and password, which are both saved directly in the database.

At first, when the user logs in, they will currently arrive at a blank page, and will need to find their profile in the upper right corner. We have chosen this, because we would ideally let the user land on another page upon logging in (perhaps an "all games" page - we have not settled on this yet), so this was the most realistic way to show that the user must go to their profile to see it.

When the user logs in we just save the id of the user in the browser, so we can keep them logged in, in case they close the page or even the browser. For doing this, we used

something called LocalStorage. This way, we can store data in the Local Storage and easily check what user is logged in and load different pages depending on if there's an id or not in the Local Storage.

The user can just log out in order to clear the Local Storage.

Editing profile when logged in

After the users log in, they get redirected to a different page where they can edit their personal information. At first, all the input fields are disabled, so the user has to click on "Edit Profile" in order to remove the disabled attribute and make changes and then click on "Update" to save the changes. These changes are then saved in the database as well.

The profile section appears as a pop-up because more content should be added on the page. So at the moment, this part of the website has only 2 purposes: editing the profile and logging out.

Editable fields:

Email
First Name
Last Name
Country
Date of Birth

For future work

As for the things we store in the database, we have chosen for now to only store the information we believe we need in the initial sign up from the sign up form. In later iterations, we would also have to store the number of coins a user has, and the payment information (including payment method and full address). Of course, we would also have to work on proper encryption of the users information.

For the part of the website where the user is logged in, we have chosen to solely on functionality. For this reason, we have only added enough styling for it to be user friendly, but haven't worked on how we actually want to design it. This will definitely need to be worked on in a later iteration.
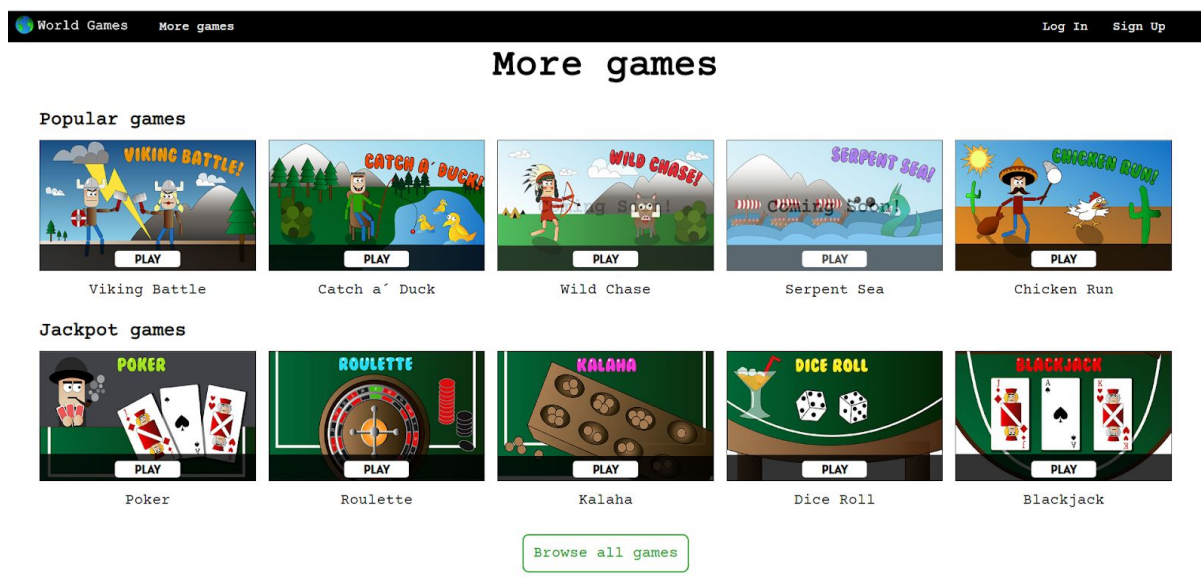
The "More games"-section

We decided to include a section where a small selection of the most popular and highest payout games are displayed. For now, these games are just thumbnails but in later iterations, these would link to functional games. However, they would prompt the user to sign up or log in first.

Our popular games are mainly based around our World Games concept and features native americans hunting hogs with bows, mexicans catching chickens and vikings waging sea battles against large sea serpents. We want to keep the user invested in our brand and theme, therefore presenting them with more options of themed games is a logical choice.

Our Jackpot games, on the other hand, are mainly based on traditional casino style games. We have the classic Blackjack card game and betting on dice rolls as well as roulette. We wanted to present the user with a mixed style of games, so they have something to look forward to when they sign up, no matter what their preferences are. All of these games would be fully functional games where the user can spend coins and win real money prizes.

In the future it will be easy to add more categories and games to our page, since we have set up our Wordpress rest api to be very flexible.

Activity diagram

Our "More games" section of the site is built with Wordpress Rest API as backend. We pull in the thumbnail image and text data from wordpress, so that we can easily change the games or add new ones. This method is very flexible, because once it's set up correctly, we can change as much as we want, and they will automatically appear on our site. We use javascript to fetch the wordpress data and display it in a template.

We are using custom post types (Pods) which is a plugin that enables us to create custom fields. We made a pod called "Game" in which there are 3 fields; title, thumbnail and category. These are easily changeable in wordpress and adding a new game with this method is very simple.

Other than working well for our "More games" section, the way we have created this part of the website would also make it ideal for a future "All games" page. If we created an "All games" page, we would only have to add a tiny bit more code to

make the site display an unlimited amount of games in different categories.
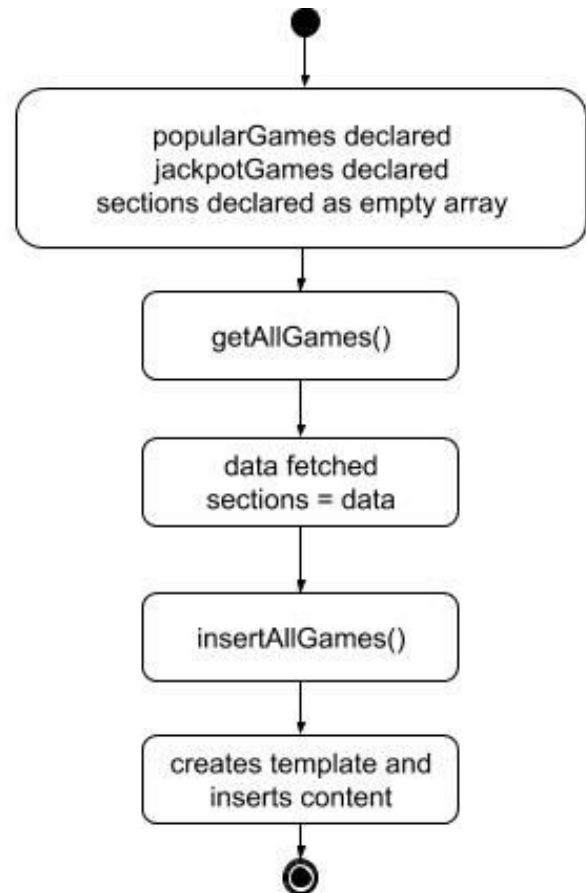
The website as a whole

For the website as a whole, we wanted a short one-pager that would both present our concept and make it easy for the user to take a decision to sign up.

The website is basically split into three sections:
- The landing-section (with logo and sign up form)
- The game
- The "More games" section

On a regular desktop, these sections should each fit on the screen individually.

We have chosen to have these sections and in this order for the user to get as quick an overview as possible. The user is immediately presented to a sign up form, so they can sign up or log in as soon as they land on the page. If they scroll down, they are then presented to a game which demonstrates the concept of our games. If they keep scrolling, they are then presented to a wider selection of games.

Our changing background helps keep those sections separated, so it is clear when each part of the website splits.

The navigation bar

In the navigation bar, we have currently only added the pages that we know the website should have. We have decided not to spend time on discussing which other sites should be available for the user in the future.

When the user is at the top of the page, there is no "Sign up" or "Log in" buttons in the navigation bar. These only appear when the user scrolls down past the form section, because they are unnecessary while the user is viewing the form. When the user scrolls down, they buttons appear, and when the user clicks on any of them, the page will scroll to the top, and the form will display either the "Sign up" or "Log in" form, depending on what the user clicked.

Testing and iterations

These tests are based on both the website as a whole, and the game.

Think Aloud tests

The test

This test is mainly based on the game. Before asking the users to play the game, however, we have been asking them to take a look around the website, as we would like them to also see the game in the context of the website design.

For our test users, we have found a wide selection of different people, of both genders and within a rather large age range. We have done this because we do not believe that we have a specific social target group - our target group would rather be people who are into gambling, but we have unfortunately not been able to find users within this group. However, having a wide group of test users has helped us find several different issues that we could work on.

Unfortunately, not all of our test users have been willing to have their voices used for the testing, but for those, we have been taking notes and put this in the appendices. We have preferred to get as many test users as possible.

Read our questions for the test in Appendix 10

Clarifying the concept

Our test user Martin noted that there's not much information about what the site is actually about. Upon reviewing our page, we see his point; especially that the page doesn't mention the fact that the user will be able to win real money prizes after signing up. We thought that the game mentioned this, but only after testing, we realized that the game doesn't say this in the welcome popup - only upon winning.

We have focused on keeping the site plain and simple, but for future iterations, it might be ideal to add some text with information about the concept to the top of the page. However, this would require some design changes that we are not able to make now due to the lack of time. Instead, we have changed the text in the welcome popup to clarify that when you play this game and win coins, you will be able to spend the coins on winning real money prizes.

In our survey, we have also got a few responses that people don't know exactly what the page is about, so this would definitely be something we should focus on later.

Hover texts in the game

As noted by our test user Martin, some of the elements in our game had title-texts shown when the user hovered over them. These were the SVGs that we are fetching with javaScript (the slot machine and the hold buttons), and we have fixed this by changing the <title>-tag in the SVGs to a <desc>-tag. We have then set a "aria-labelledby" in the SVG with the desc id, so the image description is readable for screen readers, so we still keep the usability as if we had the title.

Word changes

Test person 2 recommended that we change the word "Indigenous" to "Native American", since "Indigenous" can include other peoples as well, and not only the Native Americans that we have chosen.

We did some further research on the words, and agree with the user that "Indigenous" can be confusing, since it can include other peoples and not only the people that we want to present. Therefore, we decided to make this change to make the game concept more clearly understandable for the users.

Rules

Our test person 5 had problems understanding the game at first. When she had gotten a little help, she thought it made sense and was a good game, but she didn't realize what buttons to click or what the hold buttons were for.

Test person 6 also had problems with the buttons - especially the play button, as she didn't understand why the wheels didn't start spinning.

Test person 5 recommended that we could create a small question mark with rules, which is something we hadn't thought of ourselves. We have been discussing whether the rules should be included, but hoped that people would understand the game themselves, so we didn't have to bore them with rules in the beginning of the game. However, we have agreed that a question mark with a hover function showing a "popup" with the rules would be a great

thing to implement. We don't have time for this in this version, but this is taken into consideration for later iterations.

User should scroll

Our test person 6 went straight ahead and signed up, as she assumed that she had to sign up to play any games. She thought she was seeing everything there was on the site, and did not realize that she could scroll. For this reason, we have chosen to add an animated arrow at the bottom of the "top" of the page, to be sure that the user realizes that they can scroll.

All think aloud tests (videos and notes): Appendix 7

Survey and feedback

To get a wider range of test users and as many answers as possible, we have sent out surveys about the page. This makes us able to get a more general view of what people think about the page, and might also give us a more correct view since people are anonymous, as opposed to the think aloud tests where the users sit right next to us.

Based on feedback from the survey, we discovered that our chosen visual style (in terms of the games and themes) is quite divisive between users. Many found the style fun and interesting, but some thought it was a site for children.

In general, we have got positive responses to the parts regarding understanding the page and the game. 79% of the users think it is obvious how to play the game (and for the rest, we have written about adding rules in our Think aloud section). 74% believe that the design and the game fit together, and several users commented that the website is simple to navigate.

As for the design, however, the responses were less positive. Most users found the design unprofessional, and didn't find the website trustworthy. This didn't come as a big surprise for us, since we haven't spent much time on planning the website layout itself, but focused on the game graphics and general functionality.

Overall we feel that we achieved our goal, since our main focus was to make people interested in our game and understand our site's concept.

See summary of replies in Appendix 11

Lighthouse test

Before changes

99

Performance

Our initial performance score is very high which is a good indicator. We have one minor problem concerning the max potential first input delay, which measures the longest task related to user input. Furthermore lighthouse suggests using next gen image formats and reducing image sizes further, but this doesn't seem to affect the overall performance score in the slightest. We had to settle for PNG images in our "more games section" since SVG formats are not yet supported natively by Wordpress.

32

Accessibility is the key area where we need to improve our score. Images are missing descriptive alt texts, buttons need names, forms are missing labels and links are not named correctly. We will go through the entire program and make sure that every element receives associated alt tags.

The Best Practices section of the audit had a score of 79 which is fine. Our site is not using HTTPS which means that our site is not as secure as it could be. This isn't something we can change this time around.

78

SEO

SEO is a key area of focus that needs to be improved. Our overall score looks deceivingly good but SEO is a very important part of any site, which is why there's still room for improvement here. We went back to our program and added meta descriptions and alt attributes which should help our overall SEO score.

<div align="center">After changes</div>

Accessibility has been optimized since making correct use of alt tags, naming and labeling. Now screen readers will be able to navigate our site more easily and correctly. More can be done to improve these scores further, but for now this is a satisfying increase.

Our SEO score has also increased by a fair bit, using meta descriptions, alt tags and keywords. This should help our site show up in google's search engine more easily, when people make use of our selected keywords. We have made sure to spread out the keywords in our texts and alt tags, so that google's search engine will have an easier time locating our site.

For future work

General improvements to the website that we would like to make in future iterations, other than what we have already covered in the above sections.

<div align="center">The mobile version</div>

We have been working on making the website mobile friendly, and have generally succeeded. However, if the user flips the phone to landscape mode, there are problems with the design; mainly, the welcome/sign up section and game section are too tall to properly fit into the design.

The general design and concept

As mentioned in the survey section, the design of our website was not well received by our users. This is definitely something that needs a lot of working on in future iterations, since this is a very important part of making the user trust us and want to sign up and use money on our website.

Based on the feedback we have received during our process, we want to add more descriptive text about what our site has to offer on the landing page. Since this would require a more detailed look at our layout structure, we decided to leave this for later iterations. It could be implemented in the form of an animated newsreel, which would serve to explain our concept more clearly.

Expert testing

For our testing, we have been testing a wide range of people, but not anyone directly in our target group - people who are interested in gambling. For this reason, we might not have gotten the most precise answers and might have overlooked important things.

For future work on the project, we would like to test the website and game on people who have some kind of expertise in the gambling universe. This would, ideally, both include people who are into online gambling themselves, so we can get some real user experiences, and people who have some professional experience behind gambling websites, and knows more about how to attract the users etc.

The user list

The user list is a completely separate part of the website, which only the admins have access to, not the users. We are therefore handling it as such in this report - as separate from the rest of the website.

React

We have created the user list as a table, in which there are just added as many rows as there are users. For this reason, we have chosen to use React to create it, since react is focused on creating components, and we just need a component for each user.

React components automatically update in the DOM when there are made changes to the components in the React files. This means that it is ideal for cases like this, where we want to be able to change the list by sorting, filtering and deleting.

Lodash

For filtering and sorting the user list, we use the lodash library.

We have chosen to do this because we have very limited experience with JavaScript libraries, and wanted to try to use it more. We have specifically chosen lodash to try out, because it is specifically optimized for working with and iterating arrays (among other things).

In this current version, we only use lodash for filtering and sorting, but if we expanded the website and used it more places, it could also help optimize the site and make it load quicker for the user.

The filtering and sorting functions in lodash are very easy to use, and works easily with React useStates, which makes the whole list update automatically as soon as we choose what we want to sort or filter by.

Database

For the content of the user list, we fetch the data straight from the database. This means that every time we load the page, we will get a view of all users currently signed up.

Fetching the data

To get the users, we have a useState called "users". We start out by setting the initial state to an empty array, and then we run the fetch function called get().

Since React updates every time we change something (e.g. when we sort or filter), we want to make sure that get() is only called when we actually need it. For this reason, we initially call it by using useEffect - this is only called the first time the user loads the page, instead of every time the component is updated.

Deleting users

When the admin deletes a user, they do it by clicking "Delete" on the user, which runs the method: "DELETE". After this we update the list by running the get() function again. As opposed to vanilla javascript, this is all that is needed, and React will now update the list itself.

However, when the user clicks on "Delete", it takes a few seconds before the list is updated, since it needs to send the information to the database, and fetch the new information from the database. For this reason, we have created a useState called 'loading', which we use the change the text from "Delete" to "Deleting", and add a loading-cursor, so the user is aware that something's happening.

Activity diagram

Since this part of the page is made in react, where everything is closely combined, and since it is relatively small, we have decided to create an activity diagram that includes both the process from the users point of view (when the user clicks something), and the logic behind what is happening. As opposed to a simple call graph, this gives us the chance to properly demonstrate the different states, the click events and how everything is rendered upon changes.
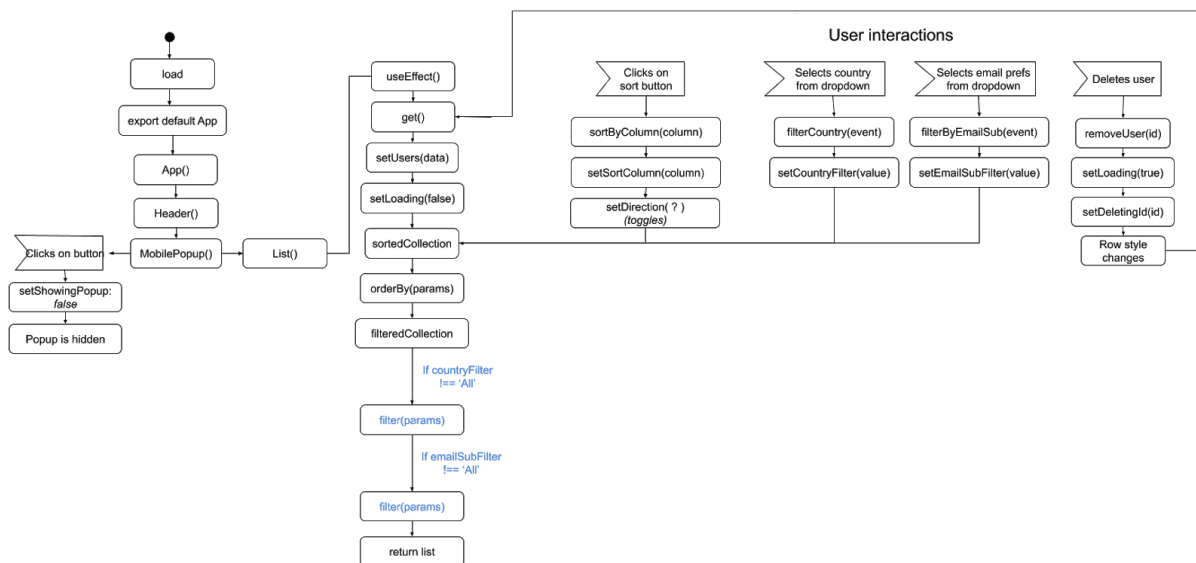
See the full activity diagram at Appendix 6

For future work

In this part of the website, we have generally focused on functionality, and had less focus on design. For that reason, the list is very simple for now, and could need some further work on the design.

This also includes a more mobile friendly version. Since we assume that most admins will use the list on a desktop, we have decided to focus on this, and not make it responsive for now. However, we have added a popup for devices under 1300px (the min-width of the list table), which states that the list is intended for desktops, but gives the user the option to go on to the list anyway. The game and the rest of the content on the page is responsive.

Conclusion

Overall, we are happy about our result for this website. We have made a fully functional game, functional sign up and login features, and our users generally found the website easy to navigate and the game easy to play. Where we are lacking behind is the professional look and trustability, but with some more serious work on the design, we believe that our concept would work well for the users.

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