



Noroff
School of technol
and digital media

Technical Report

Project Exam 1

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Word count

1. Summary

My first thought, when i read the project exam, was that i wanted to created a simple, symetric and modern looking site that kind of followed a red line throught all the different pages on my site. I wanted to have a design that clearly connected the different sub-pages together and i also wanted the site to be relevant for my target audience, tech savvy people or people that use the internet alot.

In this report i will go through my thought proccess about the backbone of the site, the one page scroll effect i made, and some of my thoughts about the design and why i made the site as i did.

Project exam uploaded to my domain: www.ole-martin.no

Link to the design: <https://xd.adobe.com/view/c96ff376-776d-46b0-b311-7d343fa9bbab-9c3c/>

Link to github repository: <https://github.com/kirsebom/Project-Exam-1/>

2. Body

Design and content

I started to think about how i wanted my site to look and did some reshearch on other microsites and different tech websites on the internet. Nothing really caught my eye in any specific reason. But i have allways thought that websites that have some kind of scroll animation looks really cool and engaging. So i really wanted to make a site that had that in some way, but i didnt know if i had the knowledge to make the idea a reality. So before i started my design process, and what content i wanted to have on the site, i wanted to figure out if it was possible to make some kind of scroll animation. I began with a pen and a peice of paper and wrote down different ideas. The idea i liked the most was to build a site that had "one scroll page animation". I wanted to create one page that was divided into different sections. The different sections would be my "sub-pages". I knew that there was different kinds of libraries with full page scrolling, or bootstraps, that people can use free of use. But for the project exam i knew that i couldent just use one of these libraries and be done with it. I needed to write my own code to make it work. So i needed to find out if i was going to be able to write code that would do what i wanted. I began to write down some code on a peice of paper, and i tried to map out all the different things i needed. When the process of testing and editing code was done, and i was happy with the one scroll page animation i created, i needed to begin the design prosscuss and what type of content i would want on the site(i will go through my though

process when writing the code further down in the report).

I began the design/content fetching process by looking at different types of api's and i found an api that showed the astronomy picture of the day and i thought it would be cool for the homepage, or the first section, to have a new background image every day. I then continued doing research about what content i wanted on the page. I decided to go for a couple of more api's, i wanted the first section to show how many humans that are in space right now and i wanted to show the exact location of the international space station. I also decided to add two buttons in the first section that gives the user an option to read about "the astronomy picture of the day" and to see the names and the whereabouts of the humans in space right now.

The content research continued and i looked through a couple of articles about NASA and what they were focusing on right now and in the future. I read a couple of articles about different space expeditions scheduled in the future when i came over how NASA pays close attention to the climate change we humans have forced on our home planet. This made me make the decision to focus on two different subjects on the microsite. The first subject i wanted to focus on was NASA's future plans for space expeditions and the second subject therefore became the climate change. So i decided i wanted to split the microsite in two different "main sections", one section focused on space expeditions and the other on the climate change. I found an article about the future plans for NASA that focused on the preservation of NASA through the pandemic that i wanted to use. On the next pages on my microsite i wanted to add NASA's youtube livestream and an international launch schedule. This content made my first part of the microsite complete.

On the second part of the microsite i wanted to change the focus and content over to the climate change. I wanted to show how NASA use their satellites not only to look further into space but also back at our home, earth. I found a couple of articles i wanted to link to from my microsite, i also found a "climate time machine" that

NASA created and wanted to link to it from the microsite.

In the last section of the microsite i wanted to add the contact form. The contact form should be simple and straight to the point.

NOTE! When designing the site i didnt feel like a navigation bar that showes where on the site you are at any time fitted into my design idea. My plan was to design a modern looking site that the users had to explore to go through. The site is ment for people who is used to the internet and who is looking for the opportunity to explore. Thats why theres no navigation bar with a class that showes which page/section the user is currently on.

Now, back to the design proccess. As i stated above, i wanted to create a site that followed a red line. So i decided to make a background for the site that followed the design principle of regularity. I wanted the design to be predictable, and that the different sections had some kind flow between them. I made a background with two triangles in different colors. By flipping the background every other section it gives a smooth transition between the different sections. By mixing up the backgrounds and the text transition i added in each section creates a smooth flow and pattern between the sections.

Thought process while coding

One page scroll

My goal was to have all my pages on the same page. To make this a reality i divided my HTML into different sections, where each sections would act as a standalone page on my site. To make sure each section allways goes to the full height of the screen that is seeing the site, i made the height in each sections the full height of the window. Then i disabled the scroll bar, so that i could make the one page scroll effect work, by setting the height of "main" to be the full height off the window and by

making sure the overflow was hidden. Then i added my navigation(the arrows you can press to either go to the next section or the previous section). I got the arrows from the fontawesome library and added them into my HTML before i positioned them in CSS.

Now it was time to add some interaction to the site.

The first interaction i added was to the "next-button"(the arrow down), so that when i press the button the page would go to the next section. So in my script.js file i added references to all the sections and to the two navigation buttons. Then i added an eventlistener to the next-button that listens for the button to be clicked. When the button is clicked i needed to create a function that would execute everytime the button is clicked so that the page goes to the next section. I figured out that i needed to define a index for the function to run properly, i made my first sections index 0 and created a variable index = 0 outside the function. Inside the function i made it so that when the button is clicked the index increases by one. So if you press the button once the index will increase by 1. Index of 1 will be section two on the page, index of 2 will be section three on the page and so forth. Then i made a loop that loops over the sections with the parameter section and "i" as the index. So that if the index is equal to the section that section will come into view. I implementet a javascript function called scrolledIntoView to give the scroll a smooth transition.

I used the same function on my previus-button(arrow up), i just changed the index from increasing by 1 to decreasing by 1 instead. Then i needed to make sure that if i was at the last section and pressed the next-button(the arrow down) the function would`ent increase the index, same for the previous-button(the arrow up). Because what if the user is on the last section an tries to go to the next section(that dosent exist)? The counter i created would still increase while the user would still be on the same section. So if a user presses the next-button four times, they need to press the previous button five times to go to the previous section. I prevented this by adding a if statement in the evenlistener. For the next-button evenlistener i added the if

statement "if index > 5 return". This makes sure that if the user is in section 7(the last section) and presses the next-button, the counter won't increase by 1. I did the same thing for the previous button, and added the if statement "if index < 1 return".

Now i wanted to add an animation to each text division in each section. When you go to the next section i wanted the text div to be invisible at first, then kind of slide into view from down on the page to up on the page. I did this using CSS transform. I made the initial text div opacity to 0 to make it invisible, and used the transform property. Since i wanted the text to slide from a downwards position to an upward position i set the initial transform property on the text div to be `transform: translateY(100px)`, the text would then initially be a 100px down from where it would end when the transition is complete. Then i added another class to my CSS called `show` and gave it the properties `opacity: 1` and `transform: translateY(0)` to make the text go back where i want it and visible again. To make this animation only work on the section that is being viewed, i created a function called `toggleText` in my `script.js` file that would assign the text in the section that is being viewed the class with the name of `"show"`. I also made sure that if the section is not in view, i removed the class `"show"` from that text div so that the animation would work every time the user pressed the next-button or the previous button to go to different sections on the page. I called the function with the arguments `0` and `"show"` so that the first section text would be visible when they first enter the site. To make sure this animation would work on every section i called the function inside the eventlisteners for the next-button(`arrow down`) and the previous button(`arrow up`). So that the `toggleText` function would run with the arguments `i(index)` and `"show"(classname)`. So if the user goes to the a new section of the page the index will be the section index(index 0 is the homepage, index 1 is the second section and so forth) and therefore the class of `"show"` will be added to the text div in that section.

Then to make the site more user friendly i wanted to make sure that the users could scroll between sections, not only move between sections by pressing the buttons for next or previous. Since i gave the `"main"` div a height of `100vh`, i basically disabled

scrolling on the page. So i cant make an eventlistener on the window that looks for a scroll event to happen, but instead im going to look for a wheel event to happen on the window. The first thing i needed to figure out was what direction is being scrolled, am i scrolling up or am i scrolling down. The event object that gets passed on has a wheelDelta object. If i console.log the wheelDelta data, everytime i scroll down i will get a negativ number in the console and when i scroll up i will get a positive number in the console. So i know have a way of seperating scrolling down and scrolling up. This means that if this value is negativ, i need to go to the next section on the page and if this value is positive i need to go to the previous section on the page. Then i made a if statement inside the eventlistener stating that if delta(the wheelDelta event that gives a negative number if scroll down and positive number if scroll up) is less than 0 dispatch a click event on the next button. This makes the next button think that it is being clicked, then the eventlistener for the nextbutton will trigger and therefore make the next section transistion into view. For scroll up i added an else statement that said if delta is not less than 0, dispatch a click event on the previous button. Now if i scroll down on my site it will just take me to the last section, and if i scroll up again im just getting back to the first section. To solve this problem i created a constant called currentTime and by using the date function and calling the method getTime on it i basically gets me the current time. Then i needed to define a constant variable(animationDuration) outside the function that will help the function know how long to wait between wheel events. Then i added another if statement in the eventlistener for the wheel that states that if the currentTime minus lastTime is less then the animationDuration prevent default, dont run the rest of the function. I also made lastTime equal to currentTime. I also defined the variable lastTime outside of the function, so that it would be defined. Now when i scroll down on my site it places the next section into view and dosent just scroll down to the last section straight away. The reason that it only scrolls one page(or one section) at a time is because the function checks the current time and substracts the last time and checks if its less than the animationDuration. If it is less then the

wheel event will stop and not run the rest of the function.

API calls

The first API call i made was to NASAs Astronomy Picture Of The Day API(https://api.nasa.gov/planetary/apod?api_key=Jexl4LTnenw7gYkMu92e208Mg4Ks1RRUgY6gnMxg). I wanted to have a background picture in section one that changes once every 24 hours. I made a function that would remove the loader when the image had been implemented to the background. Then i made an event listener that looked for a click on the button "Image Description", when the button is clicked an API call to the same API is made. The async function fetches the image description from the API and manipulates the dom by placing the image description inside a paragraph tag in the HTML. I made a similar event listener for the other button, this button would fetch info about who's in space right now and where in space they are. I again did some dom manipulation and palced this info inside another p tag surrounded by a div tag. Now when you press either of these buttons the html on the page will change. I also made sure to clear the html that was allready there before the new html got added. I didnt want to much text on the page at the same time. But if the user wants to see the image description again after pressing the "Who's in space" button, they can just press the "Image Description" button again.

Then it was time to add some more text and info in section one. I wanted my first section to get all its content from different API's so that the section would allways be changing. So i made an API call to another API that stored the exact whereabouts of the International Space Station(<http://api.open-notify.org/iss-now.json>). I wrote some text and mixed it up by fetching the latitude and longitude of the ISS. To make sure the latitude and longitude allways changed and showed the exact position of the ISS on my page, i placed the async function inside a setInterval function. I set the setInterval to 3 seconds, so every three seconds the function would run and thereby

changing the latitude and longitude of the ISS every three seconds on my page. Then i made an api call to an API that stored the number of people in space right now(<http://api.open-notify.org/astros.json>). Again i manipulated the dom by writing some text inside a paragraph tag, mixing the text up with the info about how many people that is in space right now from the api. This concluded the first section of my page.

Section two, three and four

There`s not much to say about the next three sections of the page. As i stated earlier i wanted the first part of the page to focus on whats "up there" and what`s the future plans of NASA. So in section two i placed some content about how NASA has perserved through the pandemic and what their future plans are. I made sure to place some info about their plans for the first woman on the moon i 2024 and placed a read more button under the text. The users can then decide if this suits them and can make their own decision about if they want to read more about it or not. I got this content from NASAs own homepage(<https://www.nasa.gov/feature/nasa-perseveres-through-pandemic-looks-ahead-in-2021>)

In section three i wanted to add NASAs own livestream from youtube. But the original youtube link did`ent work, because whoever is in charge of NASAs youtube channel have`nt made the livestream free to the public for implementation on other sites. But then i found out that NASA had the livestream implemented on one of their own sites(<https://www.nasa.gov/nasalive>). So i went to the site and opened up developer tools and looked at their code, i found the link to the youtube livestream they used and implemented the same link on my own site. I also added a button that sends the user to nasa`s own livestream that holds a schedule for the upcoming stream schedule.

In the fourth section i wanted to add a table that listed the international launch

schedule. Since we were not allowed to use any type of bootstraps i had to make my own responsive table. Luckily i have done this before as i made a homepage for the local water plant back home that needed a table to show some data. I rememberd that the table collapsed when the screen got to small. So i made my table responsive straight away. When the width of the screen got small i changed the table from displaying rows of data in the same column, to display the data in its own column instead. This makes the width of the table alot smaller and the table fits on smaller screens. But the problem with this is that the table height increases. Since i have implemented one page scroll, the table cant be heigher then the screen size or it will overflow. So i had to make the text in the table alot smaller, and on even smaller screens i had to remove some of the rockets with their data about when and where their launch was going to happen so that the table would fit into any screen size.

Section five and six

The next two sections of my page is focusing about how nasa uses their technology to look back at our home, earth. To be even more specific, i chose to focus on the climate change. In section five i placed three different articles about what NASA does for the climate change. Article one is about how scientists have created a new method for measuring carbon fluctuations in forests(<https://climate.nasa.gov/news/3063/nasa-satellites-help-quantify-forests-impacts-on-global-carbon-budget/>). Article two is about how scientist works on predicting the rising seas of the future(<https://climate.nasa.gov/news/3062/warming-seas-are-accelerating-greenlands-glacier-retreat/>). Article three is about why the earth is heating up(<https://climate.nasa.gov/news/3061/2020-tied-for-warmest-year-on-record-nasa-analysis-shows/>). I made all three of these text divs into buttons the user can press to read more about the different issues of the future. I implemented some

interactive design by adding hover effects on each of the buttons.

In section six i added a big button which takes the user to a climate time machine made by nasa. Here the user can see what will happen over time if we do not do something to change the future of our homeplanet.

Section 7

In the last section i added a clean and nice looking contact form. In javascript i made sure the form had some kind of form validation. I made a function that checks that the length of the name is larger than zero characters, that the subject of the message is larger the twelve characters and i made an email validation that checks if the email the user types in looks like an email. If every validation checks to be true when the user presses the send message button a success message will be displayed above the form. I also made sure that the page would`ent reload when a user presses the submit button by adding a prevenDefault to the event of the checkForm function. This is important, because if the page reloads the user will be sent back to section one. I dont want this, as this makes it really hard for the user to send a message and to know if the message got sent or not.

2.3. Conclusion

I will not got over all my decisions in my HTML and CSS, as this report is starting to get very long. I chose to focus on explaining why i did what i did in my javascript fils as i feel like thats the most important code to explain. I havent done any new or unfamiliar things in my HTML or CSS, but in my script files i have tried and tested out new type of code, atleast new for me. I felt it was more important to explain my decisions carefully especially on the code i wrote for the one page scroll effect. As this is the backbone of the whole site, and what im most proud of because of the time i used to figure it out. But theres a couple of more things i havent talked about

in my HTML and CSS that i would like to. I didnt feel like a normal navigation that shows the user where on the page they are would fit my design. My plans, or my hopes was that i could make a bar with circles vertically placed on the right hand side of the page. The circles would represent each section of the page, if the user is at the third section of the page the third circle from the top would represent this section and look different from the other circles. But i couldnt find out how to solve this problem and implement it to my site in time. In my testing phase i implemented a more normal looking navigation with classes that showed the user which page they were on, but i didnt like this as it didnt fit my design and purpose so i didnt implement it in my delivery. Since i couldnt find out how to make the navigation that i wanted in time i placed the footer on the right hand side instead. The footer is the different links to NASAs socials on the right hand side of the page. For bigger screens i made the social icons black, as i didnt want them to be too clearly visible at first glance. But i added hover effects to them, so that when the user hovers over each icon the icon changes color to their original color design. On smaller screens i cant really use hover effects, so i changed the main color of each social icon to its original color.

I also just have one h1 title on my page. Since i have implemented one page scroll technically every page on my site is on the same page in my HTML. I wasnt quite sure if i should implement one h1 tag per section or not. But from school i have learned that there should only be one h1 tag per page. And since all the different sections(main page and sub-pages) are technically on the same page i only placed one h1 tag on my site. For the same reason i also only have one meta description for my site. Of what i have learned about SEO as a student at Noroff, this is the best solution i came up with. I didnt want to mess with the SEO by adding one h1 tag in each section, instead i chose to use h2`tags in every section except from the first section(the homepage).

The reason i wanted to make a page using one page scroll was to try and create some sort of "wow-factor". This fits nice with the users i am looking to try and get to

my site. Namly users with internet experience and tech savy people.

3. References

References section 1

API call to get the astronomy picture of the day:

[https://api.nasa.gov/planetary/apod?
api_key=Jexl4LTnenw7gYkMu92e208Mg4Ks1RRUgY6gnMxg](https://api.nasa.gov/planetary/apod?api_key=Jexl4LTnenw7gYkMu92e208Mg4Ks1RRUgY6gnMxg)

API call to get the exact number of people in space right now: <http://api.open-notify.org/astros.json>

API call to get the exact position of the International Space Station:
<http://api.open-notify.org/iss-now.json>

References section 2

Article about how NASA perseveres through the pandemic:

<https://www.nasa.gov/feature/nasa-perseveres-through-pandemic-looks-ahead-in-2021>

References section 3

Youtube link to NASAs livestream:

<https://www.youtube.com/embed/21X5lGIDOfg?rel=0>

Link to NASAs own live stream with stream schedule:

<https://www.nasa.gov/nasalive>

References section 4

Link to the international launch schedule: <https://spaceflightnow.com/launch-schedule/>

References section 5

I got the images from <https://www.pexels.com/nb-no/> who has a free image library

Link to the three articles:

1. <https://climate.nasa.gov/news/3063/nasa-satellites-help-quantify-forests-impacts-on-global-carbon-budget/>

2. <https://climate.nasa.gov/news/3062/warming-seas-are-accelerating-greenlands-glacier-retreat/>

3. <https://climate.nasa.gov/news/3061/2020-tied-for-warmest-year-on-record-nasa-analysis-shows/>

References section 6

Link to NASAs climate time machine:

<https://climate.nasa.gov/interactives/climate-time-machine>

Other References

The fontawesome library, social icons: <https://fontawesome.com/>