

The background of the slide is a photograph of an airport terminal. It features large glass windows that look out onto a bright sky. In the upper center, a white commercial airplane is flying. In the lower right, the silhouettes of three people are visible: one person walking on the left, and a man and a woman standing on the right with their luggage. The floor is highly reflective, mirroring the silhouettes and the sky. The overall color palette is dominated by blues and greys, with the white of the airplane and the dark silhouettes providing contrast.

INTERFACE DESIGN EXAM PROJECT

NIKOLA WULF-ANDERSEN 28.09.95

CECILIE THERESE MARIENDAL 10.04.95

NIKLAS PELLE MICHELSEN 16.09.92

MARCUS ASBÆK GEIL 08.01.95

KEA Web Development 1st semester 30.05.18

Link to final prototype: <https://justfly.marcusis.me>

Notes to the reader: The following is a process documentation containing reflections about our methodology and design choices throughout the project.

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INTRODUCTION

It becomes more and more common to fly both for pleasure and for business. Many businesses in Denmark expands to the international market or develop partnerships with companies in other countries thus flying becomes a part of their everyday life.

Due to that fact it has become more popular to develop flight search engines to help people find the best and cheapest flight tickets. The current flight engines vary in quality when it comes to user experience, and some definitely have room for improvement. A thing they all have in common is that they are targeting a relatively wide target group.

Our goal is to come up with a solution which is only targeted towards business people, making the process of booking a flight ticket as smooth and painless as possible. This we will do by researching the field, the competitors, interviewing individuals from our target group and finally by testing our prototype.

DESIGN CHALLENGE

How can we create a flight search engine targeted towards business people, that will make the process of booking a ticket as quick and painless as possible, and how can this be achieved through a prototype?

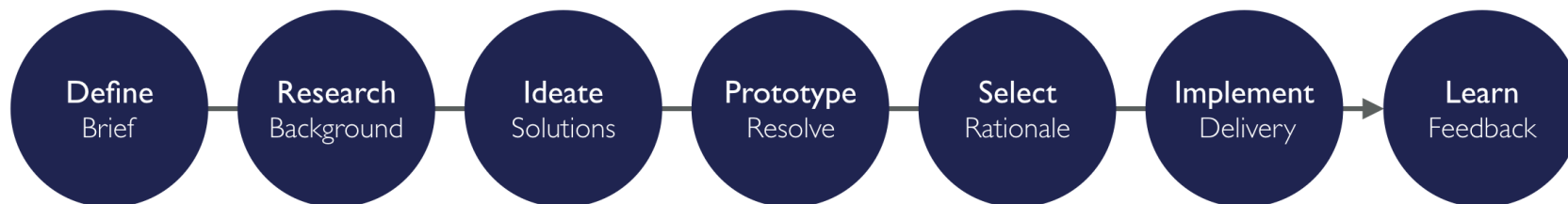
DESIGN METHOD

Within the field of design there are several approaches that can be taken. Some of the most known design methods are the "Waterfall model", "Double diamond" and "Design thinking". Each method has their pros and cons and focuses on different parts of the process.

We have chosen to work with the "Design Thinking" method throughout this project. The "Design Thinking" method consists of seven stages: Define, Research, Ideate, Prototype, Select, Implement and Learn. The method is user centered and focuses on researching the target group, defining their needs and developing and testing prototypes.

It is a very agile method and the purpose is to go through many iterations of prototypes from low-fidelity to very high-fidelity before the actual product is developed.

The process is designed to minimize misinterpretations of the target group, create a user centered design, prevent errors or malfunctions and increase the chance of a successful product. We chose to structure our report according to the seven stages of design thinking and therefore the report will be split up in seven chapters.



PROJECT MANAGEMENT

To ensure an effective workflow, a manageable project and achieve a satisfying result, we used a variety of methods and work processes. Early in the project we decided to use the Scrum method to manage our project.

Scrum

Scrum is a method that ensures a dynamic workflow and works great for managing group projects. Every week we held scrum meetings where we had a stand up and by turn we told the rest of the group what we had been working on since last time, and what we would continue working on until next time. We appointed a Scrum master to ensure that the workflow ran smoothly, and the tasks were executed according to the schedule. As the Scrum board, we used the online tool "Trello".

We divided the project into smaller and more manageable tasks and split those tasks among us.

Trello

We created two boards: one for the project in general and one specific for the implementation of our prototype such as features, bugs and coding in general.

The first one has three columns: TODO, DOING and DONE. For the project we created a card for each task and placed them under TODO. The other board has five columns: BACKLOG, TODO, DOING, REVIEW and DONE. BACKLOG is used for all the assignments that are not yet ready to be implemented or can't be implemented yet. The ones that are ready will be moved to the TODO column. When completing an assignment, we move it to REVIEW where another member of the group will look it through to

make sure it's properly done and is not missing anything, before moving it to DONE.

The cards all have different colors, indicating its importance, where green is the most important, then yellow, orange and last red which is the least important. The importance is determined by the MoSCoW and Planning Poker methods.

Meetings

We held meetings twice a week either in person or via Skype. In between we each had assignments to do, and every meeting we presented what we had achieved so far. At every meeting we made sure that everyone was up to date with the current state of the project.

We appointed one group member to be responsible for the design and one for the code. Not that they made it them self, they just had the last word when disagreements occurred.

When it came to designing a new part of the project, we always started by making some research. We looked into how similar sites did it and then talked about likes and dislikes. From that we came up with ideas and presented them for each other. The ideas became wireframes and from those basic wireframes we started implementing just the structure without a design. This made sure we didn't waste time waiting for the complete design, but we could start building the different components. Later when the early prototype was tested and we finished the design, it was much faster to implement the rest.

See our Trello boards in **Appendix 1**

DEFINE

Stage 1

INTRODUCTION DEFINE

The first step is to define the project. Due to the nature of the assignment some aspect of the project is predefined. In this stage we specifies our concept and target audience.

OUR CONCEPT

The way we differentiate from other, similar, solutions is that our product is only targeted against businesses and business people. We make it possible for businesses to sign up and create sub accounts for their employees. This structure benefits both company and employee. The company will get all necessary information about their employee's flights and the bill is automatically sent to the company. This way the company can easily ensure that their employees book the most sensible ticket and the employee does not need to manually forward their bills to the company.

When the company buys flight tickets through our solutions they earn "Air Miles". "Air miles" are bonus points, which can be transferred among employees of the same company. This means that if an employee does not travel very often their "Air Miles" can still be of use to another employee, so no bonus points are wasted.

Our advertisement would be directed to get medium to large sized companies to sign up, so we have a stable user base.

TARGET AUDIENCE

Our Target audience consists of business people, who often travel for work. They are fairly flexible when it comes to pricing as the company will pay. Both women and men are represented, and their age range from 30-60 years. They work or own a medium to a large sized company, and their work require them to travel frequently. They use Smart Phones and computers on an everyday basis, this does not mean they are technologically strong, but they have a basic understanding of computer and internet usage. In general, they do not feel unsafe by shopping online.

We use Conzoom's D segment as a baseline for our target audience. Conzoom is a segmentation of the people of Denmark that contains a lot of analyzed data.

Noticeable notes from Conzoom's D segment:

- High level of education
- Often high positions in companies
- Most of them are over 40 years old.
- Live in the metropolitan region
- They own a car
- They use the internet

See Conzoom's D chart in **Appendix 2**

PERSONAS

After a target audience have been defined, it can be a good idea and a powerful tool to make the group into a persona (See our personas on the next two pages). A persona is a manifestation of the target group, with name, age, personality and everything you can come up with making it a believable person.

The idea with this is to be able to put yourself in the person's shoes and try to think like the persona. Keep asking yourself, "what would Eric like", or "Will Sarah understand this". This helps see the project from another perspective. A target audience can have different kinds of people. Because of this, we've made two personas, both representing the target audience, but in two different ways.

We have used the personas throughout the project, and have had them in mind when we should choose new features or new design ideas.

PERSONA 1

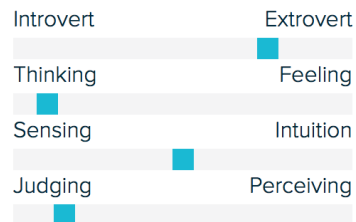
Eric Christiansen



"Don't make me think"

Age: 42
Work: It-consultant
Family: Divorced, one teenage child
Location: Copenhagen, Denmark
Character: Conzoom D1

Personality



Ambitious Pessimistic Educated Impatient

Goals

- Wants to book a flight.
- Wants the booking to be fast.
- Wants to think about booking as little as possible.
- Wants business class.

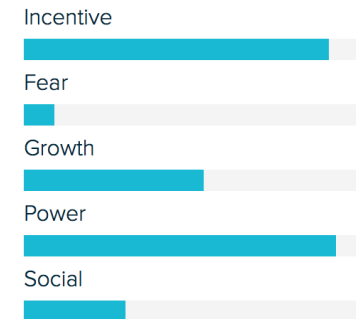
Frustrations

- If something takes to long time to do.
- To many steps/repetitions to buy a ticket.
- If it does not look professional.
- If something is not logical.

Bio

Eric's work require him to travel a lot. This means that he uses a booking system almost once a week, and therefore he wants it to be fast. many of his destinations are the same each week, so i would like the application to remember his past bookings. The company pays for his tickets so i doesn't care much about the price.

Motivation



PERSONA 2

Sarah Andersen



"I am looking for a website that will make booking my business flights quick, simple and efficient."

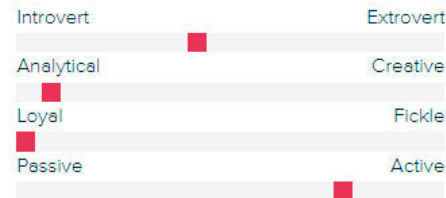
AGE: 33
 WORK: Sales representative
 FAMILY: Single
 LOCATION: Copenhagen, DK
 ARCHETYPE: The Frequent Flyer

Organized Practical
 Efficient Hardworking

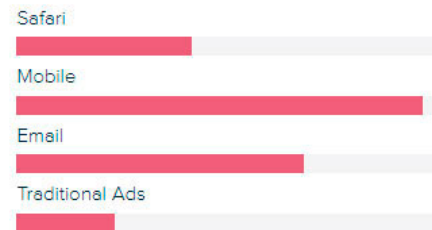
Bio

Sarah is a Sales Representative for Novo Nordisk, who travels 3-9 times each month for work. She does not have an assistant to book and manage her trips, so she has to spend her, already busy days, finding the best possible flights. It frustrates her, how she has to repeatedly enter information on search engines in order to find the best offers.

Personality



Preferred Channels



Goals

- To spend less time searching for a flight
- To reduce repetitiveness of the process

Frustrations

- Too much time spent looking for the right flight.
- Redirected to too many websites visited per trip.
- Having to reenter information upon repeating visits to the flight search engine.
- Finds process tedious, she isn't very good with technology.

Motivations



Brands





RESEARCH

Stage 2

INTRODUCTION RESEARCH

After we have defined the problem we move to the research stage. The purpose of this stage is to get a better understanding of the problem. We do this by looking into the target group's needs and preferences and studying examples of other solutions, which have attempted to solve the same or similar issues.

INTERVIEW TARGET GROUP

To get a better understanding of our target group and their needs we performed an interview with Peter, who is a company owner and travels frequently. It was important that we found someone who fit the description of our target group. To perform the interview, we used a structured interview form.

Insights from the interview:

- Attempts to book flight tickets as early as possible so prices don't go up. Preferably 2-3 months ahead, but sometimes something unpredictable shows up and he is forced to book tickets within a couple of days or a week before.
- Usually he travels no longer than a week, but in some cases, it can go up to two weeks.
- Prefers to fly with SAS so he can collect bonus points. If the connection is bad, that is prioritized more which makes him choose another airline to fly with. Duration time and the number of stops are important to him.
- He uses flight search engines like Travellink.dk or Egencia.com that only gathers information directly from the airlines webpages.
- Doesn't like search engines like Momondo that redirects to other pages for the booking process and doesn't reflect the actual prices on their website because extra fees are added after the redirect.



Peter, 59 years old

Titel: Business director and owner
Nationality: Danish

See full interview in **Appendix 3**

RESEARCH FLIGHT SEARCH ENGINES

We have done some desktop research about peoples' preferences when it comes to booking flights online.

User needs

We found that people look for websites, which offer different types of journeys; domestic, short trips within Europe, continental flights, internal US flights and multi-city breaks. Besides this people generally look for website where they can stay in one website as long as possible without being redirected to other airlines websites.

When choosing flight people takes special notice to the layovers and avoid the long ones. As private persons they look for the cheapest sensible flight, which is also applicable for small business owners, but the scale for when a flight is sensible is a little different.

Problems

The user is discouraged if a flight search engine is covered with ads, or it has a confusing and overwhelming design. Another thing that turns away the users are if the prices displayed are not the total price of the ticket. A lack of filters can also turn away users or if the filters do not act as the users might expect.

We created a list of competitors and the pros and cons of using them seen from a user perspective. See **Appendix 4**

COMPETITORS WEBSITES

	Momondo	Google flights	Skyscanner	Kayak	Hipmunk
Third party login	Yes	Has you already logged in through your google account	Yes	Yes	Yes
Offers types: Return, one-way, multi-city	Yes	Yes	Yes	Yes	Yes
Data set pr. Default	Type* From, date, passages, class	Type* From, date, passages, class	Type*, from, date, passages, class	Type* From, passages, class	Type*, date, passag-es, class
Date picker default	1 month in advance and a wee long trip	2 weeks from now, return in 5 days	5 days, return a week later	None	tomorrow and return in 2 days
Filters	Number of stops, flight duration, take off/landing time of day, airports, airlines, alliance, price	Number of stops, flight duration, take off/landing time of day, airports, airlines, alliance, price	Stops, take-off/landing times, flight durations, airports, air-lines, alliances, aircraft, price	Stops, take-off/landing times, flight durations, airports, air-lines, alliances, booking sites, cabin, class, layover airports, aircraft, price	Airlines, airports, class, stops
Additional features on result page	Graphs with flight time and prices over almost 3 weeks period (can scroll to more days)	Top best flights, tips, shows insights about flight from historical date, compare to other airports	Get price alerts signup	Tips	None
Redirect to other sites to book the ticket	Yes	Yes	Yes	Yes	Yes
Ads	Yes	No	Yes	Yes	Yes
Additional options	When trip is selected, offers option to compare the price to some oth-er search engines		Option to add nearby airports and search just for direct flights	Offers option to compare the price to some oth-er search engines	

ACTIVITY ANALYSIS

Search for a flight

Steps

- Choosing type of trip (one way, return, multi-city)
- We will analyse the return trip.
- Input the starting airport
- Input the destination
- Input the departure date
- Input the return date
- Input the number of passengers
- Choose the class (economy/business)
- Click search
- Choose most appropriate flights.
- Criterias: Time, flight company, price

Artifacts

- The website: Radio buttons (type of trip), 2 text fields (airport and destination), 2 datepicker (departure and return), number input (passengers), select (class), button, List of all the flight results with information about: the trip, time, flight company and price.
- The device to connect to the website
- Internet coverage

Pain points

- Finding the flight in the exact time frame.
- The departure date on the date selector should by default be set to current date.
- The return date on the date selector should by default be set to current date (if we assume that business people would take 1-day trips).

- Save the last class type.
- Starting city set to the closest one (geolocation).
- When the user inputs data in the text fields, we query the database and come up with suggestions based on the user's previous activity.
- If the user do not know the airport, can not spell it or do not care. The user can input cities and countries in the starting and destination field, we will query the database for airport and rank them after popularity and the user's previous activity.
- Choosing the flight might be a pain point for business people, due to time constraints solution: search all the flights from the departure city to expand options; offer multi-city options if there are no direct flights in set timeframe.
- If there is no available flights in set class, offer the option to view available flights in other classes for the set dates.
- Option where a logged in user, can choose to rebook their last booked flight (with new dates of course)

Suggested solution

Some of the pain points can be solved by saving user data in a cookie or localStorage for auto completion the next time. It can also be saved as user profile data, after the first purchase has been made. The saved data and prediction of the next input becomes more accurate with repeated usage of the website.

Booking the flight

Steps

- Click on chosen flight
- Select the luggage
- Choose if you would like seat reservation
- If you would like seat reservation, select the seat in the plan
- Class/luggage/seat reservation steps need to be repeated for return flight
- Special needs? (special luggage, food requirements or disability)
- Click submit reservation button
- Opens new page
- Option to log in / create account / continue without account

Continue with account

- Log in with username or email and password
- Click login button
- Choose if the logged in user is the passenger or if it is another person.
- Complete the form: (if the logged in user, is the passenger, the form is filled out automatically, but the user has the option of edit the data)
- Fill out passenger details: name, last name, gender, Address
- Fill out the contact information: phone number, email
- Option to buy insurance (eg: refund in case of flight cancellation)
- Submit the data to continue to payment

Continue without account

- Complete the form.
- Fill out passenger details: name, last name, gender, address
- Fill out the contact information: phone number, email
- Option to buy insurance (eg: refund in case of flight cancellation)
- Submit the data to continue to payment

Artifacts

- The device to connect to it
- Internet coverage
- The website: select for luggage, select for seat reservation, Interactive graph for seat reservation, radio buttons (log in / create account / continue without account), form for passenger information, checklist with insurances, submit button

Pain points

- Filling out a lot of details is time-consuming especially for a business man or women in a hurry
- Limited time to fill out all the data. Ticket can sometimes be sold out before purchase is confirmed and the user is not informed about this.
- Redirects user for the booking process when ticket is selected.
- Prices are often misrepresented and will increase after redirect to other page due too extra fees

Suggested solution

To solve some of the pain points during the booking process we want to create a solution where the account data can be saved so the user does not have to spent time filling out the same data as they always do. We also want to create a solution where the user is able to buy the tickets directly on our page without any redirects. This is a pain point for many users and often the price is increased due to extra fees that the user is not informed of on the search engine.

Sometimes if a user takes too much time going through the booking process the ticket they are trying to book can actually be sold out before they confirm and then they will have to go through the whole process again and might end up with a more expensive ticket. To prevent this problem the tickets on our search engine will be reserved for a certain amount of time, and there will be a timer on the page so the user knows for exactly how much time the ticket is reserved.

Purchasing the ticket

Steps

- Revise the order
- Confirm the terms and conditions
- Click to pay

Input credit card details:

- credit card type
- number
- security number
- expiration date,
- the name of credit card holder

Artifacts

- The website (input fields, buttons...)
- The device to connect to it
- Internet coverage
- Your credit card, to read out all the data

Pain points

- Having to choose credit card
- Filling out all the card data every time
- Having to send the receipt to their company so they can post it as an expense

Suggested solution

To ease the payment process for the user the selection of credit card provider according to the credit card number can be automated so the user does not have to select it themselves.

The credit card information can be autocompleted with the last credit card used and we can integrate 3rd party payment methods like Paypal, MobilePay or similar that can speed up the process. If user is logged in to their company account the receipt will automatically be sent to the company.

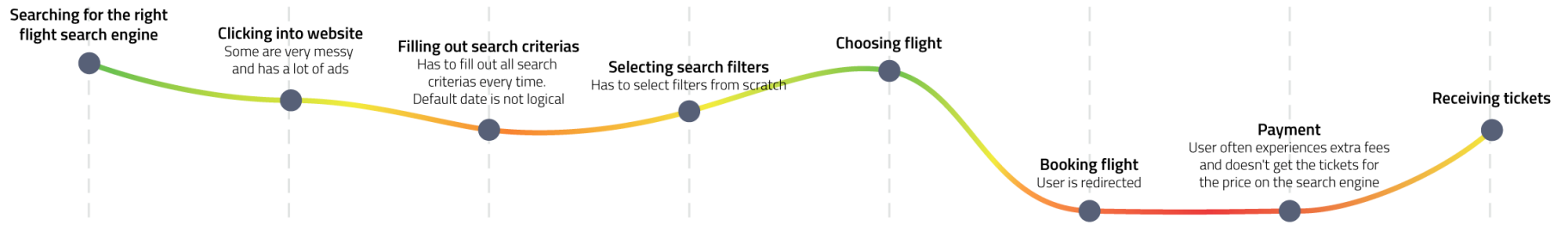
EMOTIONAL JOURNEY MAP

To summarize our activity analysis and get a level deeper into the user's experience, we created an emotional journey map (See next page). An emotional journey map is a visualization of the steps a user has to go through in a certain experience. During these steps the user's emotional experience, the artefact they interact with and the touchpoints are mapped. In this way it is easy to get an overview of where the pain points occur.

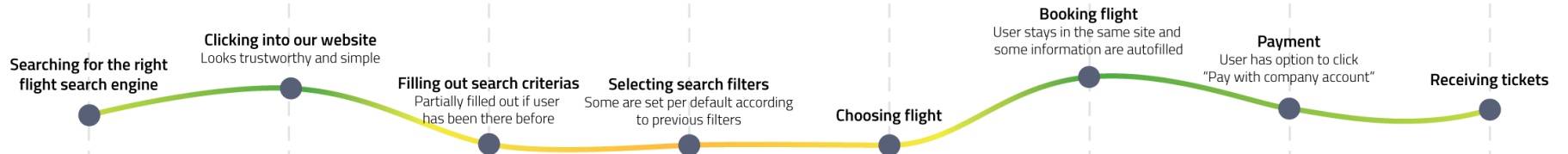
The first row displays the different steps in the process and how the user's emotional experience evolves. The emotional experience is visualized by a colorized line graph where green is when the user feels excited and red is when they feel frustrated. As seen on the emotional journey map the most critical pain points are when the user is redirected to the booking page and the payment process.

We chose to customize the method a bit and add another row showing the goals for our solution and how we would want the user to feel doing the process. For the booking and payment process we hope to improve the user experience and keep the user in our page without any redirects and get rid of the extra fees that are sometimes added on other pages. We also want to implement more auto filled information and preselected options based on the user's last choices or their account settings. This would make the process of filling out the search form, filters, personal info and payment info much faster. Hopefully this will contribute to improve the overall user experience.

Other flight search engines
Users experience during process



Goal for our solution
Users experience during process



Interactions
Artefacts the user interacts with



Touchpoints
Contact with user



USER STORIES

You do not have to create an account to use JustFly, but if you do create an account, you get extra features. When you sign up as a business you have the opportunity to create sub-users for your employees.

As a user I can search for a flight.

As a user I can book a ticket.

As a user I can pay for a flight ticket.

As a user I do not get redirected when I book a flight.

As a user I can see available flight.

As a user I can purchase a ticket, when I have picked a flight.

As a user I can sign up.

As a user I can log in.

As a user I can filter my search results.

- by date.
- by airports.
- by airline.
- by number of stops.
- by available class.
- by price.

As a user I can get suggested airports, when I search for a flight.

As a user I can search for the first available flight.

As a user I can see my earlier flights.

As a user I can pick a seat.

As a logged in user I can log out.

As a logged in user my information is automatically filled in.

As a logged in user I get "air miles" when I buy tickets.

As a logged in user I can change my account settings.

As a main-user I can create subusers.

As a sub-user I can do everything the user can except create sub-users.

As a sub-user I can send the bill to the company account

As a user I can see details about a flight before booking it.

As a user I can select what kind of luggage I want to bring.



IDEATE

Stage 3

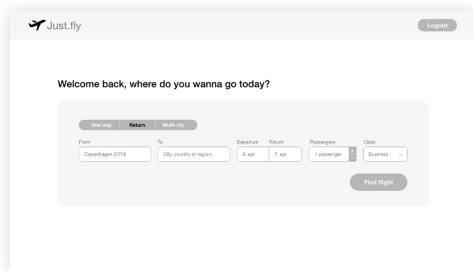
INTRODUCTION IDEATE

The Ideate stage shows the development and thoughts within our design. We begin our design process by focusing on the content and organization of it. After testing our low fidelity prototype, we go on to the visual design. Within this chapter we define our visual identity and the evolution of our design.

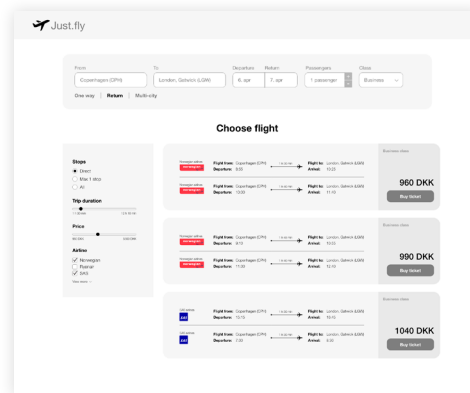
WIREFRAMES

After doing some research about other flight search engines we started creating some basic wireframes for our layout. The intention of creating wireframes before the actual mockups and design, was that we could get the chance to just work with the content and structure of it as well as the informational architecture. We decided not to use any colors but only shades of grey so nothing would interfere with the functionality of the prototype.

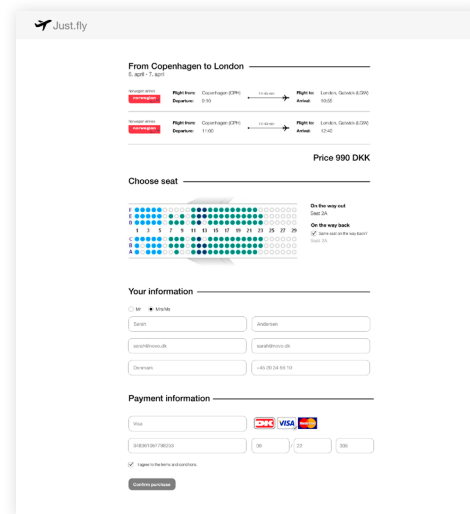
Front-page



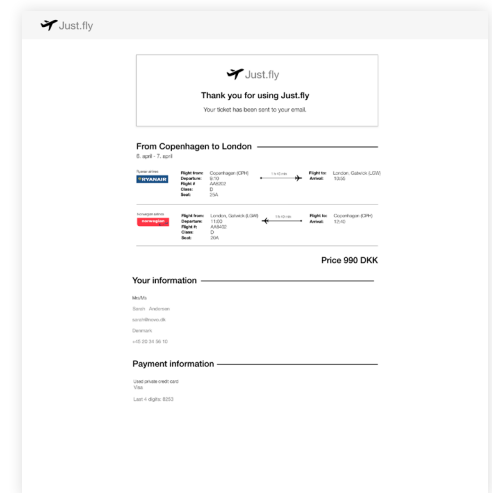
Result page



Booking page



Succes page



Link to online prototype:

<https://xd.adobe.com/view/98038289-d7a8-4289-b9c3-fe330489c10d>

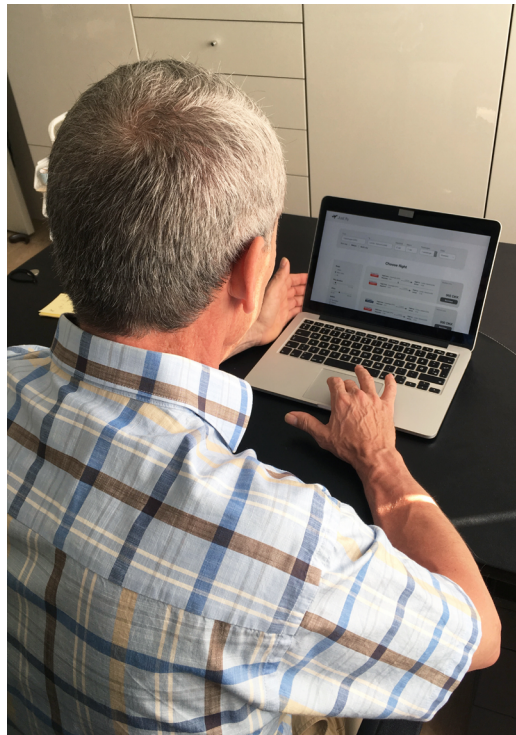
Link to usability test:

https://youtu.be/svChuW_ksLc

USABILITY TEST

After creating the wireframes, we used “Adobe Experience Design” to create a clickable prototype, so we could test it. We wanted to test the prototype in an early stage so we could discover if there were any flaws or features as well as functionalities missing.

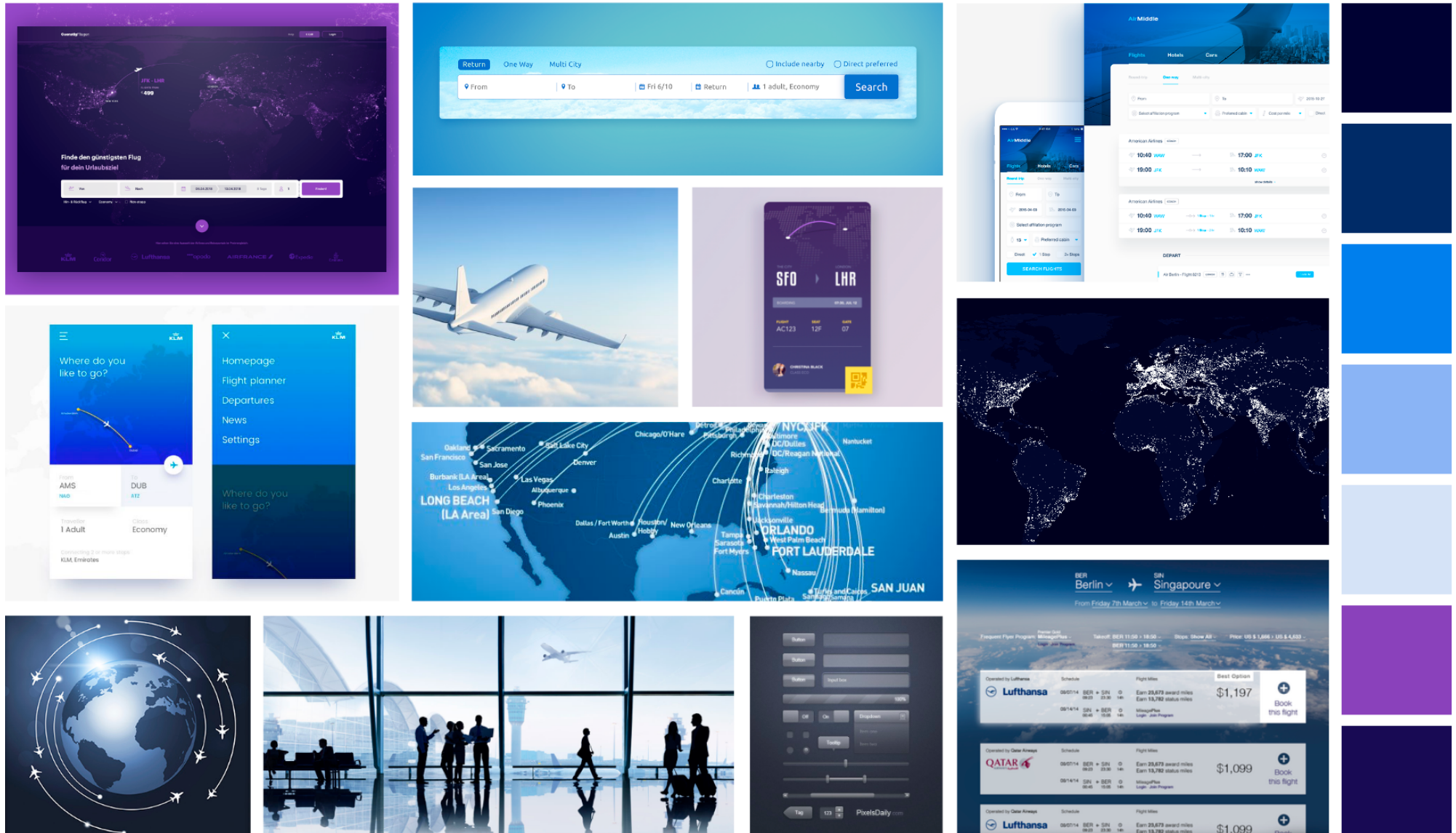
For the test we chose to use the method “Thinking aloud”. The method is very simple, the user (test person) just have to click through the prototype and while doing that they have to think aloud so we can gain insights about their choices and considerations. Earlier in the process we interviewed the business man Peter who fits right into our target group and therefore it would be ideal to perform the usability test on him as well.



From the test we gained these insights:

- It is important that there is an option to choose multi city. On some websites this can be difficult. It was very clear on ours.
- Peter would definitely create an account if his data were stored and he could save time. It annoys him if his personal info and card info can't be stored and he has to fill it in every time.
- Since he is travelling a lot and often takes the same trips he suggested that it would be nice to see previous bookings and select the same route. Then he wouldn't even have to fill in the search form he could just set the dates.
- He really like the feature that a company can create a company account and add sub user for the employees.
- For the filters in the result page he is missing a choice to filter by alliance. Usually their company books within the same alliance so they collect air miles that they can spent on upgrades.
- The seat picking section confuses him. He mentions that he doesn't know what the colors mean, which seats he can pick and how he can pick the seat for his return flight.
- The booking page lacks information about luggage: How much is included and what are the rules for size and weight?
- It is not obvious where he can read the terms and conditions. It does not seem like a link.
- Missing option to print the flight information in the last page.

MOODBOARD



Designmanual

COLORS

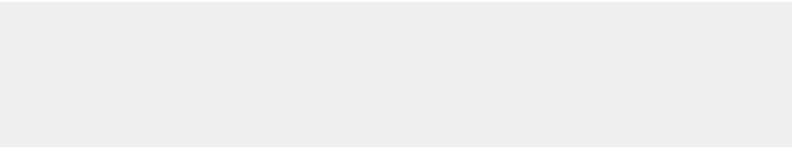
After doing some research about colors and their meaning, we chose to work with a blue color scheme. Blue is a color often associated with the sky and therefore also airlines and flying. It is a color often used in relations to banking, energy and business. Blue symbolizes trust, loyalty, wisdom, confidence, logic, intelligence and truth. Darker tones of blue represent knowledge, power, integrity, and seriousness. A negative conjugation for blue is that it may seem cool and unfriendly. We have counteracted this by making the corners round.

Many of these adjectives like for example trust and loyalty are something that we want our target group to associate with our company. Other than these adjectives we aim to create a visual identity where the aspects of both business and flight companies are reflected so the intention of our website is clear to the user.

To create contrast on our website we chose to work with the light-dark contrast also referred to as chromatic colors. Since we are only working with one color we selected a variety of blue tones, from very light tones to very dark tones.


#EFEFEF

RGB (238, 237, 237)
CMYK (4, 3, 3, 0)




#D1D8ED

RGB (207, 213, 234)
CMYK (14, 9, 1, 0)




#7792CE

RGB (117, 141, 194)
CMYK (55, 34, 2, 0)



#313A60

RGB (44, 53, 93)
CMYK (78, 68, 33, 24)




#01235C

RGB (0, 38, 89)
CMYK (85, 78, 30, 27)



#080910

RGB (0, 7, 12)
CMYK (56, 45, 47, 71)



BUTTONS, FORMS & GRAPHICS

For the buttons we chose one primary and one secondary. Both buttons are rectangular with a border radius of 8px which makes them a little bit softer. Our primary button is the dark blue one because it draws a lot of attention on a light background due to the high contrast. For the secondary button we chose a medium blue color which is also one of the colors that appears in our logo as you will see in one of the coming pages. The reason why we chose that exact color is because it works well with both light and dark backgrounds and draws attention on both of them.

For the form we chose a light theme. The background color is white and the input fields have a very light grey color. As well as the buttons we chose to set a border radius of 8px for the input fields and a border radius of 6px on the form itself. To give the design a bit more depth we decided to give all elements in contact with the background a box shadow.

In general, our style is very minimalistic and clean. It is important that the user take notice in all the information and does not get distracted or annoyed by the design. It should not draw too much attention but on the contrary highlight the essential part which is booking a flight.



Secondary button



Primary button



TYPOGRAPHY

We chose to work with the font "Titillium" which is a grotesque font type. A grotesque font is a font without serifs. The font gives our visual identity a very modern and slightly technical look. The letters are a bit more square-ish instead of round which in our opinion contributes to making it look technical. When it comes to readability the font is very easy to read and calming for the eyes. Due to the low resolution of certain older devices, not having serifs on the font increases readability.

The font comes in several font weights which goes from thin to black. We chose not to work with the two outer ones thin and black because they are harder to read. Our primary font weights are light, regular and bold and in some cases, we use semi-bold for smaller headlines because the bold one can be a bit harder to read if the font size is very small.

Titillium Bold

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

1234567890~!@#\$%^&*()_+-=<>?.,/:"';{}|[]\

Titillium Semibold

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

1234567890~!@#\$%^&*()_+-=<>?.,/:"';{}|[]\

Titillium Regular

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

1234567890~!@#\$%^&*()_+-=<>?.,/:"';{}|[]\

Titillium Light

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

1234567890~!@#\$%^&*()_+-=<>?.,/:"';{}|[]\

LOGO

We wanted the logo to represent the values of our company and have a unique look so it would stand out and be recognized. We created two types of colors schemes for the logo, one that would work on a light background and equally one that would work on a dark background. Both types of logos have one color in common, the medium blue, and then the secondary color is either a dark blue or switched to a very light blue depending on the background.

We created some different versions of the logo and tested them later when we were doing our mockups to see which one worked better in a larger context. After testing the different logos, we decided to go for the one in the middle. We all liked the logo in the bottom a lot but when it was placed in a navigation bar it simply got too small so the user wouldn't be able to read it as easy.

For the name of the company we came up with the two words "just fly" because we want to emphasize that it is fast, easy and painless to book a flight through our website. The word "just" has a lot of connotation to something that is easy and manageable and doesn't require much from the user.

Easy, fast and painless are some of our main values we want to communicate to our users. Since the target group is business people who are often in a hurry and want everything to go as fast and smooth as possible, those three values are very important to express throughout our website.



INTERACTIONS & FEEDBACK

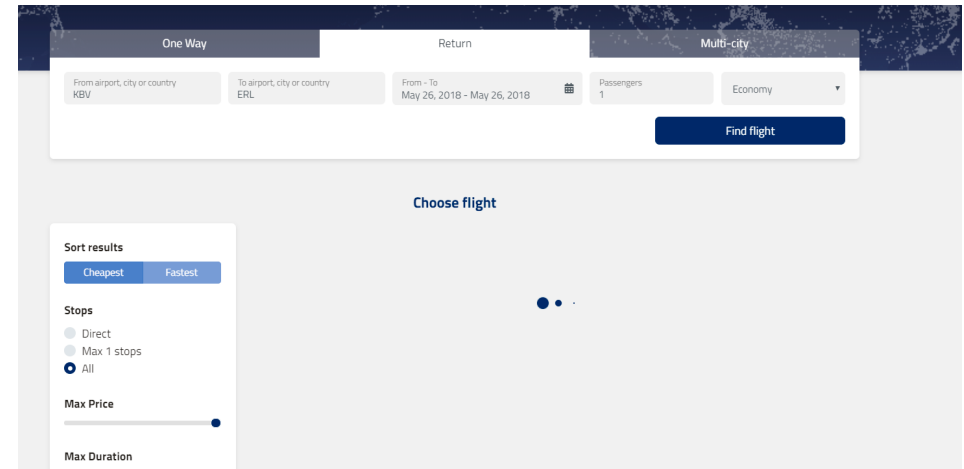
When a user click on a input field, that field gets a blue border, so that the user know, they have successfully click on the field.



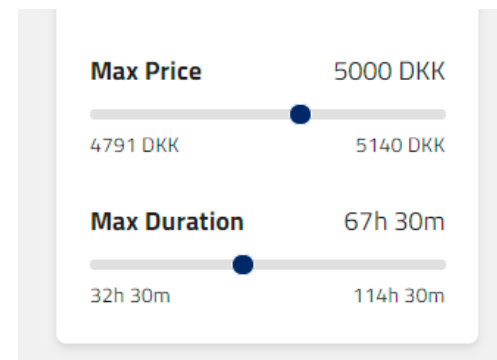
The tabs on the top of the only get the border if you use the "tab" key, to navigate to the, if you select them by clicking the them, there is no reason for the border, because the background changes and that signals to the user, that they have selected the tab.



When a user searches for a flight, before the results appear there is a little loading icon, which signal to the user, that the site is not broken, but that the search is in progress.

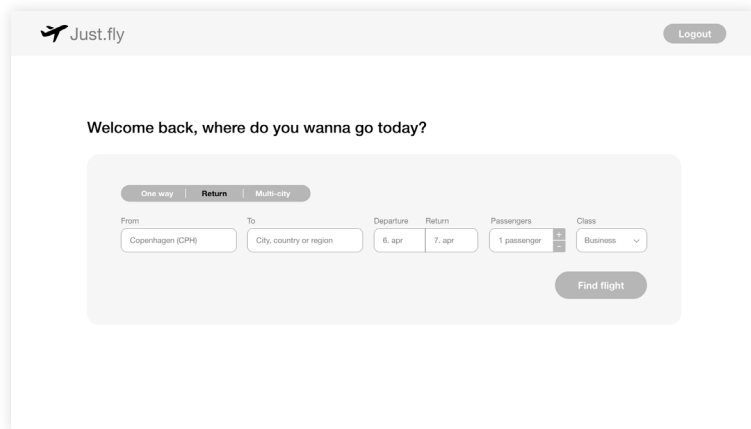


When using the sliders in the filters, the number on top changes as the user moves the point. The reason it changes while the user slides and not only when the user stop, is so that the user know the slider is recording their input.



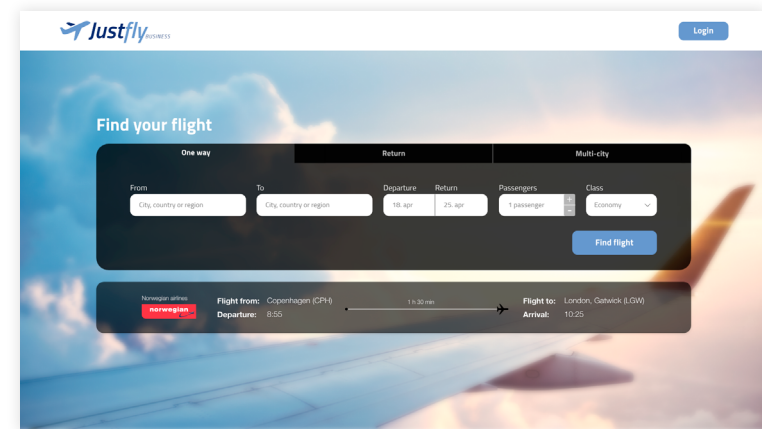
DESIGN EVOLUTION

To get to our final design we went through a lot of drafts and ideas before we were satisfied with the result. The first draft is rarely the one you end up with, but when seeing something visual you get inspired for new ideas and designs. Along the way we worked with the different elements and tried to focus on the small parts we liked and transferred those for the next iteration of the design. Over the next couple of pages, we will show our design process and how the design evolved.



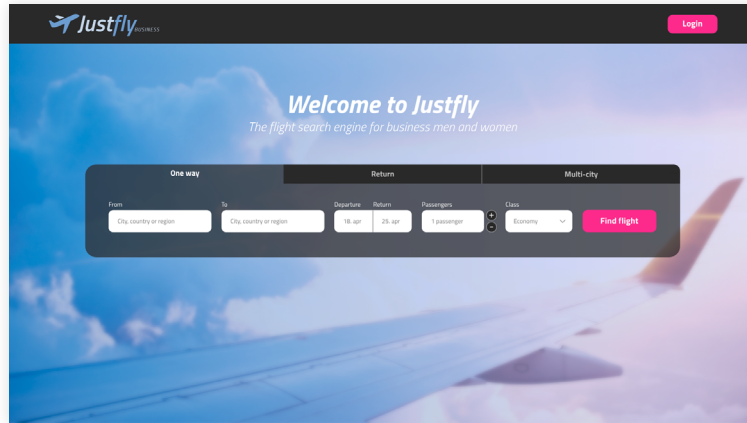
Design 1

The first rough layout for our design was our wireframe. It did not contain the visual identity yet but it had most of the structure and layout which therefore became our starting point.



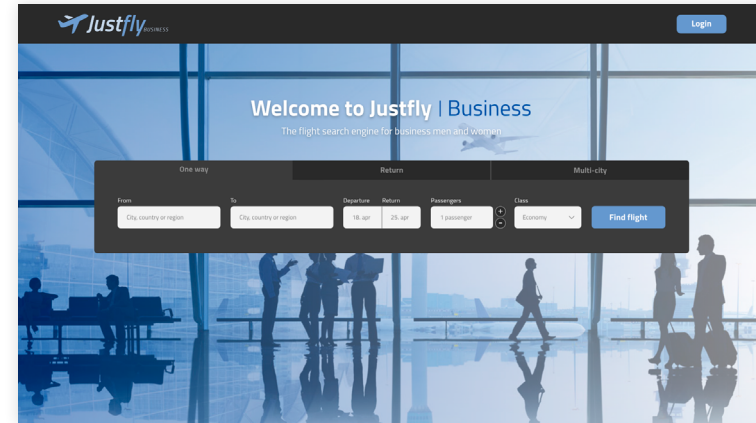
Design 2

For our second design iteration we tried to keep the same layout and just add our visual identity to it. Some of it we liked as for example the tabs instead of buttons for one way, return and multiway, but there was something about the contrasts we weren't really satisfied with.



Design 3

To play with some of the colors and contrast we experimented with a gradient overlay and made the navigation black. We also tried to add a secondary color, pink, to see what effect that had. In general, we thought that there was a bit more harmony now, but it had also gotten more girly and moved away from our target group – business people.



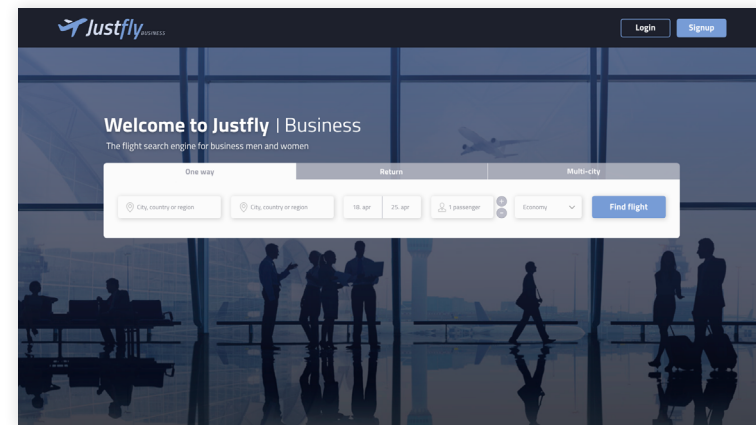
Design 4

With those thoughts in mind, we began our fourth iteration. From our third design we liked the dark navigation and that we added a gradient. This time, instead of a purple to blue gradient, we chose a white to blue gradient. We also replaced the background image with a more business related one to see what effect that would have on our design.



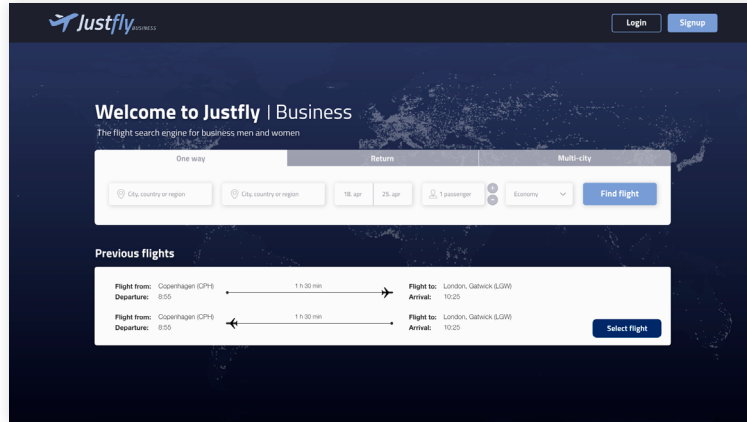
Design 5

For the next iteration we tried to make the search form a bit more compact and clean. On the earlier design we used a dark grey for the form and navigation, but in relation to the background and gradient it almost got to warm so we changed it to a dark navy blue. We also set the opacity down on the tabs that weren't active which we liked a lot.



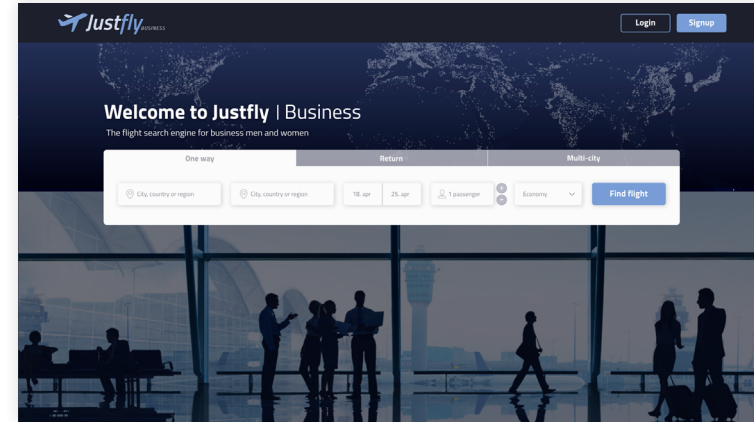
Design 6

On the next version we switched the colors. We kept almost the same design but instead of a dark search form we made it light and then darkened the background. This made our design a more calm and easier to read the headlines.



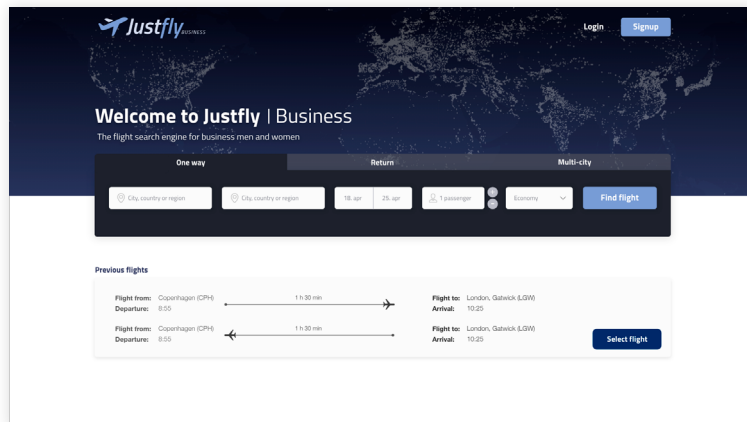
Design 7

We continued with the light search form and the dark background, but now we tried with a simpler background image that would give our design a more minimalistic and clean expression. We wanted to focus the attention on the search form and our call-to-action.



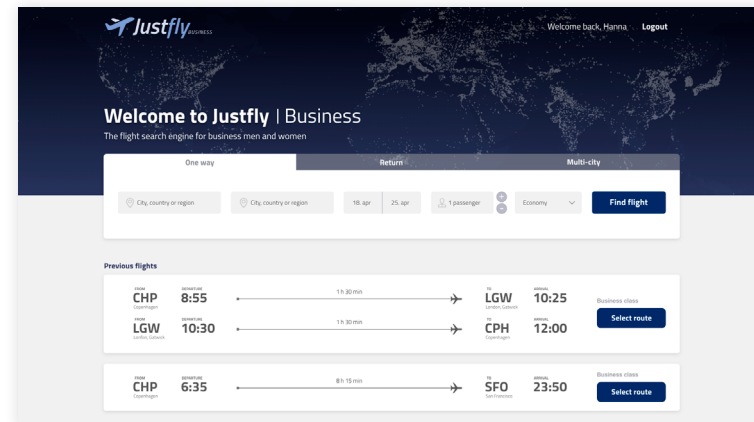
Design 8

Since we couldn't decide which image to use, we tried to cut the them in half and combine both. If a user is logged in their previous flights will be shown under the search form. We thought the separation of the screen could work well for the previous flights so they got separated from the search form.



Design 9

Combining the two images got messy but the concept worked well, so we tried with a solid background for the bottom part, and that worked very well. Just to see how it looked we changed the search form back to the dark theme and removed the background color from the navigation. Due to the dark background image it looked better without the background color in the navigation.



Design 10

At last we ended up with our final design, which we were all very satisfied with. We changed the search form back to the light theme because we thought the dark search form was too hard on such a light background. We also changed the solid background color from white to a light grey to create more contrast and it's easier on the eyes.

PROTOTYPE

Stage 4

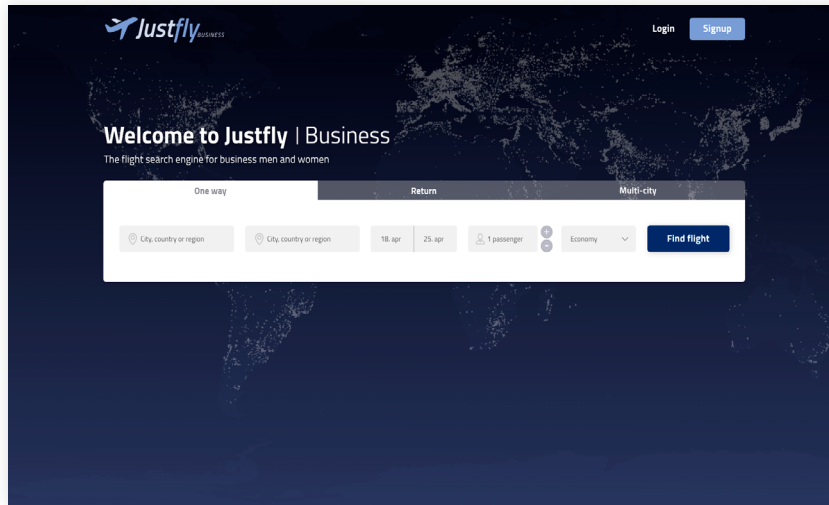
INTRODUCTION PROTOTYPE

After our visual identity is established, we go on to the prototype stage. We create our high-fidelity prototype through clickable mockups in Adobe Experience design. To test the design and the message it sends, we test it using the method "5 seconds test".

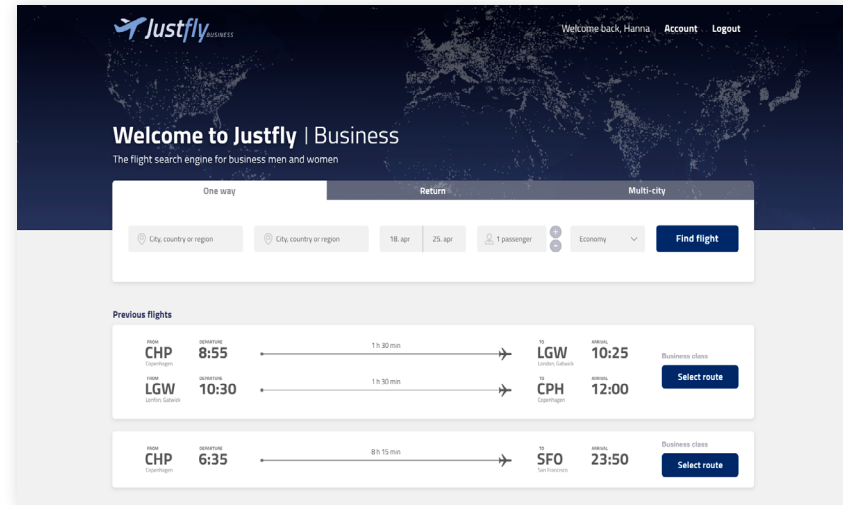
MOCKUPS FRONT-PAGE

For the design of the front-page we created two mockups. The first design is when a user is not logged in. If a user has an account and logs in the page will change slightly. Some information will be auto filled based on previous choices such as the from city, passengers and class. Furthermore, the previous booking will show up beneath the search form.

Front-page not logged in



Front-page logged in



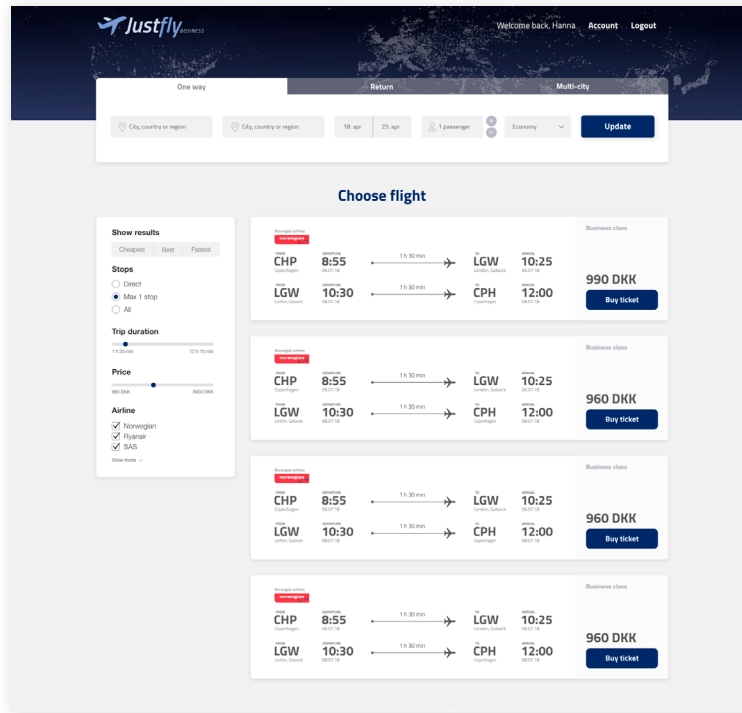
Link to online prototype:

<https://xd.adobe.com/view/74a8f5f2-686b-4109-871b-dd2d9d86ea4c>

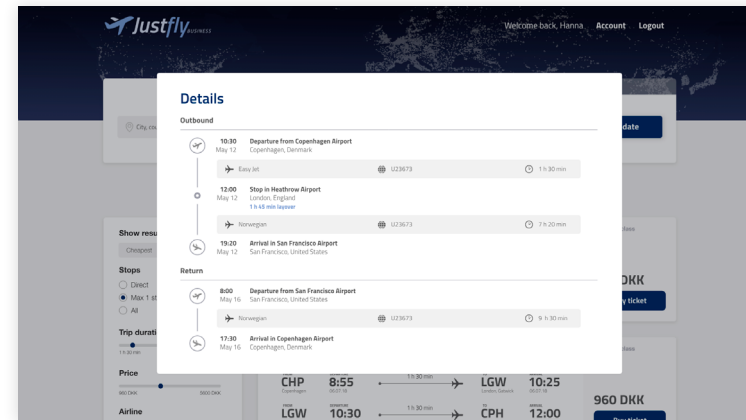
MOCKUPS RESULTS

For the result page we also created two mockups, one for the actual page and one for the pop up with additional details. The page is organized with the search form still appearing in the top, so the user can always adjust their search. On the left side the filters are displayed with a fixed position so they are always available. On the right side the available flights are shown and on each card is an option to see additional details.

Result page



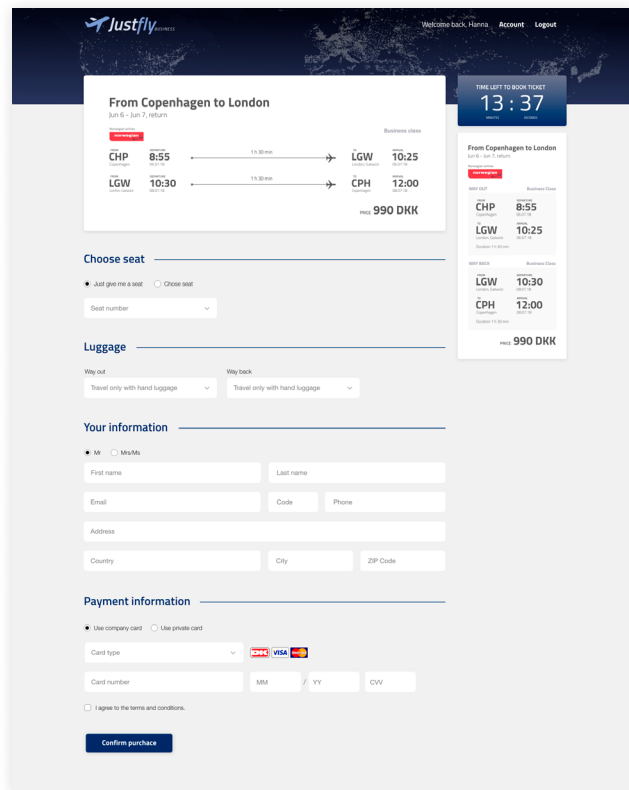
Popup with details



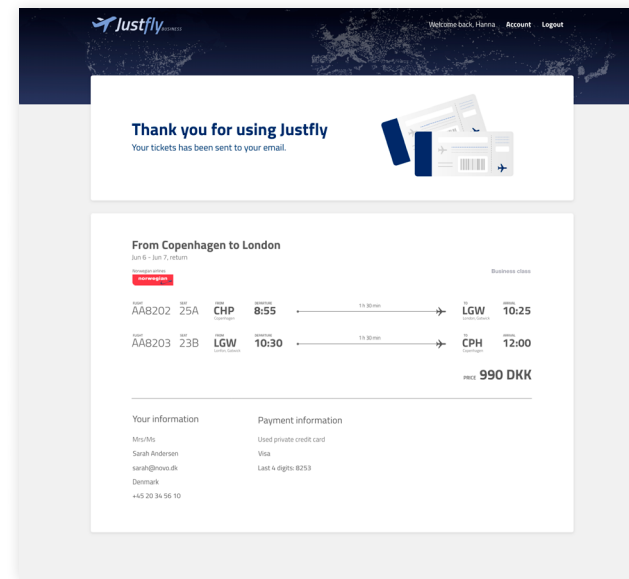
MOCKUPS BOOKING

For the booking process we chose to keep all of it in one page so the user could easily get an overview and didn't have to click through a ton of pages. At the top of the page the selected ticket is displayed. As soon as the user scrolls down the page the ticket will appear in the sidebar instead so the user can see it at all times. In the sidebar is also a timer showing how much time they have left to book the ticket. When everything is filled out correctly the user is redirected to the success page.

Booking page



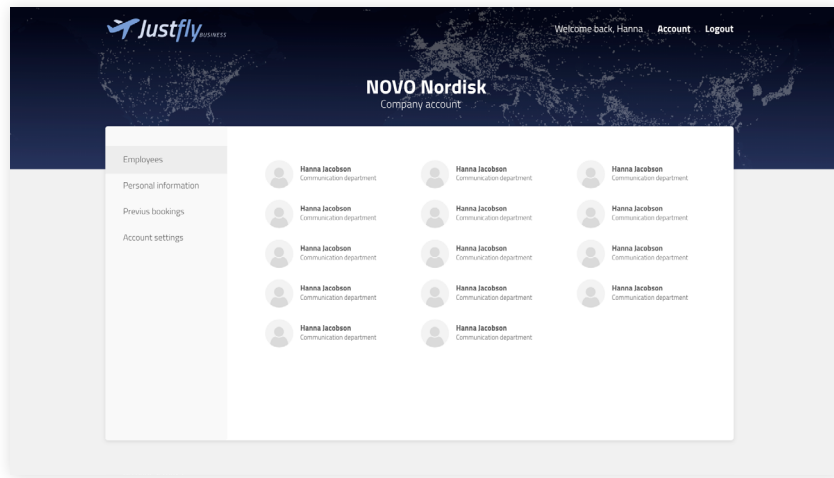
Success page



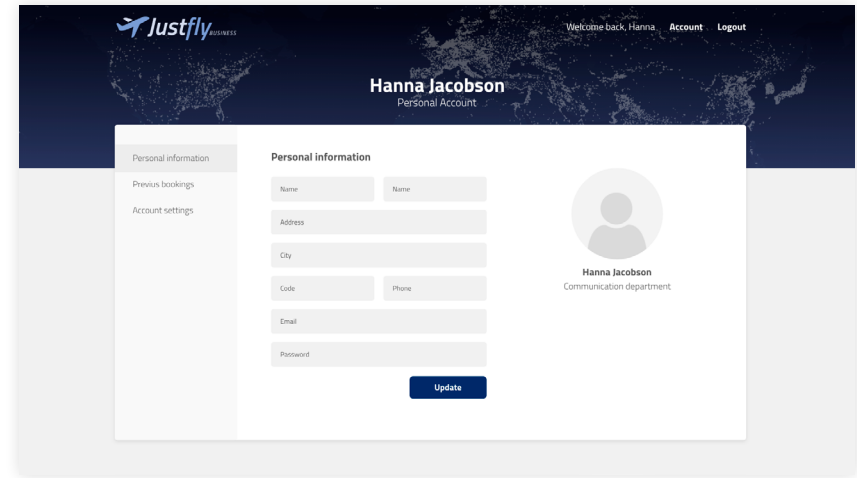
MOCKUPS ACCOUNT

When a company or a single person has created an account, they have the opportunity to go to their profile. If on a personal account, you can see and edit your account information, and see your previous bookings. If on a company account, you can also manage employee accounts in your company.

Company account



Personal account



USE OF GESTALT PRINCIPLES

From Copenhagen to London
May. 30 - Jun. 1, one-way

FROM CPH	DEPARTURE 00:20
TO STN	ARRIVAL 09:55
Duration: 10h 35m	

FROM STN	DEPARTURE 16:30
TO CPH	ARRIVAL 19:15
Duration: 1h 45m	

PRICE 1351 DKK

Enclosure

We have used the rule of enclosure on our sidebar ticket on the booking page, where the inbound and outbound trips are in two different boxes.



FROM CPH Copenhagen	DEPARTURE 00:20 29.05.18	10h 35m 1 stops	TO STN London	ARRIVAL 09:55 29.05.18
----------------------------------	---------------------------------------	--------------------	----------------------------	-------------------------------------

Proximity

We have used the rules of proximity on the ticket. The "From" information is close together, so even though it is different sizes and font weight you know it belongs together.

One Way Return Multi-city

From airport, city or country CPH	To airport, city or country STN	From May 28, 2018	Passengers 1	Choose class
--------------------------------------	------------------------------------	----------------------	-----------------	--------------

Find flight

Similarity

Here you can see the rules of similarity in the sense that all the input field have a similar design.

DESIGN CHOICES

For the design we chose a simple and minimalistic style. Our main concern was that the website needed to be functional and easy to use. The design should not take over and be too artsy but instead support the functionalities and create a calm environment. By balancing the whitespace between the interface elements we can create a structured, efficient, professional, and clean looking interface.

To achieve this, we chose to work with calm colors. We selected a light grey for the background and a dark blue as our primary color. Instead of using strong colors to highlight elements we decided to make use of depth, box shadows and contrasts. The stronger the box shadow is in size and distance the closer an element will seem.

Throughout our design we worked with a boxed structure and straight lines to make it as manageable as possible for the user. To avoid it being too square we used a border radius on all of our elements to get rid of the sharp edges.

To give the design a bit more character we made use of a background image and a gradient. For the graphics and icons, we chose to work with the style flat design because it is also very simple and minimalistic and therefore suitable for our website.

5 SECONDS TEST

When users go to a website, the site needs to get the user's attention before 5 seconds have past. If the user is confused by the layout or doesn't know what the site can offer him/her, the user might leave before any conversion can take place. Because of this, it is very important that the site's message is clear and easy to understand before the 5 seconds have past.

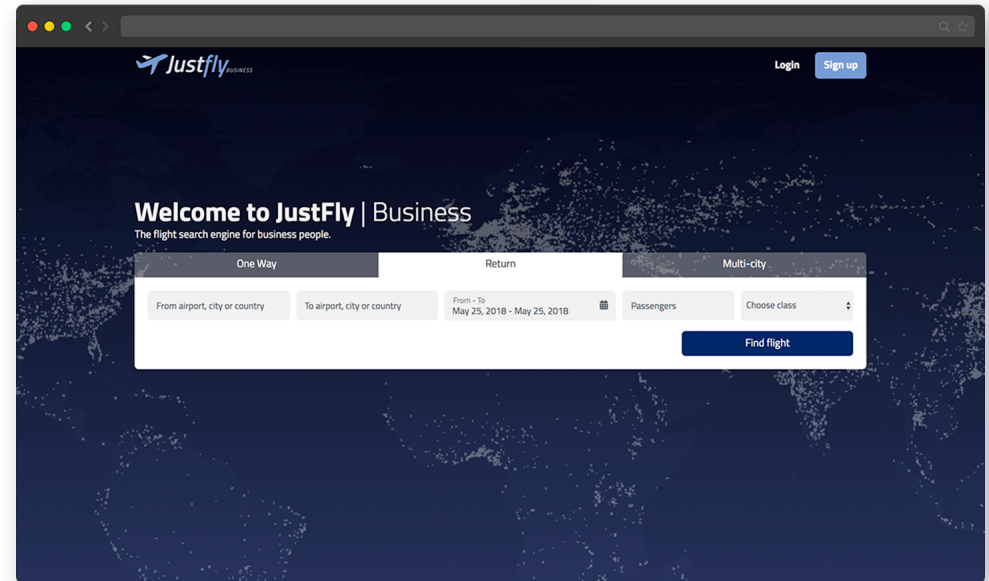
This brings us to the "5 seconds test". You find a suitable test person, representing the target audience, with no knowledge of the project or the site. Then you asked them to look at the site for 5 seconds before closing the screen. Afterwards the user will talk about what he/she has seen and what to make of it.

We tested 5 people in total and from that we got the following insights.

Insights from test

- People can easily see the logo, and know it's an Airplane.
- Everyone knows it's about flight booking.
- Two noticed it was about business.
- It looks like other flight booking sites, like Momondo
- Reminds one testperson about SAS
- One noticed the world map in the background
- It seemed very manageable.

We want people to know that it's about flight booking but also that it's for businesses, so from this we need to make sure that the site indicates business better.





SELECT

Stage 5

INTRODUCTION SELECT

After prototyping it is time to select what you want to implement. Somethings might have seemed like a good idea at first, but after prototyping and testing you can now make better selections and choices. When you are selecting features that you want to implement, it's important to keep in mind that not everything has the same value or the same cost of resources. Somethings need to be implemented as fast as possible, while others can wait till next iteration. To help us in the process of selecting features, we use the method MoSCoW.

MOSCOW

MoSCoW Method

During our work process we needed a way to categorize and select the different features for our site. In a project, it might not be possible to do all the features that you like. Some are not important or relevant enough and some might take up too many resources to do. Therefore you need a way to categorize them based on importance. For that we used MoSCoW method.

MoSCoW, or “Must have”, “Should have”, “Could have”, and “Won’t have”, is a method for categorizing the different features you want to implement on your site. You list features on post-its, and split them up in the categories: “Must have”, features that are absolutely essential for your application. “Should have”, almost as important as must have, but maybe not as time critical. “Could have”, features that are nice to have, and could make the application better and might be good to implement at later stage in the development. “Won’t have”, features that the application doesn’t need, but would be nice to have.

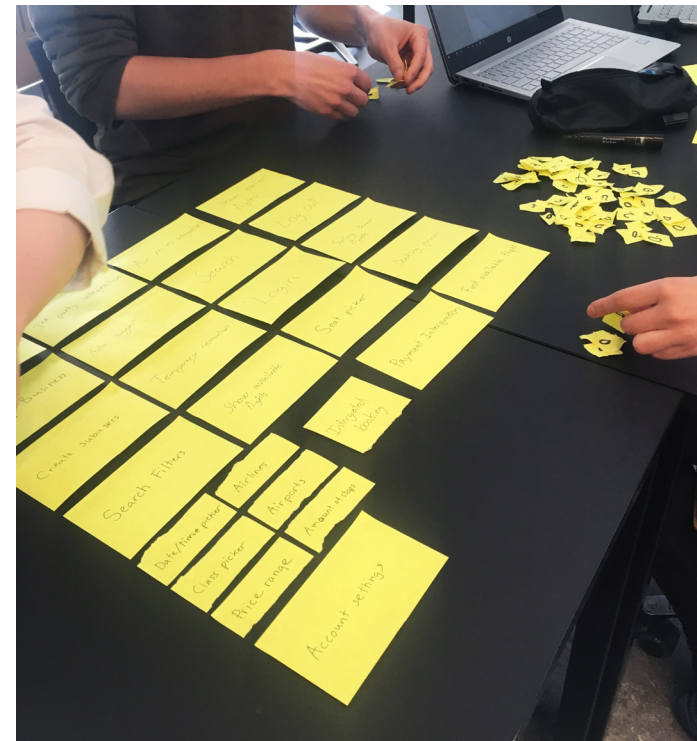
This method has a downside though. When selecting features to the four categories, it can be difficult to choose the right category. A feature could be a must but so time consuming that it might not be the first thing you should add, and it would be better to list it as a “Should Have”. Because of this, you need to base your decisions on something. For that we used the Planning Poker method.

Planning Poker Method

In the Planning Poker Method, also known as Scrum Poker, you write all features you would like to have. Everything is allowed and can be just a fun idea. Next, each member gets 10 poker chips and proceed to grade

the features. This consists of two rounds. In the first round we put chips on the features we each think will give the application most value. We note each card with the number chips it got as positive number and take back the chips.

Next round we put chips on the feature that would take most resources and marked the number as negative. Now we subtract the two numbers and this will be the features final score. This gives us a way to later categorize them with the MoSCoW method.



This is the list we ended up with:

The plus value is how much value we thought it would give
 The minus value is how many resources we thought it would take



Must

- Search +3 -2
- Payment integration +2 -4
- Integrated booking +6 -5
- Booking process +3 -3
- Temporary reservation if a ticked +3 -2
- Show available flights after a search +2 -1

Should

- Sign up +2
- Login +3
- Logout +2
- Search filters +5 -5
- Date/time
- Airports
- Airlines
- Number of stops
- Available classes
- Price range
- Auto suggestions when typing +3 -2

Could

- Find first available flight (in one click) +1
- Air miles integration -1
- Show earlier flight +1 -1
- Fancy seat picker +1 -5
- Auto fill when logged in -2
- Create sub users +2 -2
- Sorting search results +1
- Account settings

Won't

- 3rd party payment -4



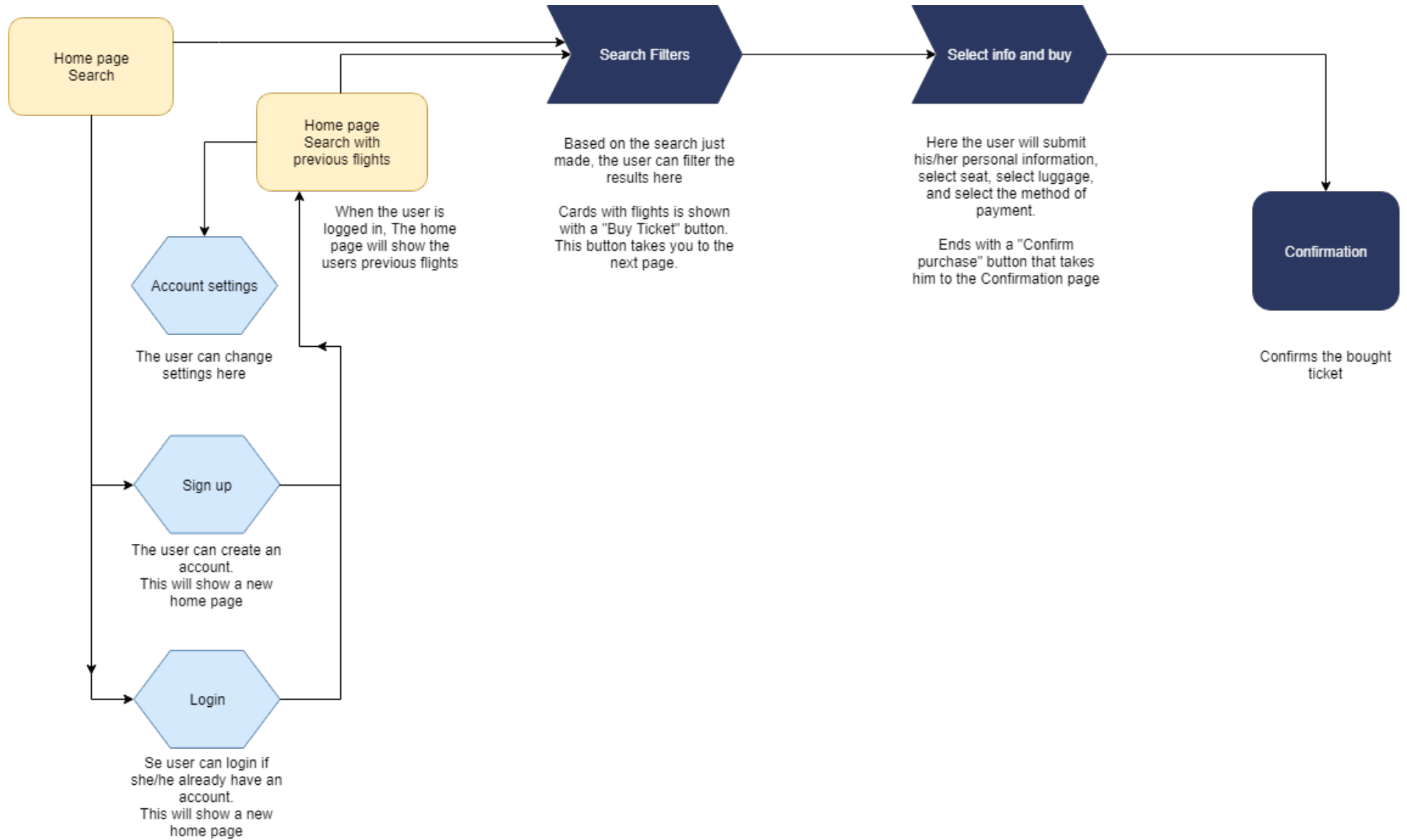
IMPLEMENT

Stage 6

INTRODUCTION IMPLEMENT

For the project we is required to implement our interface design of the flight searching application. Throughout this part of the report we discuss some of the decisions we made for the coded part of the product.

PROCESS DIAGRAM



FRONT-END

Bootstrap

Bootstrap is a front-end component library that is widely popular and makes it easier to bootstrap a new look for a front-end. Bootstrap comes with both possibilities and limitations. The possibilities of bootstrap is the convenience and how easy it is to include in a project. Simply copy some snippets from their website and you are ready to go. This works really well for getting up and running here and now. This is also one of the drawbacks. Because bootstrap is so thoroughly produced it contains a lot of code and decisions, especially when it comes to the visuals.

Bootstrap does have possibilities for customization, but that is where it starts getting more complicated. Modifying bootstrap is easily done with CSS, but the right way, is to overwrite bootstraps settings and recompile it into CSS. We therefore have to make a project setup that allows us to modify the settings of bootstrap in order to get the proper look and feel of the components, without forcefully trying to overwrite the default styling.

Automation

So how does one go about modifying the bootstrap settings? It is done with automated scripts. Bootstraps visuals are built with SCSS. SCSS is an alternative to CSS that is mostly the same syntax and structure. SCSS also introduces new, more programmatic concepts such as variables and mixins (also normally known as functions in programming).

Your browser does not know SCSS though, so you have to convert it into CSS. This is generally done with scripts that can run in your terminal (MacOS and Linux) or command prompt (Windows). A script is a program you can run that will then follow your instructions.

A set of instructions could be:

- Convert SCSS into CSS.
- Put all the CSS into the same file.
- Minify the CSS.
- Save file in a new location.

That is also how we want our script to run. There is a few different ways to run scripts for web development in the terminal. The most common ones are *webpack*, *gulp*, *grunt* and *npm*. All of these run on the NodeJS engine. A javascript engine that allows you to run javascript in the terminal. For our project, because it is so simple we are going to use npm scripts. Our script is going to run another script called node-sass that will to the instructions mentioned above.

We will be able to run `npm run styles`, which will then run a slightly more complicated script for us:

```
> node-sass scss/ -o dist/ --output-style compressed
```

To make it even more automated the node-sass program allows us to “watch” for file changes. This means we can automatically wait until a change is made in one of our SCSS file, when that happens, it will automatically run our script. The command we make with npm is: `npm run watch`, which in turns run:

```
> node-sass scss/ -o dist/ -w --output-style compressed
```

Components

Some parts of the website is bound to repeat itself. This is parts of the website like the menu and the footer. In order to not having to maintain them between different files, we will be using PHP files such that we can include entire files into other files. This way we can break our HTML up and make sure there is a single source for parts that will be repeated.

Real data

For the project we are using the Kiwi.com API in order to do searches for real life flight data. By using real data our front-end implementation will work like if it was a true search engine. This helps in the design and implementation process in terms of being able to receive all the possible combinations of flights, one-way and return trips, and how it looks with direct flights versus having stops along the way.

Link to final prototype:

<https://justfly.marcusis.me>



LEARN

Stage 7

INTRODUCTION LEARN

After the implementation, the work is not finished. It's almost impossible to make a perfect project first try. There can be bugs or things that doesn't work properly, or some of the design choices you've made, might not work they way you anticipated. This is why it's important to keep improve your work. This takes us to the learning phase of our project. Here we test the implementation and prepare for the next iteration. We find out what works and what doesn't, and we gather new insights.

USABILITY TEST

A thinking aloud test allows a study to be conducted of what goes through the conscious mind of users when they are using the application. It is a simple test to conduct and can be used multiple places in the design process. In this project, the test method is used on the implemented version of the product. Two test scenarios has been made to cover different user flows of the application.

Scenario 1

- You are a business person based in Copenhagen.
- Your work wants you to travel to London the day after tomorrow (the 27th of may) for a conference. The conference starts at 15:30.
- Your company will pay, but only for an economy ticket that costs a maximum of 1000 DKK.
- Your company has a travel contract with SAS and would prefer if you travel with them.
- You are the only one going.

Insights

- It is confusing that the location suggestions are only airports and not cities as well.
- A lot of inputs are not prefilled, making it feel like an irritating task to put in information.
- Lacks filtering based on time of day for departure and arrival.
- It is nice with the booking reservation timer being so prominent, but adds a bit of stress to the booking process.

Scenario 2

- You are a business person based in Copenhagen.
- You work for a large company.
- You are traveling to New York.
- You need to leave as soon as possible.
- Price does not matter.
- You need to get back, but when does not matter.
- You need to order through your company account.

Insights

- Confusion as to what "code" means on the booking page.
- It was expected that "Use company card" or "Use own credit card" to be pre-selected.

Conclusion

The insights that was gained was very concrete and gave an idea of where the next steps in implementation of the application needs to move, in order for an optimal user experience. Some insights, like prefilled selections on inputs, are very low effort and is being put on top of the list for the next iteration because of the value they will provide while being low hanging fruits.

Link to usability test 1:

<https://youtu.be/p4gDloVUg9s>

Link to usability test 2:

<https://youtu.be/HXY5PXS0Yc>

NEXT ITERATION

When new insights have been gathered and analysed, we can begin the next iteration of the project. The iteration is where we improve our existing project. Some of the improvements comes from user tests, and some are features that we thought about in the beginning of the project, but was deemed to costly or not valuable enough to be in the first iterations.

From the user test:

Prefilled selections on booking

Some users complained that there were no prefilled selections in some of the input fields. An example of this is the when a user chooses there luggage. Here the user has to actively choose, but one of the settings is the most used one and this could be a prefilled option. This can save a few clicks from the user and can make it seem faster and easier to complete the form. Another thing is when a user chooses to use their own credit card or a company card, one of them should be auto selected.

Lacks filtering based on time of day for departure and arrival.

Right now a user can choose which date he/she wants to travel, but not what time. This should be implemented as filter, where a time of day can be added.

Another word for "code"

When entering a phone number, the user needs to specify a country code (Like +45 for Danish numbers) This should have another word as it's not clear what "Code" means.

Features from the beginning:

Account settings

An account settings page should be implemented. Here the user will be able to change email, name, password etc.

Business login

A business should be able to login as a business, and not just a private person. Here they can add a company card.

Create sub-users

As a business client, you should be able to add sub-users who can login with they own login details but as a part of the company.

Footer

The site should have a footer with various information like a telephone number, an email etc.

Best flight filter

Right now the filters on a flight search allows the user to search for the fastest or the cheapest. A "Best" Search filter should be implemented, where it shows a correlation between price and speed.

Air miles

To give companies some benefits of using our application more than once, an Air Miles system should be integrated. Where the company or users in general will earn Air mile points the more they use the site.

Flight details pop-up

A user should be able to get more details from a specific flight. This could be done with a pop-up containing all information a user would need.

CONCLUSION

By using the “design thinking” method we have managed to go from a concept to a fully functional minimum viable product, implemented in the browser.

Throughout the process we have used multiple design tools in order to create the best possible solution. From our toolkit we have used simple design theories such as the gestalt principles for layout and color theory for the branding.

The solution is targeted towards businesses and their employees, which comes to show in the design, features and the experience.

We have conducted user experience insights from our target group using “5 seconds tests”, interviews and “thinking aloud tests” from which the prototype and concept kept getting refined.

We have ended up with a simple three step booking process: search, refine search, and order. This process can be done within our own solution and does not require redirects like a lot of competitors.

Because of the iterative and agile nature of the “design thinking” process we are able to continue working on the product in the same fashion and keep improving the final product to create an even better user experience.

LITRATURE

<http://geomatic.dk/media/90271/conzoom-private-dk-g5-15.pdf>

<https://medialabamsterdam.com/toolkit/>

https://en.wikipedia.org/wiki/Planning_poker

https://en.wikipedia.org/wiki/MoSCoW_method

<https://www.npmjs.com/package/node-sass>

<https://nodejs.org/en/>

<https://innovation.sites.ku.dk/metode/det-kvalitative-interview/>

<http://designresearchtechniques.com/casestudies/rapid-prototyping/>

<https://www.nngroup.com/articles/thinking-aloud-the-1-usability-tool/>

<http://asimetrica.org/wp-content/uploads/2014/06/design-thinking.pdf>

<https://www.telegraph.co.uk/travel/advice/best-flight-booking-comparison-websites-apps/>

<https://www.frommers.com/slideshows/848046-the-10-best-and-worst-airfare-search-sites>

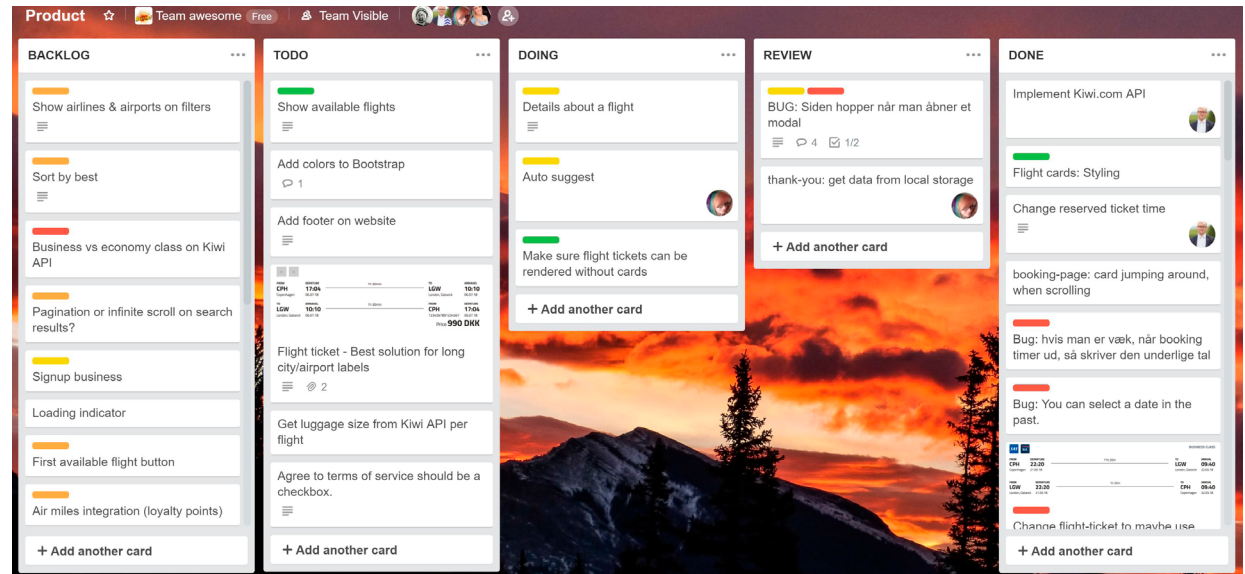
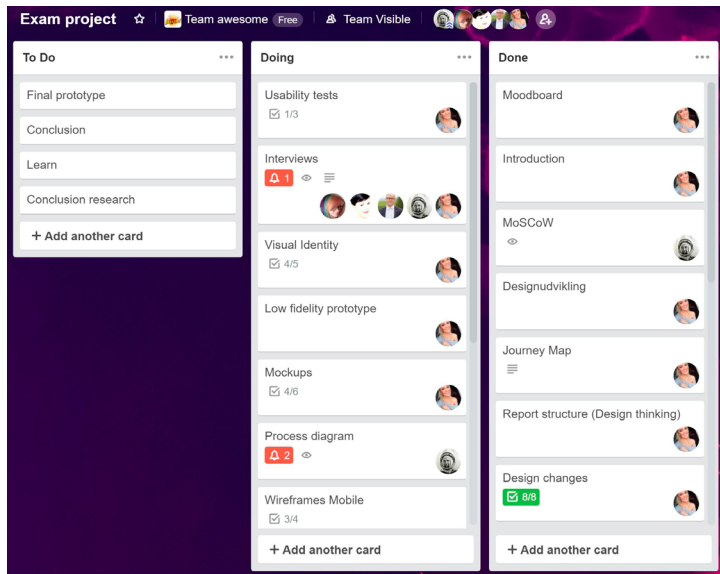
<http://www.color-wheel-pro.com/color-meaning.html>

https://www.utdallas.edu/~melacy/pages/2D_Design/Itten_ColorContrasts/IttenColorContrasts.html

Appendix

APPENDIX 1

Screenshots of our Trello boards. The first one is for our project and the other one is for the implementation of the prototype.



APPENDIX 2

Conzoom's D segmentation chart regarding online behavior.

Online adfærd	Index	D	DK
Foretager e-handel	101	66	65
Utryk ved online betaling	80	24	30
Internettet giver mange fordele	106	89	84
Har facebookprofil	87	61	70
Har LinkedInprofil	117	30	25
Har Twitterprofil	66	9	14
Benytter e-mail	105	88	84

APPENDIX 3



Peter, 59 years old

Titel: Business director and owner

Natinality: Danish

How long time in advance do you book your flight?

I try to do it as early as possible because prices typically go up the closer we get to the departure date. If I know my travel plans really early, like if it is a conference or exhibition that I know is coming up it can be 2-3 months before departure, but I do not always know my travel that early, so it can also be 1 weeks before departure.

How many days do you usually travel for?

I try to keep my travels to no more than a week, I even have short trips for just a day or two. In rare cases my trips can be up to 2 weeks.

How do you plan your travel?

My travel is typically planned either around an event like a conference or exhibition, or it is planned together with one of our sales offices/representatives with customer visits.

Where do you buy your tickets?

I usually fly SAS so I can collect bonus points, but if they are too expensive, or don't have a good connection to where I am going I use these generic websites that search through all the airlines and give you a lot of options. One example could be Travellink.dk or Egencia.com

What do you take under consideration when booking a flight?

Departure/arrival time, total travel time, how many stops and price (not necessarily in that order)

Is there anything that bothers you when you are booking a flight?

No not really, but I don't like sites like Momondo that do not only search directly on the airlines webpages, but also other sales channels, because some of the other sales channels use prices that are not reflecting the actual price, in order to appear as the cheapest in the search. They may appear as the cheapest in the search, but they apply a lot of extra cost when you start going through the booking procedure, and in the end the is the same as some of the more expensive ones.

APPENDIX 4

Momondo

Pros: consistently cheapest prices with smart user interface

Cons: redirects to another, international seller and some credit card companies may charge a foreign transaction fee

Skyscanner

Pros: among the best for lowest fares, prices for the same flight from multiple OTAs/airline sites, whole month of fares on a calendar, fare alert emails, travel “everywhere” feature

Cons: not as good on direct flights, even when it finds a great price on the same itinerary requiring a connection. Annoys with poor sponsored results before the organic ones

Google flights

Pros: the fastest, better search of low-cost carriers, calendar of prices, detailed filters, include or exclude an airline or airport from results, mentions amenities, warnings about delays

Cons: occasional poor results

Kayak

Pros: fare alert emails, vacation packages, flexible-dates grid of prices, excellent filters, advice on whether to buy now or wait based on historical price trends

Cons: not so great with secondary cities/itineraries

Hipmunk

Pros: unique graphic display of results, very user-friendly, vacation packages, fare alert emails

Cons: never the cheapest, annoying email sign-up window

Seatguru

Pros: wonderful detail on amenities and bag fees, informed “comfort ratings”, provides shortcuts to cheapest and shortest/nonstop

Cons: poor performance on price, usability annoyances

Hotwire

Pros: includes baggage fees, fare alert emails, vacation packages, flexible date search

Cons: limited filters, average to poor results

Expedia (who now owns Travelocity and Orbitz)

Pro: includes baggage fees, fare alert emails about good prices, show prices for alternative dates

Cons: poor pricing outside major routes, limited filters

Priceline

Pro: Opaque fares can save up to 40% (you get to choose airport and travel date, but not flight times, airlines or stopovers, just a guarantee there will be 0-1 plane change)

Cons: poor performance on price, limited filters, doesn't include low-cost carriers