Project plan TrailFit

Short description

TrailFit is an app that displays all walking routes by AS Adventure and recommends the right type of clothing based on the surface and weather conditions. This happens by selecting a walking route and date. The app will then recommend some clothing which you can click to navigate to the site of AS Adventure.
The app needs to be available in the App Store and Play Store.

Who?

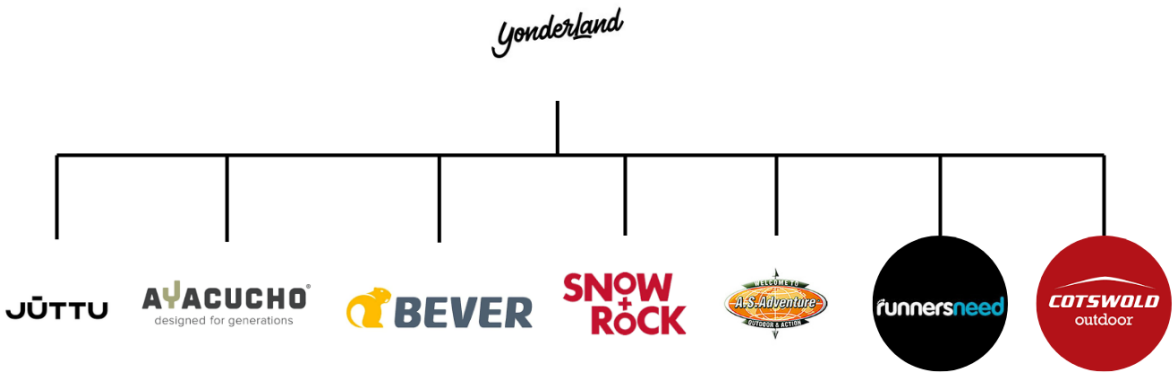
Product owner(s) & background of the project

TrailFit is an application of Yonderland in cooperation with Natuurpunt for all hikers.

Yonderland is Europe's biggest distributor in outdoor clothing and gadgets and is a collection of companies like AS Adventure, Bever and Juttu. They want to deliver to their clients the best experience when doing outside activities. They want to realize this in a sustainable and ecologically responsible way.

Natuurpunt is a volunteer organization which stands for the protection as well as the enjoyment of nature. Nature is priority number 1 when collaborating with other companies.

Natuurpunt wants to make walking trails more popular and accessible and Yonderland wants to increase and improve outdoor activities. Because of this, a number of walking routes were created some years ago. You can already find these trails on the site of AS Adventure, but they want to make them even more visible by creating an app.



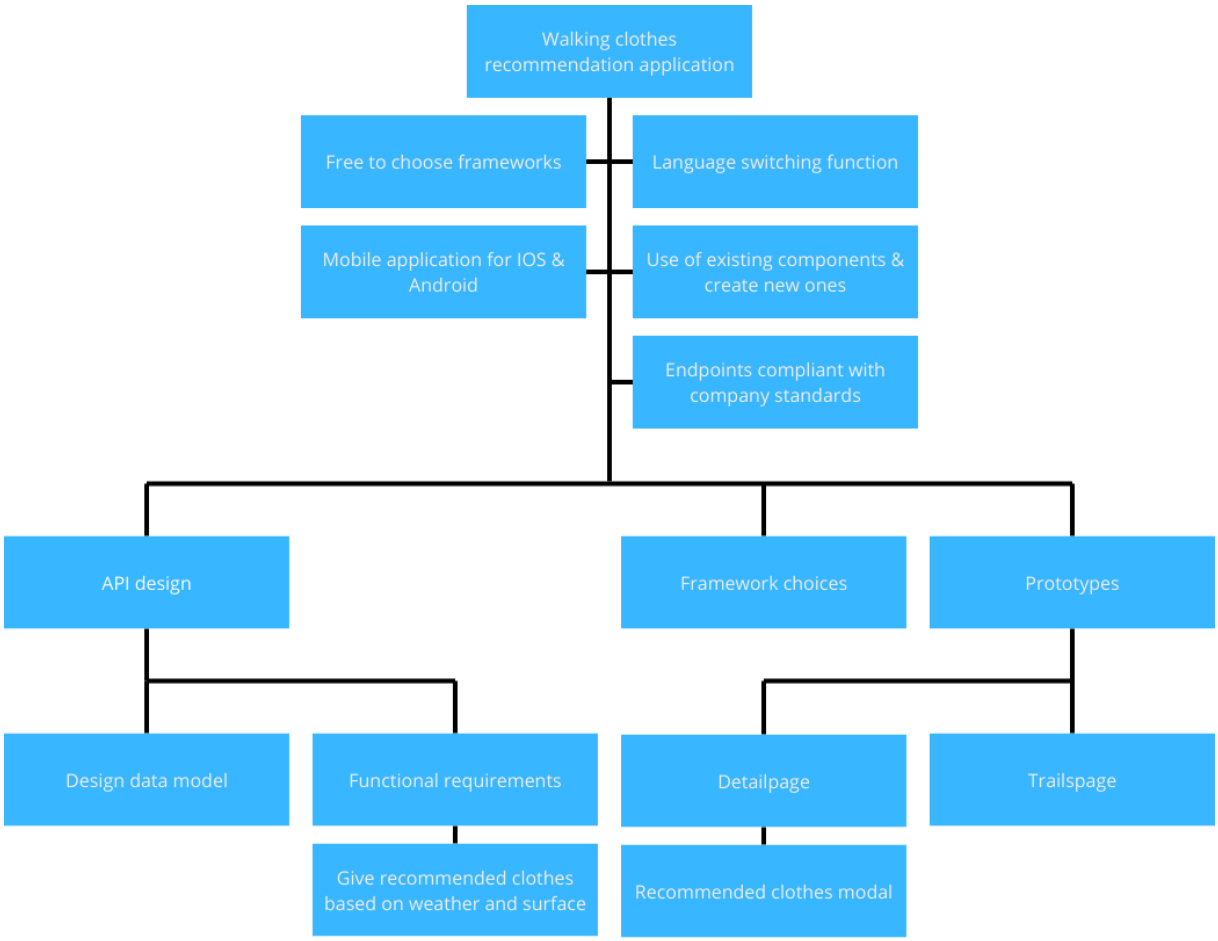
Yonderland is an overarching company of AS Adventure, they manage all shops and E-commerce for all 7 of the companies in the organizational chart.

What?

Logo:

The TrailFit logo is in my opinion a perfect ‘fit’ for the application. The mountains represent the rough environments you face when walking and the empty coat hanger refers to having the right outfit to go walking, which is what this app will solve.

Product breakdown structure:



For my project I need to make an application that recommends walking clothes based on a walking trail's surfaces and the weather for a certain date. I am free to choose the frameworks for the database and front- and backend, but they do have recommended frameworks (Java Spring Boot & React Native). The app should be able to switch between 3 languages and be available in the App Store and the Play Store. I can use already existing components within the company, but I am allowed to add extra components as well. The endpoints I create need to be in line with the companies standards.

For a good structured API and database, I need to design a data model and list all functional requirements. The most important one is that it recommends clothing based on the weather of a selected date and surfaces of the trail.

To know what the visual design will look like, I also need to make prototypes for the main page where the user can see all walking trails and 1 for the detail page which is navigated to when a trail is pressed.
When a date is selected on this page and the user presses the "Generate recommended clothes", a modal will pop up with recommended clothes that lead to the site of AS Adventure.

How?

Frontend

	Ratings		
Criteria	React Native	Angular	Kotlin
Cross-platform	3	2	1
Experience	3	2	1
Usage in company	3	2	1
Documentation	3	1	2
Total	**12**	**7**	**5**

For the frontend, I chose to use React Native based on the results of this weighted decision matrix. In React Native you only need 1 codebase to develop Android and IOS, this means no double work. React is also used in the company already, this makes it easier when I have questions or need help with something.

Backend

	Ratings		
Criteria	Spring Boot	.NET	Node.js
Usage in company	3	1	2
Experience	3	2	1
Documentation	2	1	3
Integration with frontend	2	1	3
Total	**10**	**5**	**9**

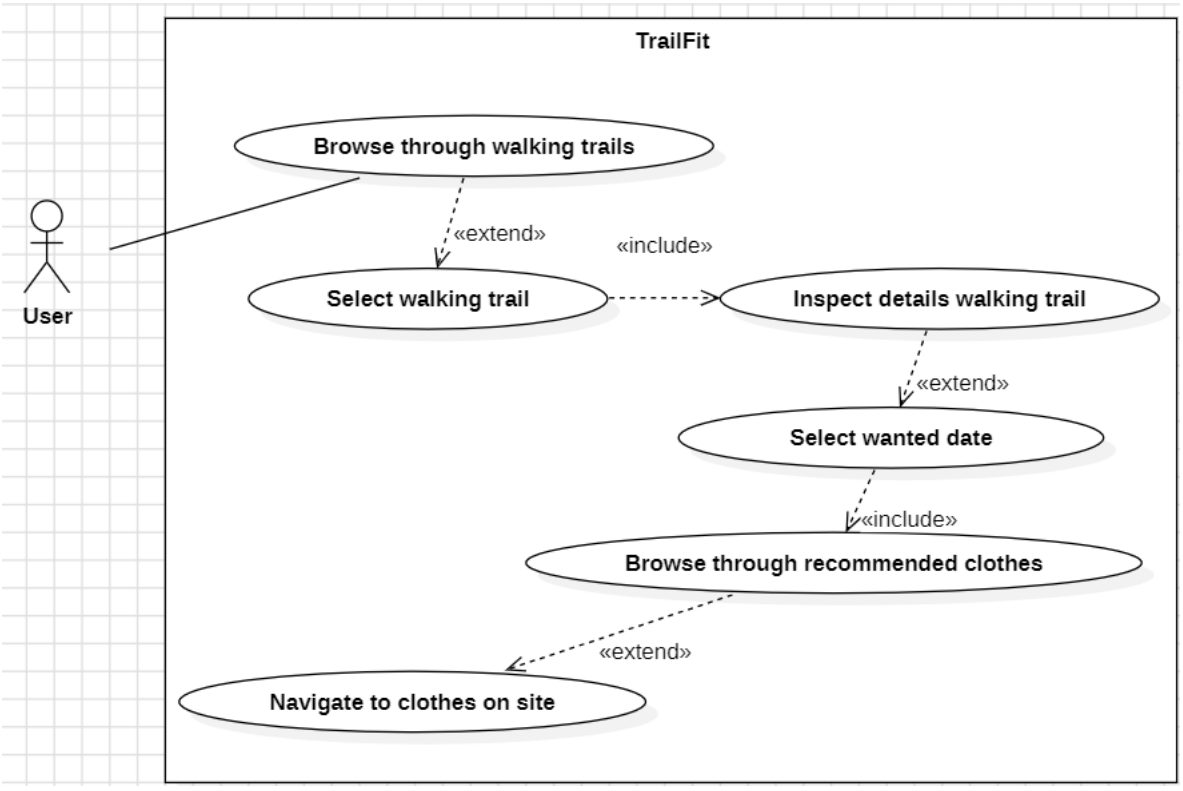
For backend I will use Java Spring Boot, this was also decided by a WDM. Node.js would also be a good option because React uses Javascript as well, but Spring Boot is used in the company and I have the most experience with it as well.

Database

	Ratings		
Criteria	MySql	PostgreSQL	MongoDB
Performance	2	1	3
Complex queries	2	3	1
Voorkeur bedrijf	2	3	1
Relational data	2	3	1
Community	2	3	1
Total	**10**	**13**	**7**

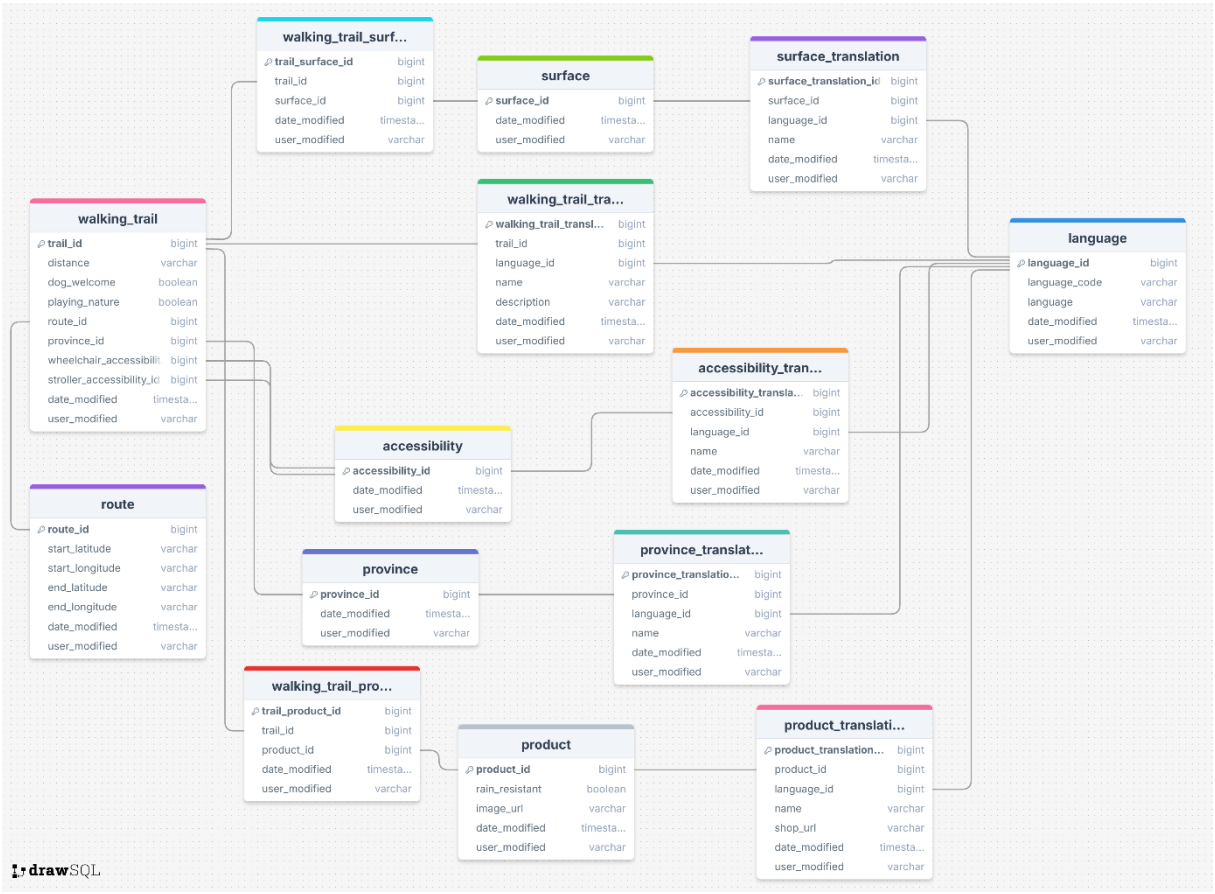
Like you can see clearly in this WDM, PostgreSQL is the best option for my application. This is convenient, because i have the most experience with it and the company prefers this as well.

Use cases



- **Browse through walking trails**:
  The user can see a list of cards, each containing information about a walking trail like the name, distance and province.
- **Select walking trail**:
  The user can press a card to navigate to the detail page of that walking trail.
- **Inspect details walking trail**:
  The user can see details like the accessibility for strollers and wheelchair or whether dogs are welcome. It also contains a map where you can see the route.
- **Selected wanted date**:
  There is an option to select a desired date on the detail page. You can select the day for which you want to get recommendations.
- **Browse through recommended clothes**:
  The application recommends some clothes based on the weather and surface. You can browse through them.
- **Navigate to clothes on site**:
  When interested in buying, the user can click the desired clothing and will be redirected to the site of AS Adventure where the clothing can be bought.

Data model



This is my complete data model, as you can see the 2 main tables are the walking_trail and language table. These are the 2 tables the application is designed around, the app needs to all walking trails and have a translation function.

A walking trail can have multiple surfaces and a surface can belong to multiple trails so we created an association table, the same is true for products. A walking trails also has a table route, where all coordinates are stored. It also has 1 province and is connected twice to accessibility, once for wheelchair_accessibility and once for stroller_accessibility.

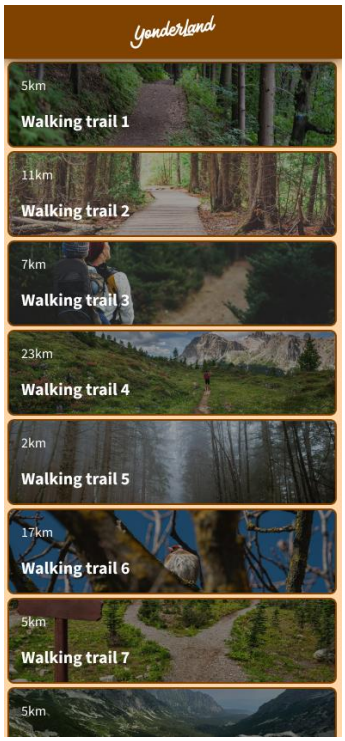
You can also see that each table with written text in it, has a translations table connected to it which are all connected to the language table. In the translation table, all translations for the written text in the tables are stored. This

This is my current data model, it will most definitely still be edited In some ways, but it is a nice starting point. At the center of most of the model is the WalkingTrail class, this is of course the main class of the application. The data model may seem complicated, but this is mostly because of the language changing functionality. A user should be able to change the language, which means that all words should be translated when done so.

A walking trail exists out of different surfaces and has 1 start and 1 end. It also has 2 accessibility attributes, 1 for the stroller accessibility and 1 for the wheelchair accessibility. It also has a province and some products which are recommended for the trail. At the top right you can see that the language class is connected to all the classes which have written text in them.

In the walking trail class you can also see 2 modified attributes, this is so you can know who added/changed a walking route and when for when something goes wrong. You can see this in all other tables as well. This is a practice they do here, so I decided it was best to implement it as well.

(*voorlopige*) *Wireframes*

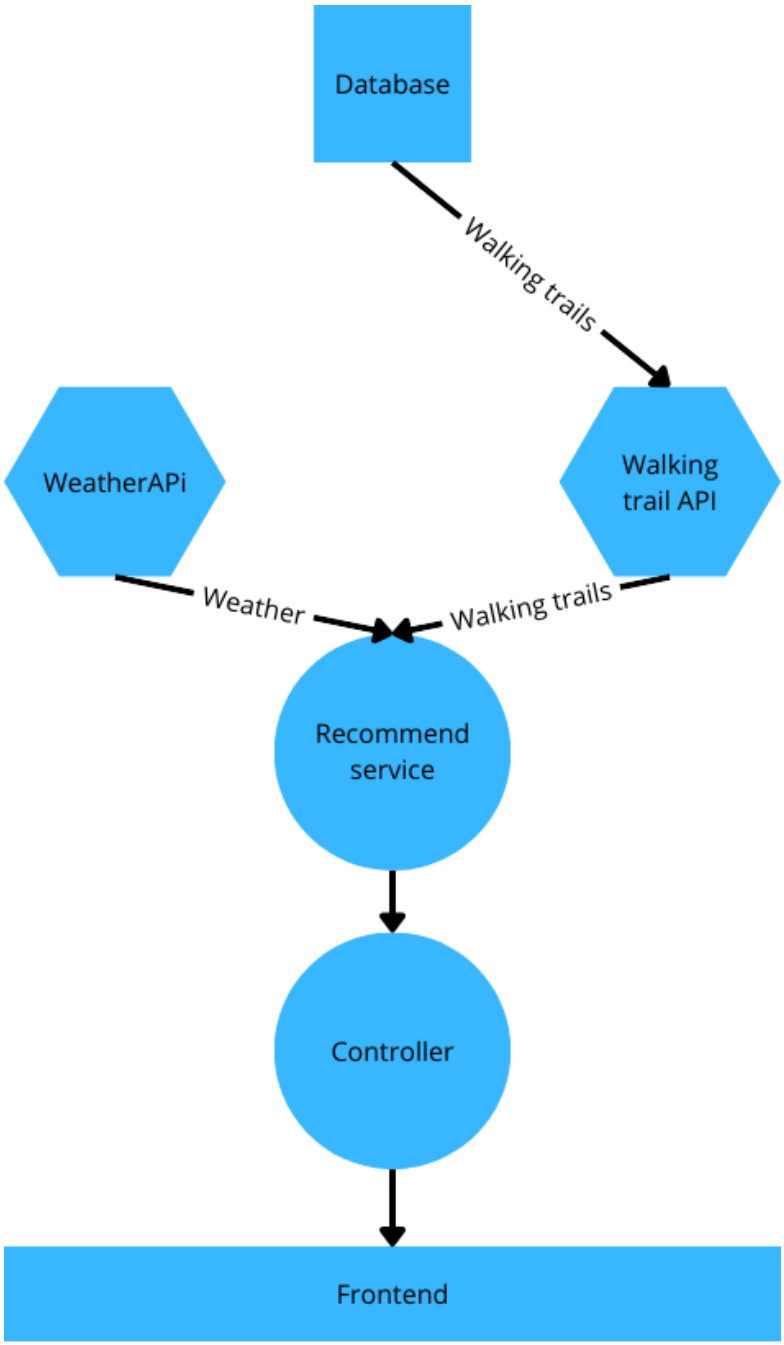


On the first page, a simple overview of all the walking routes is displayed. You can scroll through it and check the names and how long they are. When interested in a trail, you can select it and you will be directed to the second page.

The second page contains more detailed information about the selected walking trail. You can see the province, see if it’s dog friendly and the accessibility for strollers or wheelchairs. There is a short description of the trail and a map with the route.

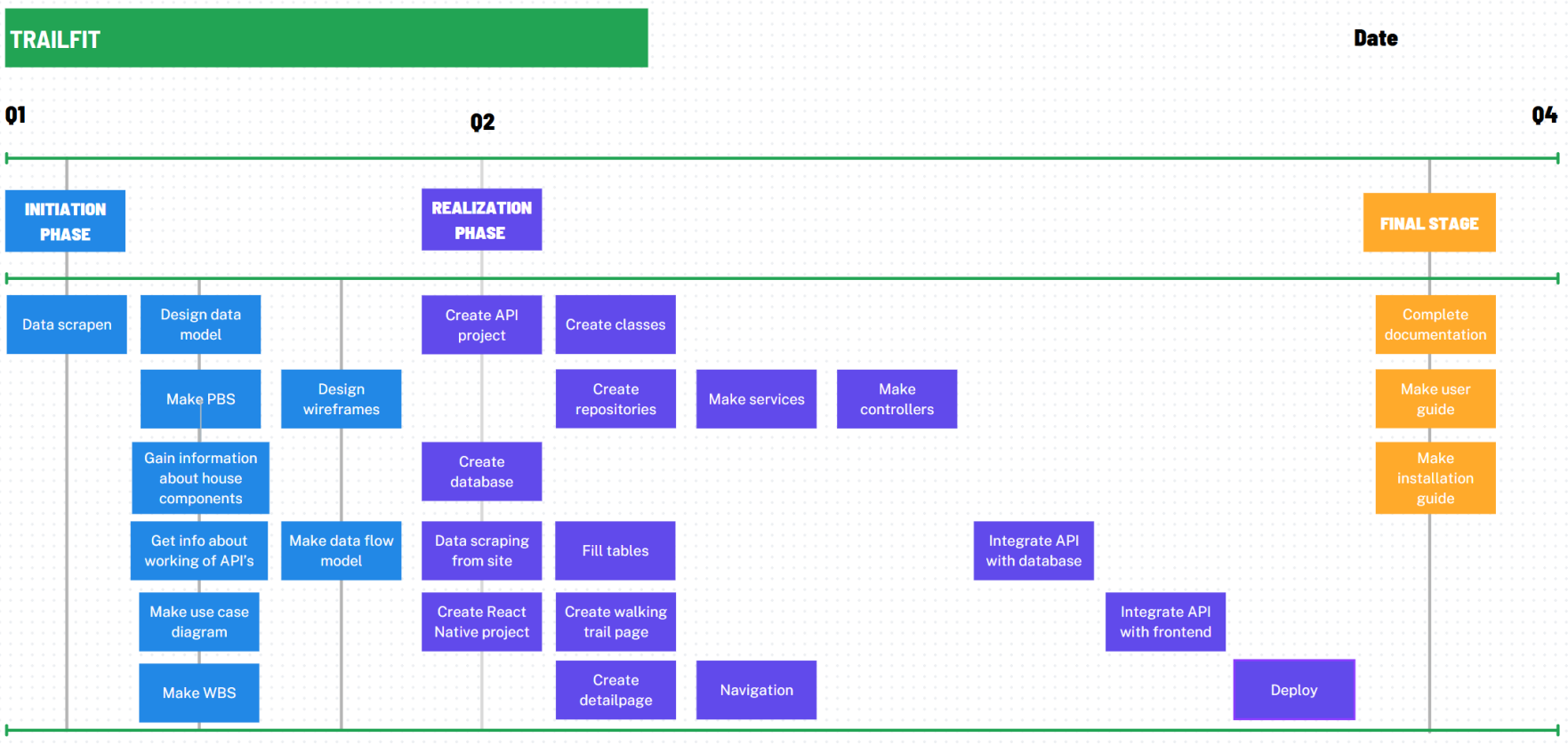
At the bottom of the page you can pick a date and get suggested clothes for the selected trail based on the weather of the picked day and the surface of the trail. You will see the suggested clothes on a dialog window. Each suggested item will have a link to the site fo AS Adventure so they can be bought as well.

Data flow diagram



In this data flow diagram, you can see that all the data comes from the database except the weather, this is retrieved by speaking to an API that already exists within the company. The remaining data is available via the Walking trail API. The walking trails and the weather data is retrieved by the recommend service to determine the best clothes. The recommendation is then send to the frontend via a controller.

Work breakdown structure



In the initiation phase, like the name suggests, I will try to document the concept of the project. I will do this by looking what data I have to work with and make a (temporary) data model, on which I can base the structure of the database and the app in whole. I will also make a model of what the app is composed of and transfer this to visuals by making wireframes. I will also get some information on how things are done here in the company like de structure of an API or how to use the house components. Lastly I want to display what the app should be able to do by making a use case diagram and plan everything via a WBS. After all the preparation and information gain, I can start the realization phase. Here I will be really developing the app by making

Scope + risk analysis & management

Possible difficulties:

- Difficulties with the language functionality. The app is required to be interchangeable in 3 languages and I have never done that before, so this may pose a challenge.
- Integration between React Native and Java Spring Boot. I have never integrated these 2, so this may take some trial and error.
- Very specific company norms. I have to develop the app according to the company's norms, which may be very strict.

Why?

Added value for company

When the project is finished, AS Adventure will have another way for their customers to reach their site. The app will not only improve reachability of their site, it will as an effect of the site being more reachable make sales of the recommended products go up.

The app will also make users want to go outside more and enjoy the nature, what will be the beneficial factor for Natuurpunt. They stand for nature and the enjoyment of nature, which is exactly what the app will improve.