

# Polar

Group 3 - OOP Project





# What is polar?

- ◊ Polar is an interactive carbon footprint tracking application.
- ◊ What activities do we monitor daily?
  - Food choices
  - Transportation
  - Electricity usage
- ◊ How is this measured?
  - Polar metrics are calculated from each individual activity entered.
  - A polar total metric thereafter derived.
- ◊ Why bother?
  - Track your progress through our statistical analysis.
  - Unlock user icon badges as your score rises.
  - Connect with friends and battle for the top badges.
  - Above all... think of the polar bears! Help lower carbon emissions.

## Development Team

Oliver Parfitt van Pallandt  
Florentin-Ionut Arsene  
Sayf El Kaddouri  
Stelios Avgousti  
Hashim Karim  
Julian Holle  
Tijs Zijl



# Our server!



## Spring Boot framework

- Initial server - client connection development carried out via **spring framework**.
- Allows for server side connections to client on local machines only.
- **The database connection is made with hibernate.**

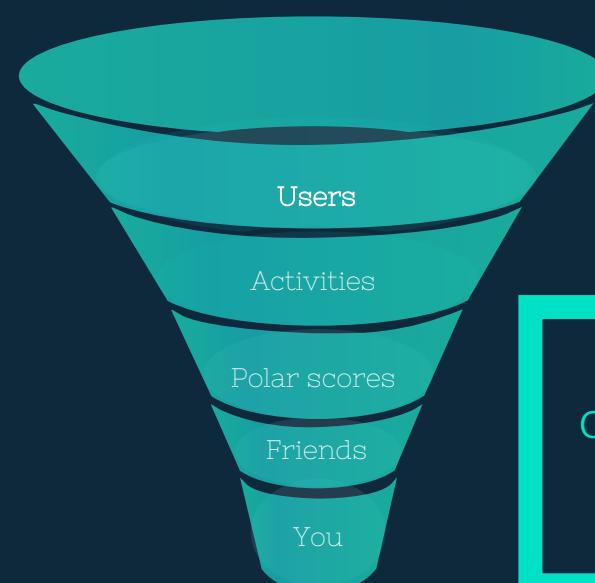
## Heroku

- Server side development later deployed on Heroku.
- Allows for a constantly running server side connection waiting on clients.
- More realistic server for real world application of Polar.





# Our database!

- 
- Postgresql 10
  - Durable and scalable.
  - Quick and efficient querying through CRUD repository.
  - Monitored through **PG4 Admin**
  - Password protected

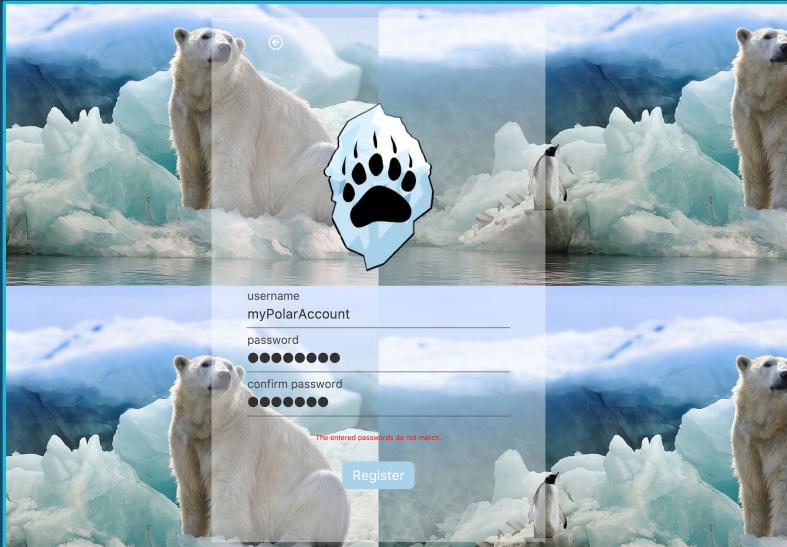




# Registration and login

## Security

- Dual password entry validation.
- Password creation requirements:
  - At least one capital letter.
  - At least one number.
  - At least 8 characters.
- SHA-256 Hashing algorithm.



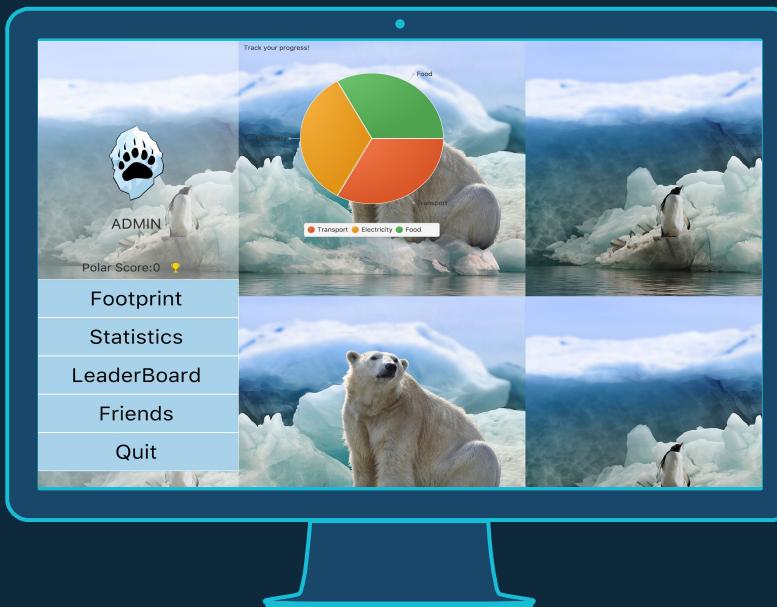
## In regards to our database

- Username is a primary key, therefore each username must be unique.
- Passwords are hashed before hand.





# The home page



## Welcome

- To a clear concise user interface.
- Options to proceeding pages on left menu.
- Selected user icon badge visible above users account name.
- Total polar score calculated and displayed below.
- Pop up facts to help keep you on track!

## Immediate tracking

- Track your progress quick and efficiently via your polar pie chart!
- Upon login your individual polar metrics are percentages are calculated and displayed clearly on this pie chart.
- Monitor which activities you excel in and which need improvement!





# Polar-print page

The screenshot shows a mobile application interface with a dark blue background. On the left, there's a vertical navigation bar with icons for Admin, Polar Score (0), Footprint, Statistics, LeaderBoard, Friends, and Quit. The main area features a large image of a polar bear on icebergs. At the top, there are three buttons: Food Footprint, Transport Footprint, and Electricity Footprint, each with a '+' sign. Below these is a section titled 'My Activities' containing a table:

Category	Description	Footprint	Date
Food	easteregg	1500	12-03-2019
Food	easteregg	300	13-03-2019
Food	easteregg	700	14-03-2019
Food	easteregg	20	15-03-2019
Food	easteregg	500	16-03-2019
Food	easteregg	1500	17-03-2019
Food	easteregg	100	26-03-2019
Food	easteregg	1500	29-03-2019
Transport	easteregg	400	12-03-2019
Transport	easteregg	600	13-03-2019
Transport	easteregg	1400	14-03-2019
Transport	easteregg	260	15-03-2019
Transport	easteregg	50	16-03-2019

## Adding your activities

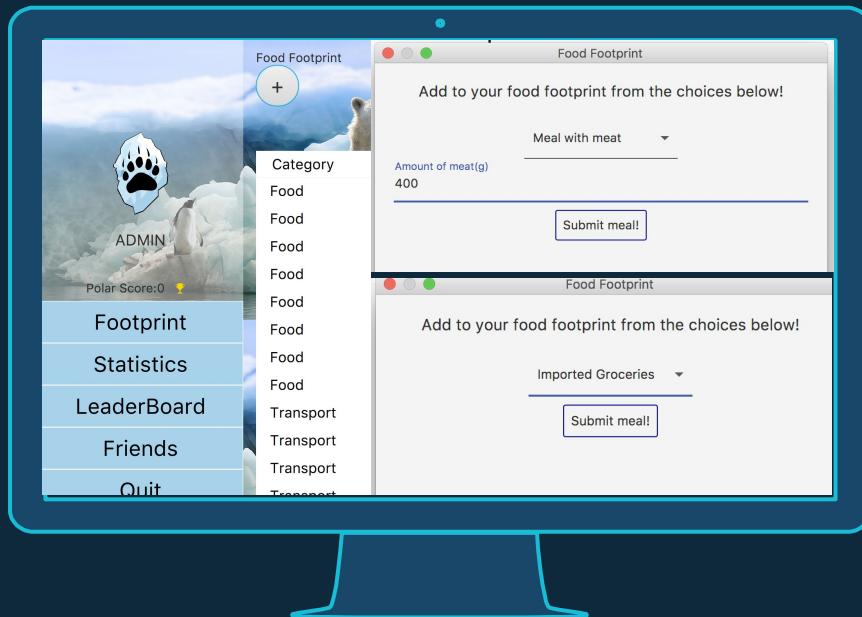
- Food polar-print
- Transport polar-print
- Electricity polar-print

## Viewing your activities

- A table view is built through adding activities daily.
- After each entry a row is added with -
  - The activities category.
  - A description of specific entry.
  - The score added or subtracted.
  - The date added.



# Food polar-print

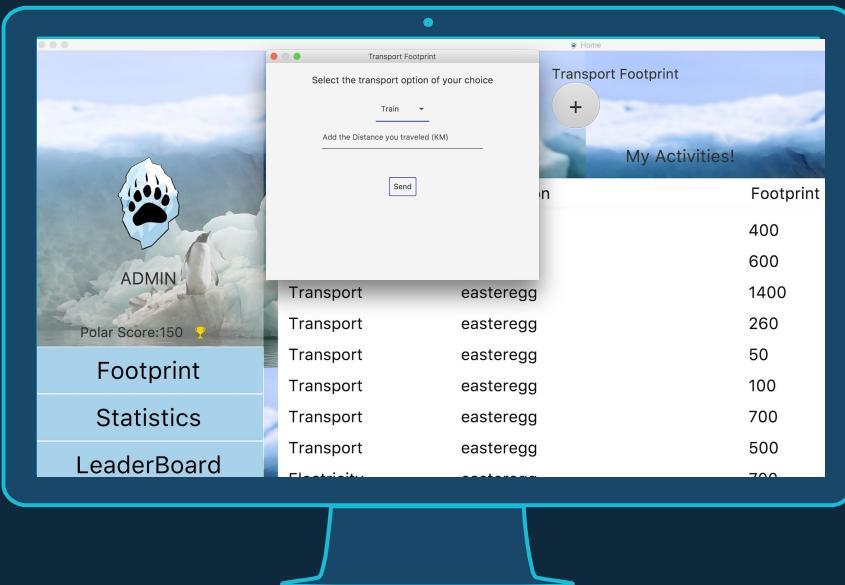


- Vegan meal = + 500 pts
- Vegetarian meal = + 400 pts
- Meal with meat = - 1 pt per gram
- Imported produce = - 150 pts
- Local produce = + 250 pts





# Transport polar-print



The screenshot displays the application's user interface. On the left, a sidebar menu includes 'ADMIN' (with a polar bear paw icon), 'Polar Score: 150', 'Footprint', 'Statistics', and 'LeaderBoard'. The main area shows three windows: 1) 'Transport Footprint' window with a dropdown menu set to 'Train', a text input field 'Add the Distance you traveled (KM)', and a 'Send' button. 2) 'Home' window showing a list of activities with columns for 'Transport', 'User', and 'Footprint'. 3) 'LeaderBoard' window listing users and their scores.

Transport	User	Footprint
Transport	eastereggs	400
Transport	eastereggs	600
Transport	eastereggs	1400
Transport	eastereggs	260
Transport	eastereggs	50
Transport	eastereggs	100
Transport	eastereggs	700
Transport	eastereggs	500
Transport	eastereggs	700

## Types of transportation

- Walking, Bicycling, Train (**Positive**)

(Train included for user incentive of public transport)

- Car, Airplane (**Negative**)

## Built in metric calculator

- Along with your transport type you are asked to add the distance traveled in kilometers.
- This value will be used to calculate your transport activity score based on the vehicle used.



# Electricity polar-print

The application interface features a sidebar with various navigation options: Admin, Polar Score (150), Food Footprint, Statistics, LeaderBoard, Friends, and Quit. The main area displays a list of electricity usage entries under the 'Food Footprint' tab, showing categories like Food, Transport, and Footprint, and users like easteregg. A modal window titled 'Food Footprint' allows users to add their hours of light usage. Another modal window titled 'Electricity Footprint' allows users to add their hours of heating usage, with a checkbox for 'Solar energy' and a 'Submit' button. Below these, a table lists 'Footprint' and 'Date' for various entries.

Footprint	Date
1500	12-03-2019
300	13-03-2019
700	14-03-2019
20	15-03-2019
500	16-03-2019
1500	17-03-2019
100	26-03-2019
1500	29-03-2019
400	12-03-2019
600	13-03-2019
1400	14-03-2019
260	15-03-2019
50	16-03-2019

## Types of electricity usage

- Hours of light.
- Hours of heating.
- Selectable option - solar panels installed.
  - Solar panels installed (**Positive pts**)
  - Solar panels not installed (**Negative pts**)

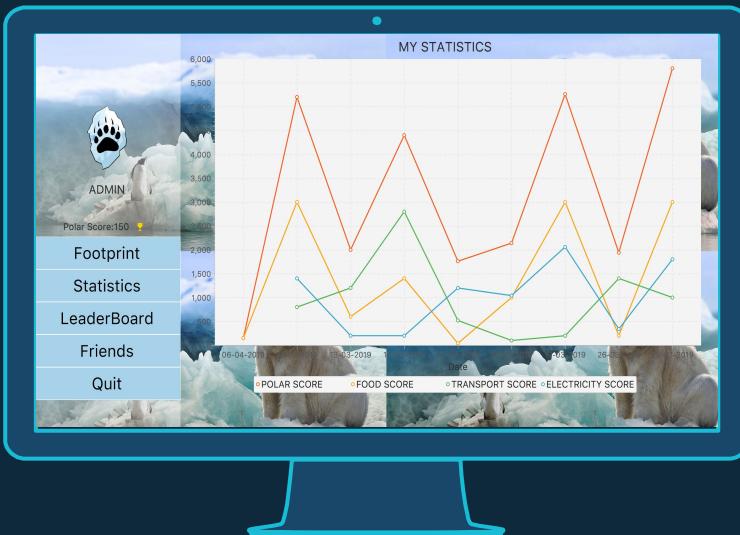
(Solar panel installation included for user incentive to switch to sustainable energy sources.)

## Built in metric calculator

- Through the hours added we calculate an electricity polar metric.



# Statistics page



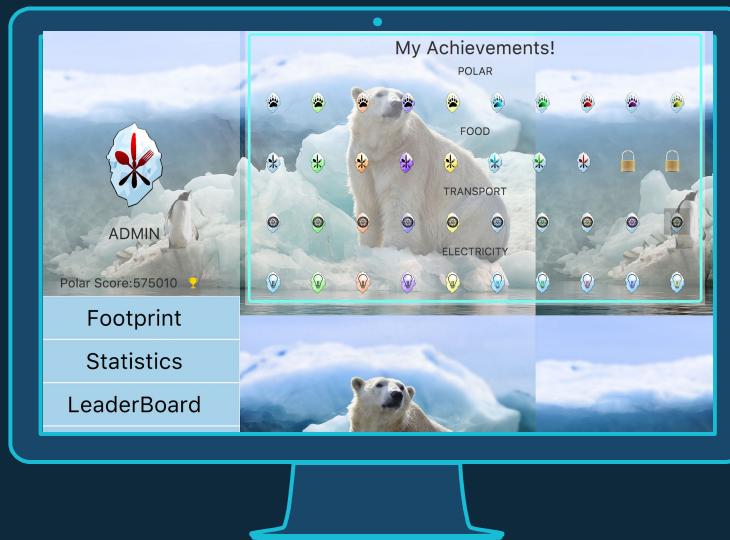
## Track your progress closely!

- Offers a clear visual representation of specific score progress through a linear graph.
- Individual activities (food, transport & electricity).
- Total polar score (accumulation of individual scores)
- Y axis shows the polar metric.
- X axis shows the dates scores are added.





# Achievements page



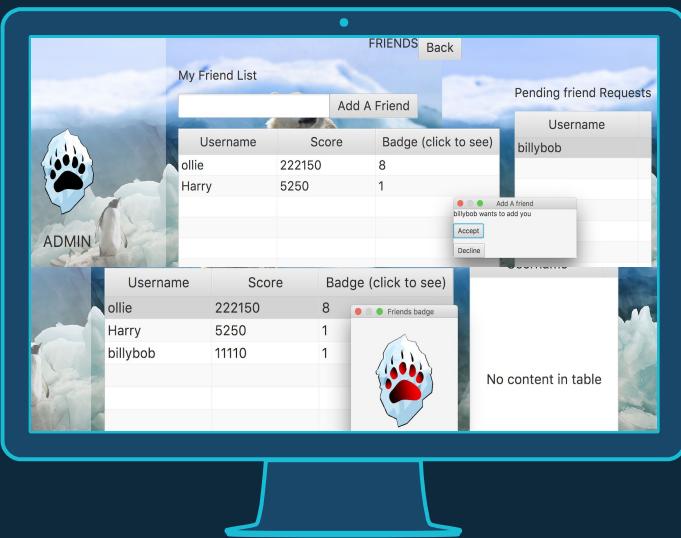
## Gamification

- Polar total badges unlocked every 10,000 pts.
- Food, Transport, Electricity unlocked every 1,000 pts.
- Colour coded consistency across all badges for level unlocked reference.
- Unlocked badges are made selectable to replace the standard user polar icon.
- Selected unlocked badges are also made visible to your friends to add a competitive drive for adding activities





# Friends page

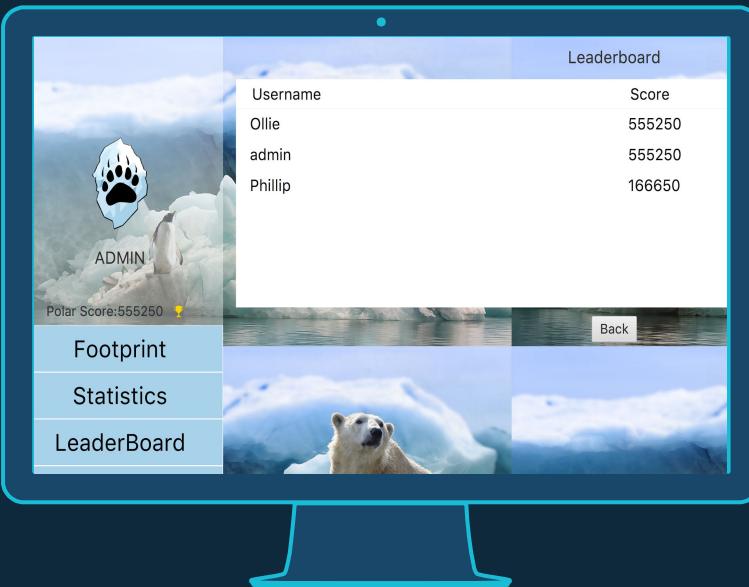


## Track friends and battle for badges

- Friends with accounts can be searched and added.
- Pending friend requests made visible and clickable.
- Your friend must approve the request for security reasons as to ensure you both know each other.
- See your friends badges.



# Leaderboard page



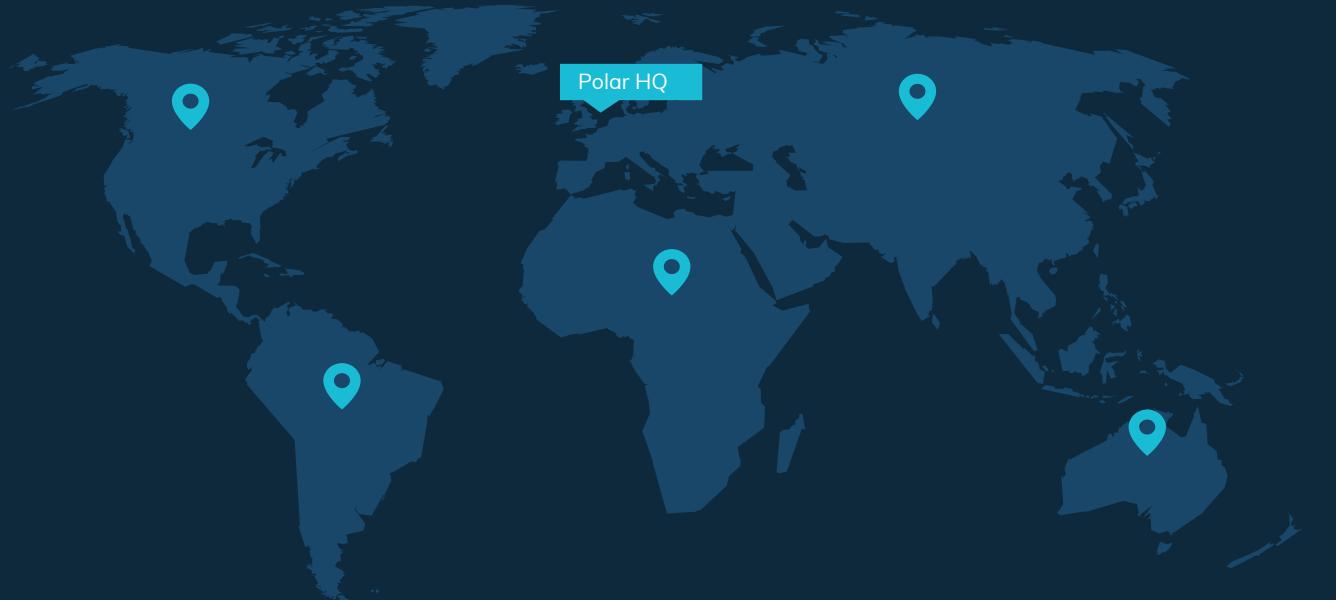
See the progress of the top of the world!

- The leader board page will gather the scores of the top 10 people in the world and order them from highest to lowest score.



# Our goal!

For polar to become a globally recognizable standard and to have our application used internationally in the aid of lowering carbon emissions to save the polar bears.





Thanks!  
Any questions?

