

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

Development Team

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

◆ 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.



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.
- Controller extends to a CRUD repository to allow querying of our database.



Heroku

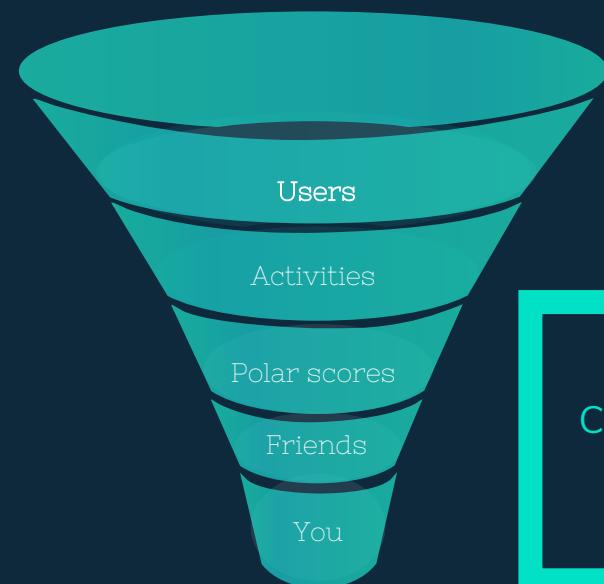
- Server side development later deployed on Heroku.
- Allows for a constantly running server side connection waiting on clients.
- More realistic server for real world application of Polar.





Our database!

- Postgresql 10
- Unique user pathways (Foreign key)
- Durable and scalable.
- Quick and efficient querying through CRUD repository.
- Monitored through PG4 Admin
- Password protected

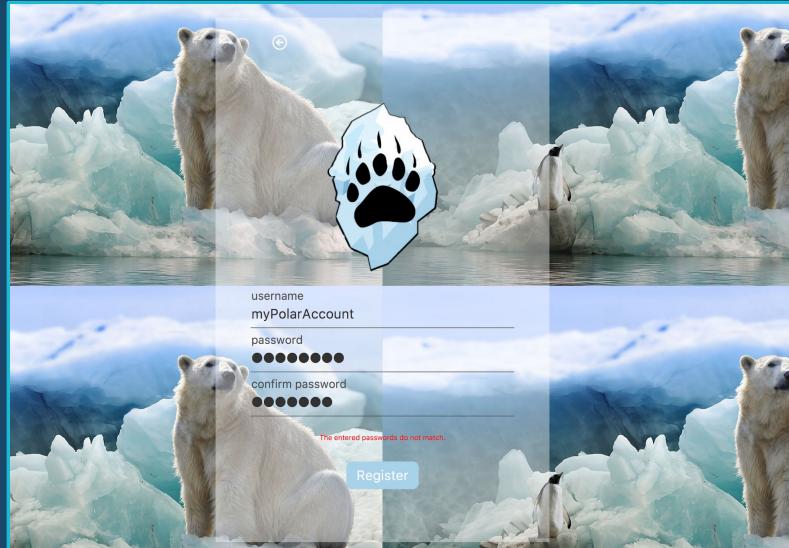




Registration and login

Security

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



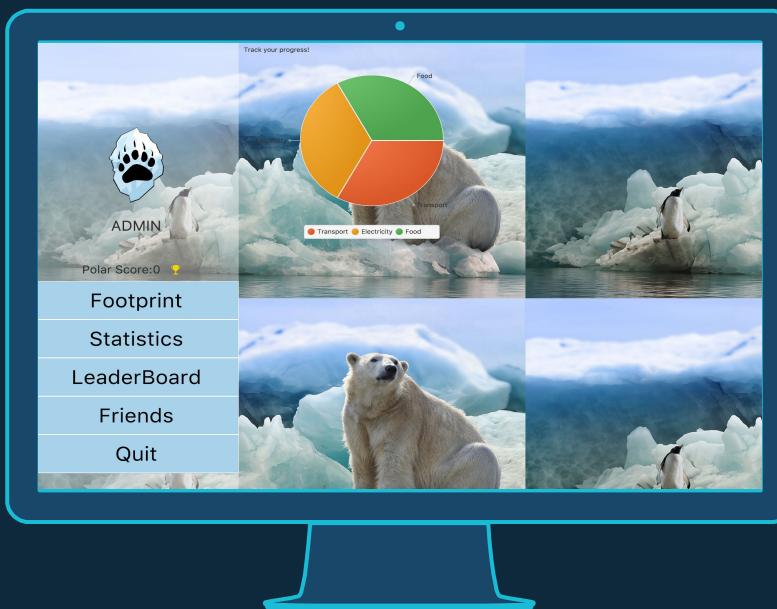
In regards to our database

- Username is a primary key, therefore each username must be unique.
- Passwords stored are not visible through hashing algorithm.





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 featuring hexagonal patterns. On the left is a vertical navigation menu with options: ADMIN, Footprint, Statistics, LeaderBoard, Friends, and Quit. The main area displays a table titled "My Activities" with four columns: Category, Description, Footprint, and Date. The table lists various entries, mostly under the "Food" category, with descriptions like "easteregg". The total footprint for these entries is 1500. Below the table is a large image of a polar bear on ice. At the top of the screen are three buttons labeled "Food Footprint", "Transport Footprint", and "Electricity Footprint", each with a plus sign icon.

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

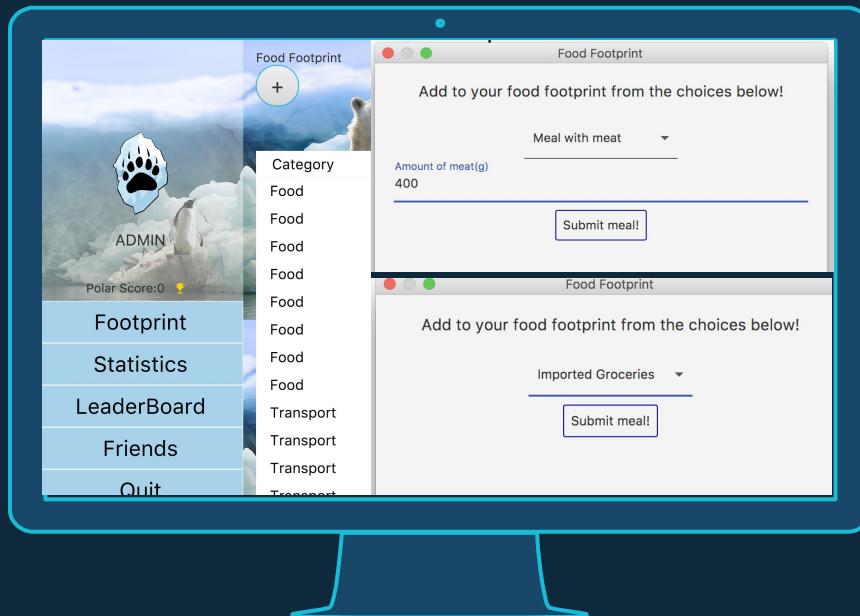
- Food polar-print button
- Transport polar-print button
- Electricity polar-print button

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.



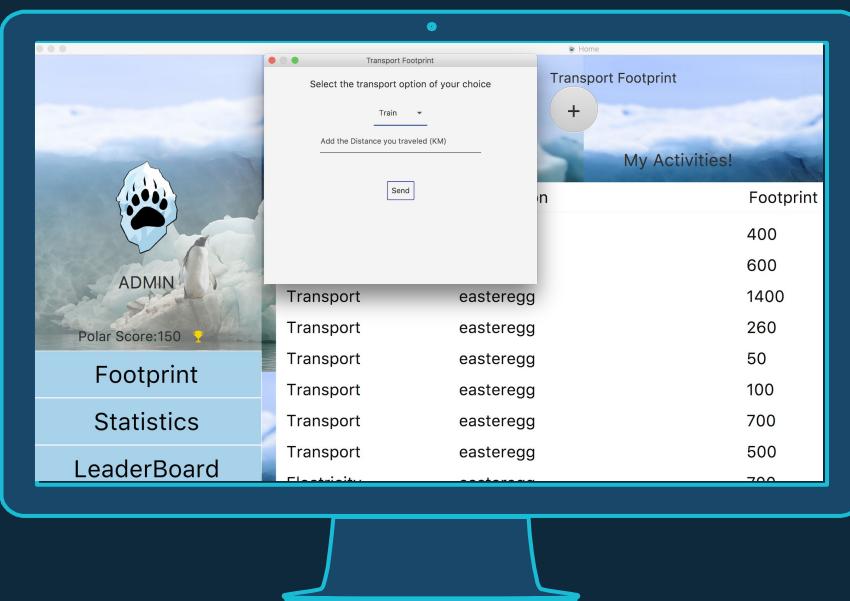
Food polar-print



- Vegan meal = + 500 pts
- Vegetarian meal = + 400 pts
- Meal with meat - variable **negative** pts
- Imported produce = - 150 pts
- Local produce = + 250 pts



Transport polar-print



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

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.)

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

	Footprint	Date	Solar energy
	1500	12-03-2019	<input type="checkbox"/>
	300	13-03-2019	<input type="checkbox"/>
	700	14-03-2019	<input type="checkbox"/>
	20	15-03-2019	<input type="checkbox"/>
	500	16-03-2019	<input type="checkbox"/>
	1500	17-03-2019	<input type="checkbox"/>
	100	26-03-2019	<input type="checkbox"/>
	1500	29-03-2019	<input type="checkbox"/>
	400	12-03-2019	<input type="checkbox"/>
	600	13-03-2019	<input type="checkbox"/>
	1400	14-03-2019	<input type="checkbox"/>
	260	15-03-2019	<input type="checkbox"/>
	50	16-03-2019	<input type="checkbox"/>

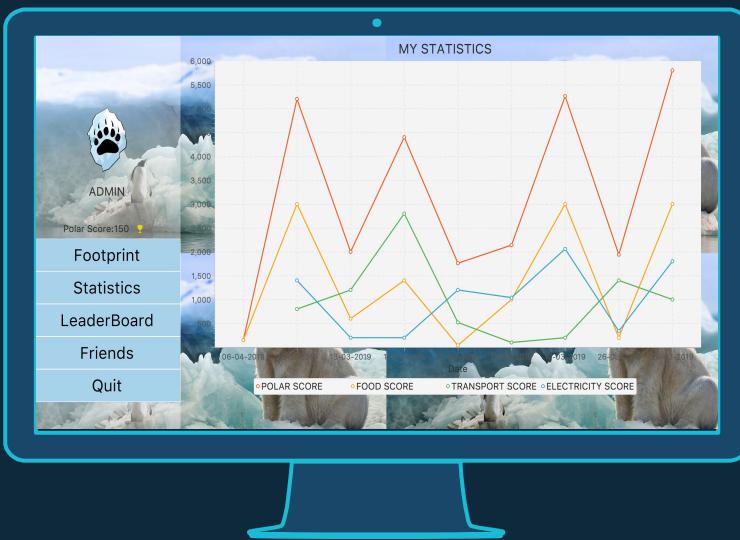
Built in metric calculator

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

Statistics and leaderboard pages

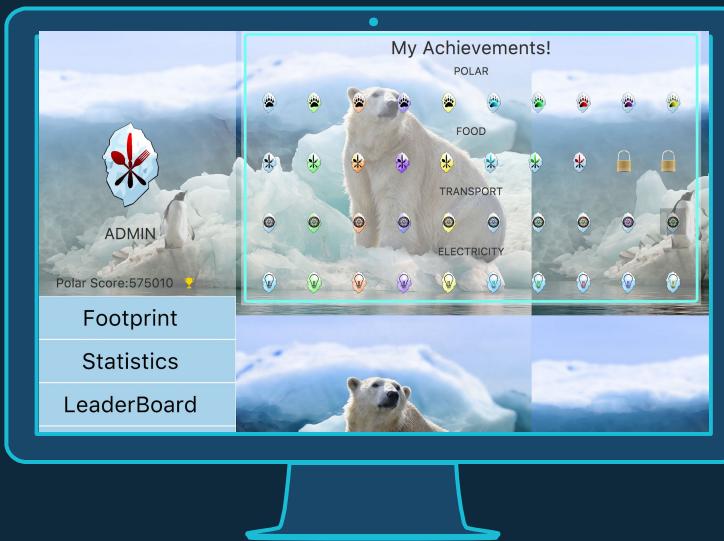
Track your progress closely!

- 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 / updated.





Achievements page



Gamification

- Unlockable type specific badges and polar total badges.
- Colour coded consistency across all badges for level unlocked reference.
- Food, Transport, Electricity unlocked every 1,000 pts.
- Polar total badges unlocked every 10,000 pts.
- 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

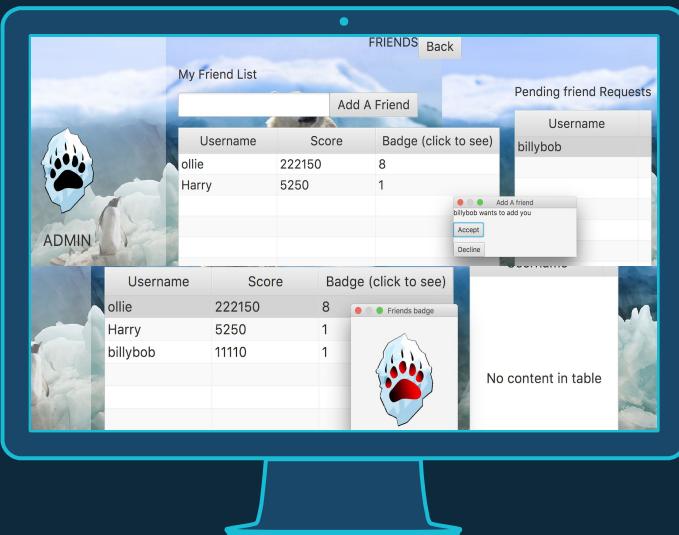




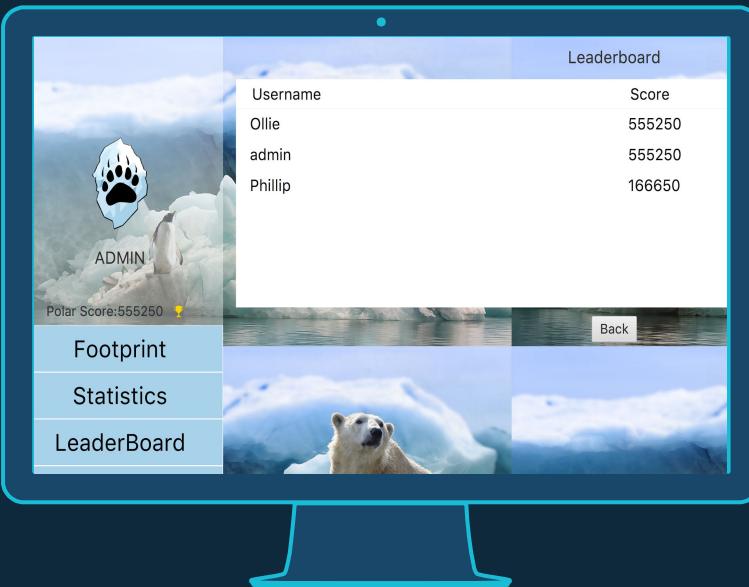
Friends page

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.
- Click on your friends in the friends table to see their badge.



Leaderboard page



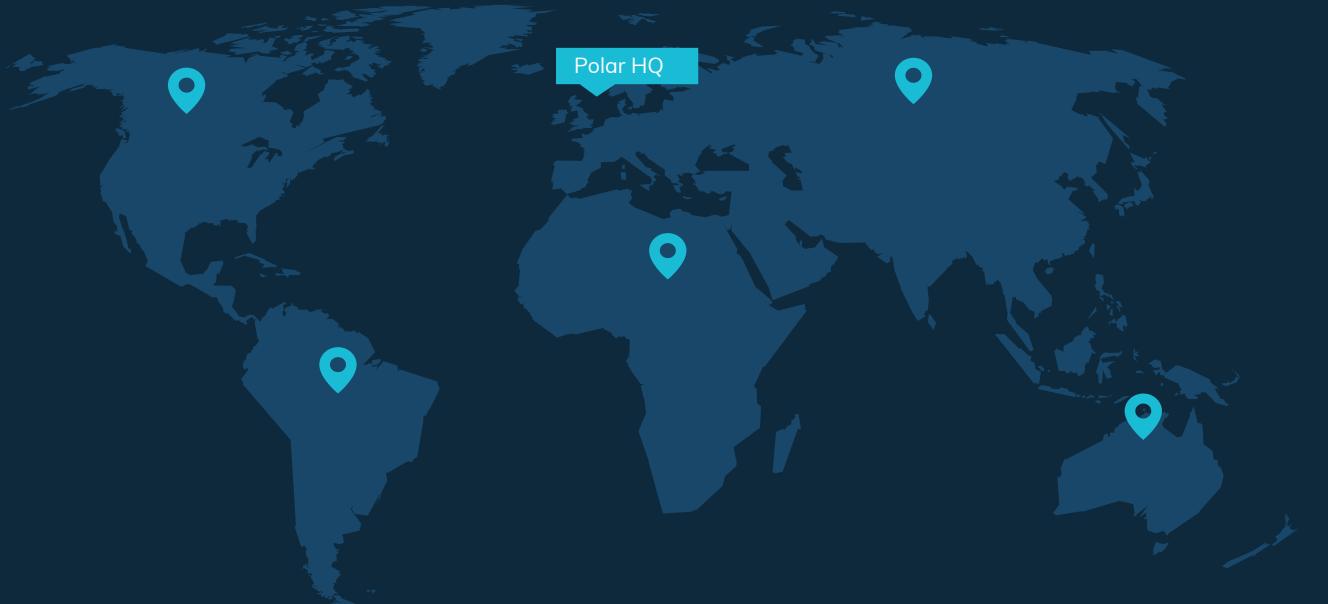
Compare progress with friends!

- The leader board page will gather the scores of you and your friends and order them from top - 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?

