refuel

Let AI decide when to refuel your car.

by Gabriel Mendoza Reyes

Hello, my name is **Gabriel**. I'm a mechanical **engineer** who I fell in love with the **great possibilities** of **data science.**

I'm here to present my **capstone project**. It's a great example of **open data** combined with **machine learning** tools. My idea is called **refuel** and it's another concept to **outsource** some of your daily **troubles and worries** to the machines while saving **money**!

- this is my last presentation of the bootcamp - What a crazy ride!

Existing Apps vs *refuel*

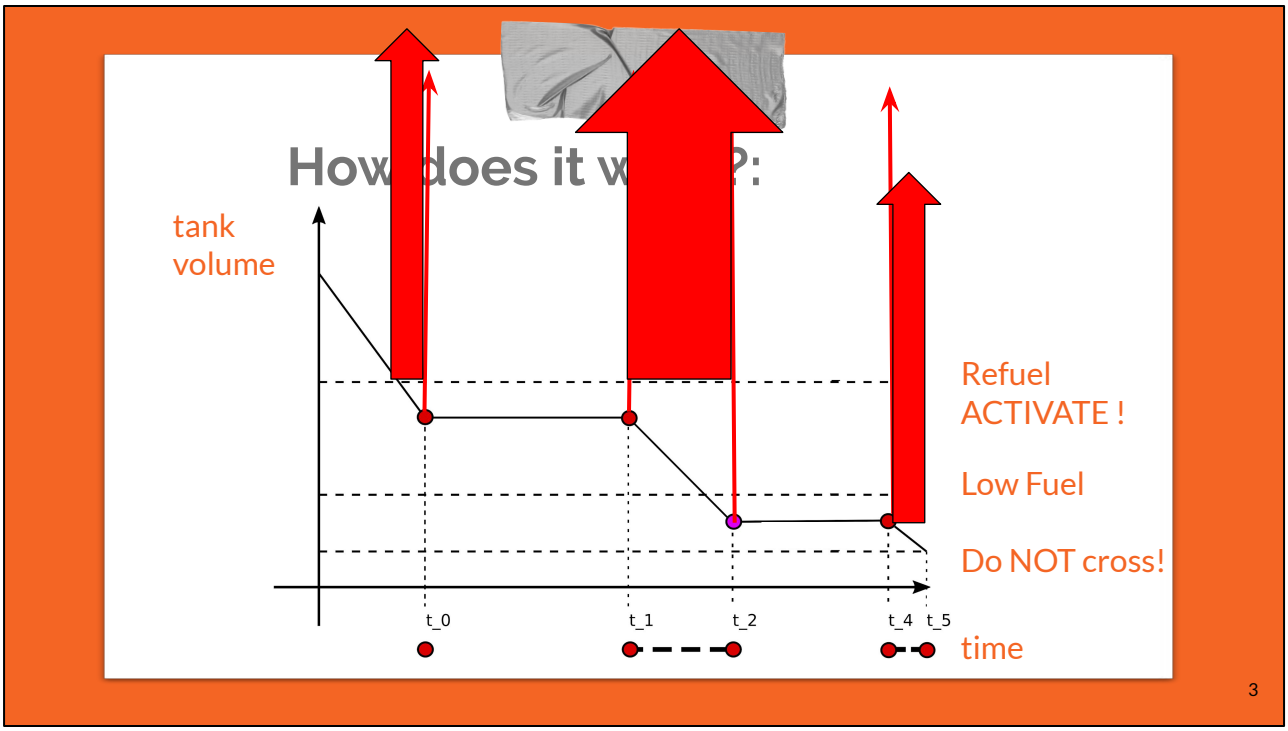
So, what's the problem!

Existing Apps like, **Berta, Clever-Tanken**, or the **ADAC-App** just give you a **snapshot** of prices according to your **position**. But as I will show you later, that **doesn't really help** us in the current market **because** gas stations **adjust** their prices to **each other**.

KLICK!

refuel on the other hand, not only takes into account your **position**. It connects your **driving profile** with **forecasts of future prices** and gives you the **best match**. That way, you can **profit** from lower prices **and** don't have to **worry when and where to refuel** your car.

KLICK!



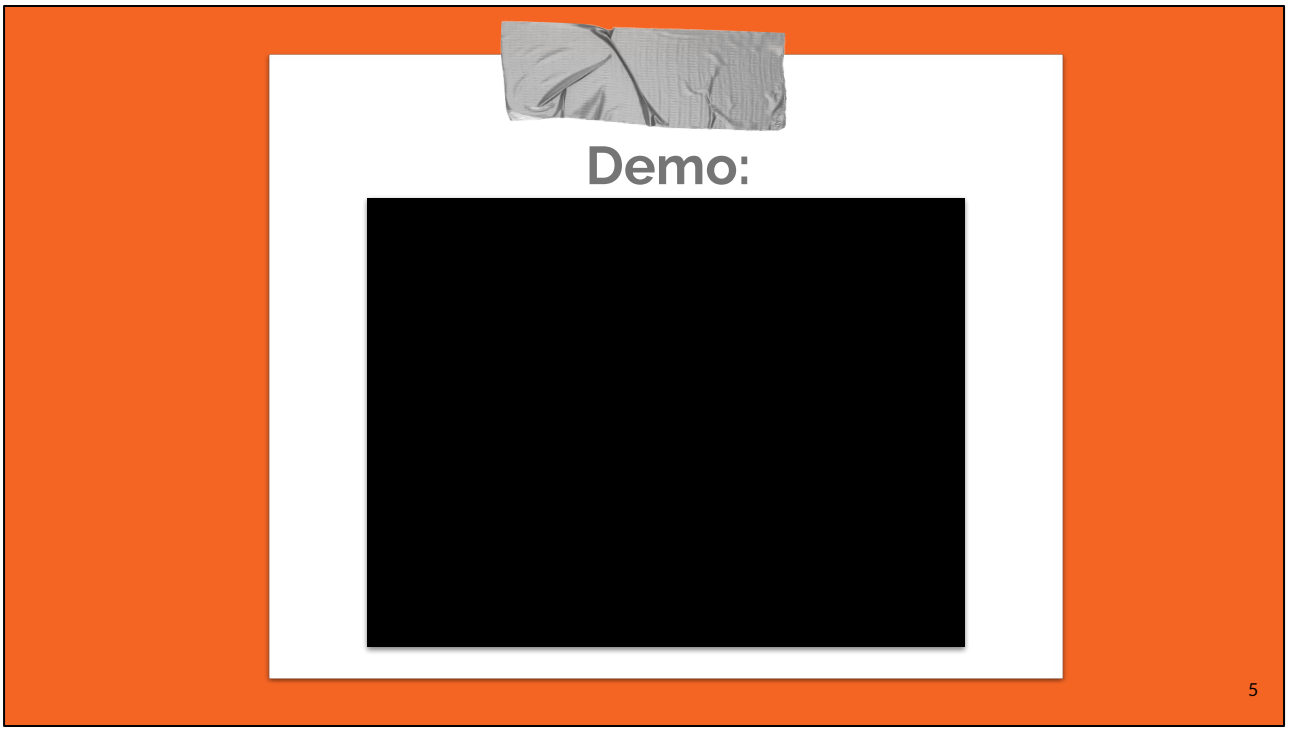
So, **how** does it work?

Lucky for you, I have no time to explain you the **details**.
But to **summarize** it:
Once the fuel in your car reaches a certain **threshold**, refuel predicts the prices along your **way** with the help of **machine learning** and finds your best **option**. It this way you will be able to **benefit** from low **price** regions.

How can you visualize five dimensional data?

Data Science is also the **science of Visualizing Data**.
A **wise man** once said, there is only one **broadband connection** to our **brains**! ---**Our eyes**!
So how do you visualize **5 dimensions on a two dimensional screen**, a **Latitude**, a **Longitude**, a **brand**, a **price** and on top of that t**ime** ?!

Of course by using an **open source tool** a **non evil company** made and gave to the public!

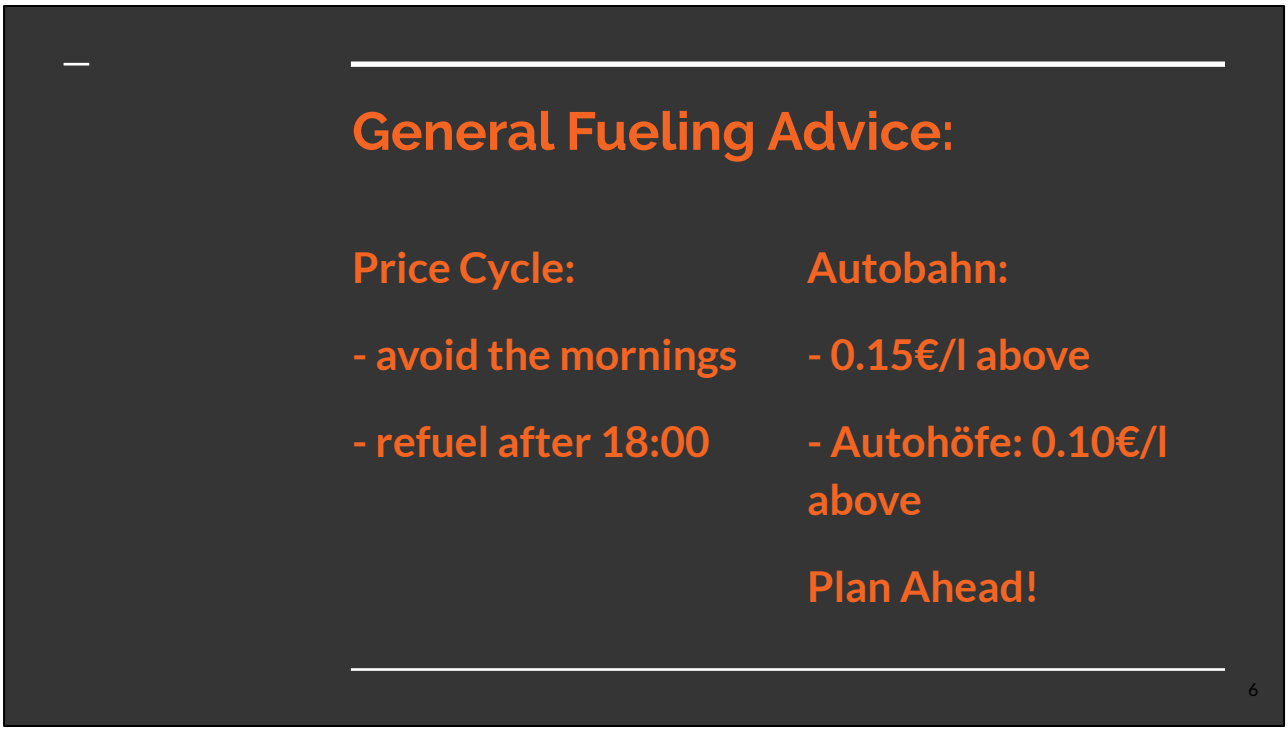


MAKE FULL SCREEN!
DON'T PLAY!
So here we see around **100** gas stations in Hamburg. The **latitude and longitude** define the **position** of each point. The **price** is indicated by the **color**, on the right top **corner** you can see that the prices had a **spread of around 18 Cents** on this particular day. The **brand** of each station is written on the **small white label**. Once I **click**, **time** comes into play!

These kind of plot are **really useful** to make pattern visible that otherwise would be **hidden in the data**:
PLAY!

- We are coming out of the **night** with **very high prices indicated by the dark red color**, which lower in the early morning hours.
- Then at around **8-9** have the **first** commuter peak
- At around **1pm** the **second** peak comes
- And around **4 pm** the last peak comes, when everybody

- **returns home**.
- Then the prices **relax a little** bit. The next day return with a **similar pattern**!



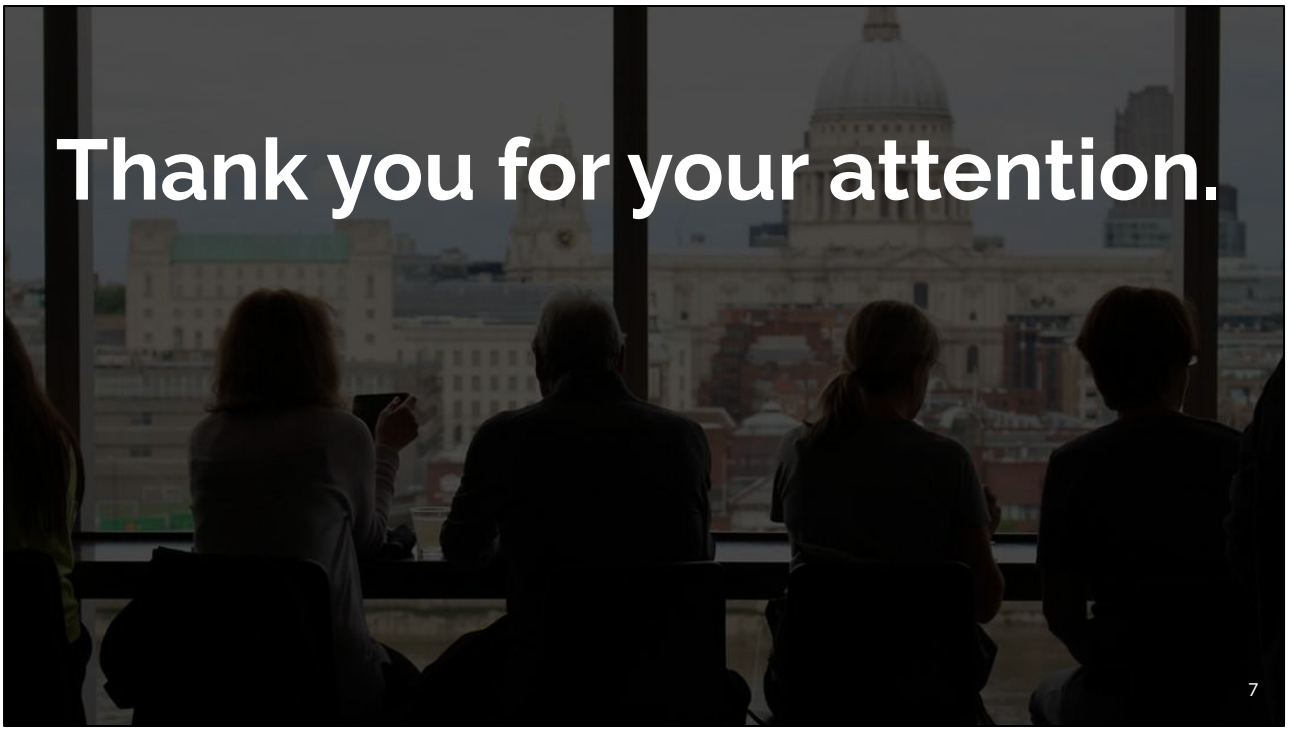
The last slide has some **general** advice for e**verybody** how likes to **save money**:

TIMING is everything!

- Avoid the **morning hours**
- And refuel **after 18:00**

When going on longer trips on the **Autobahn**:

- **Avoid all gas station directly on** the Autobahn, on average the fuel is about **15€-Cent** more expensive
- **Autohöfe** are a little cheaper but also **pretty expensive**.
- There are many **gas stations a little off** the autobahn **a small detour** can save **you alot**, so
  Plan ahead!



I would like use this **occasion** to thank our coaches, LARISSA, DIRK and ELI and everybody from neue Fische for leading us **through** the **data jungle**.
And also many thanks to my **classmates**! The **last three months** were **very hard**, but also **a lot of FUN**!
THANK YOU!