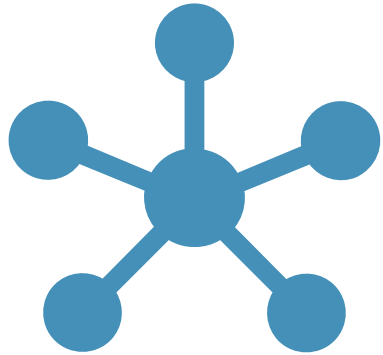


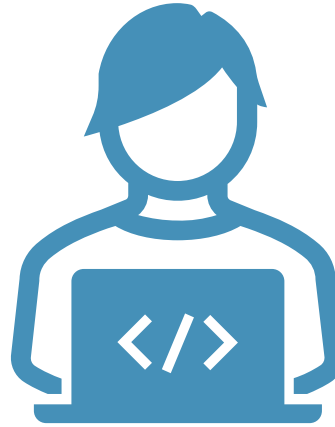


# PRIVACY DRIFTERS

PRIVACY VISUALIZATION OF DECENTRALIZED RIDING-POOL PLATFORM



Problem Description



Our Approach

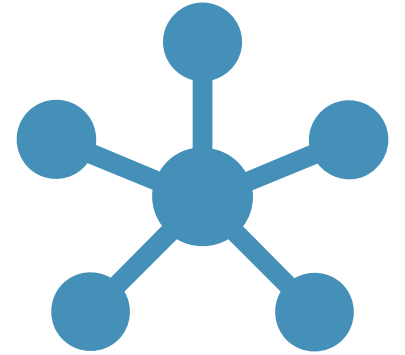


Our Results

CONTENT

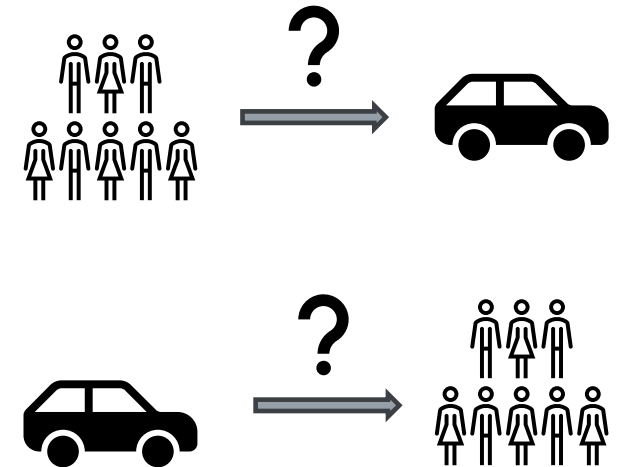
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# PROBLEM DESCRIPTION



# RIDE-POOLING PLATFORMS

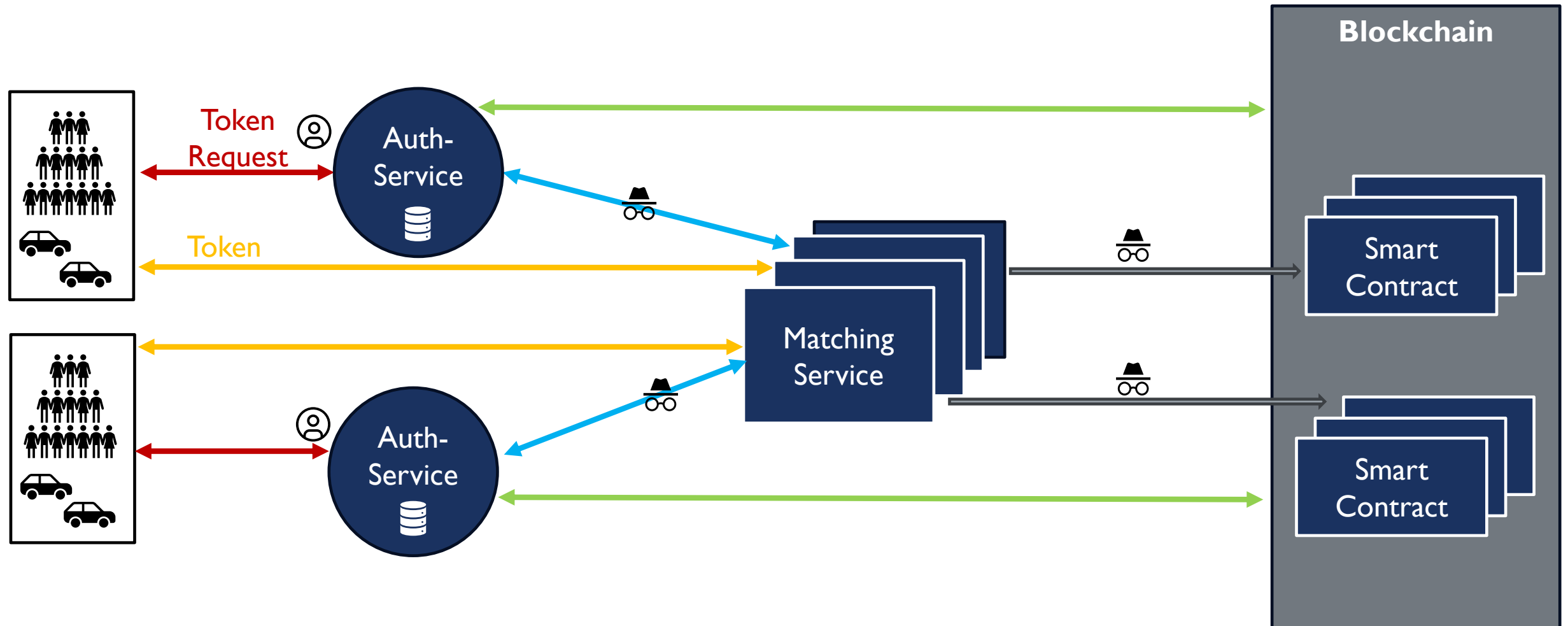
- People searches rides from A to B
- Riders offer rides from A to B
- Riding-Pool Platform matches those people searching and offering rides
- Ride between two persons are confirmed with smart contracts



# PRIVACY VISUALIZATION OF RIDING-POOL PLATFORM

- Personal information like name, adress, history of rides, ratings etc. should not be visible to every user of the platform
- Service Perspective → Data that is Visible

# FROM RIDING REQUEST TO SMART CONTRACT



## CONCEPTUAL APPROACH

Visualize private data according to different perspectives:



A dark blue square containing the text "Matching Service" in white.

A dark blue rectangle containing the text "Smart Contract" in white.

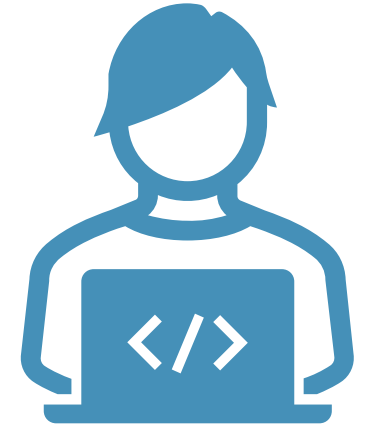
## RESEARCH QUESTION

How to visualize data privacy within a ride-pooling platform?



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# OUR APPROACH



# TECHNOLOGICAL APPROACH

- Brainstorming about how to visualize data privacy on that platform
- Obstacles :
  - Creating a map and having an interactive H3 Grid.
- Frontend:
  - Single Page or Multipage ?
  - React v/s Vue ?
- Backend:
  - Connect Blockchain data to MongoDB Cluster

---

# RESULTS



# AUTHENTICATION SERVICE VIEW

## Authentication-Service

Master Data

Ratings

Past Wallets (allows to access blockchain)

History of pseudonyms, smart contracts of one person

(Ride Providers, Matching Services, People)

### Check what data different services can access

MATCHING SERVICE

AUTHENTICATION SERVICE

SMART CONTRACTS

#### What is the Auth Service for?

The Auth Service is for signing in and signing up a user, after the the auth service everything is only handled by the users pseudonym, which also changes for each login

#### What the users can see about you

Your pseudonym

Description for Box 1

#### What the Auth Service needs to know

## What the Auth Service needs to know

Check what data different services can access

MATCHING SERVICE

AUTHENTICATION SERVICE

SMART CONTRACTS

Click to see all data

# MATCHING SERVICE VIEW

## Matching-Service

Grid

People

Ride Providers

Starting Points

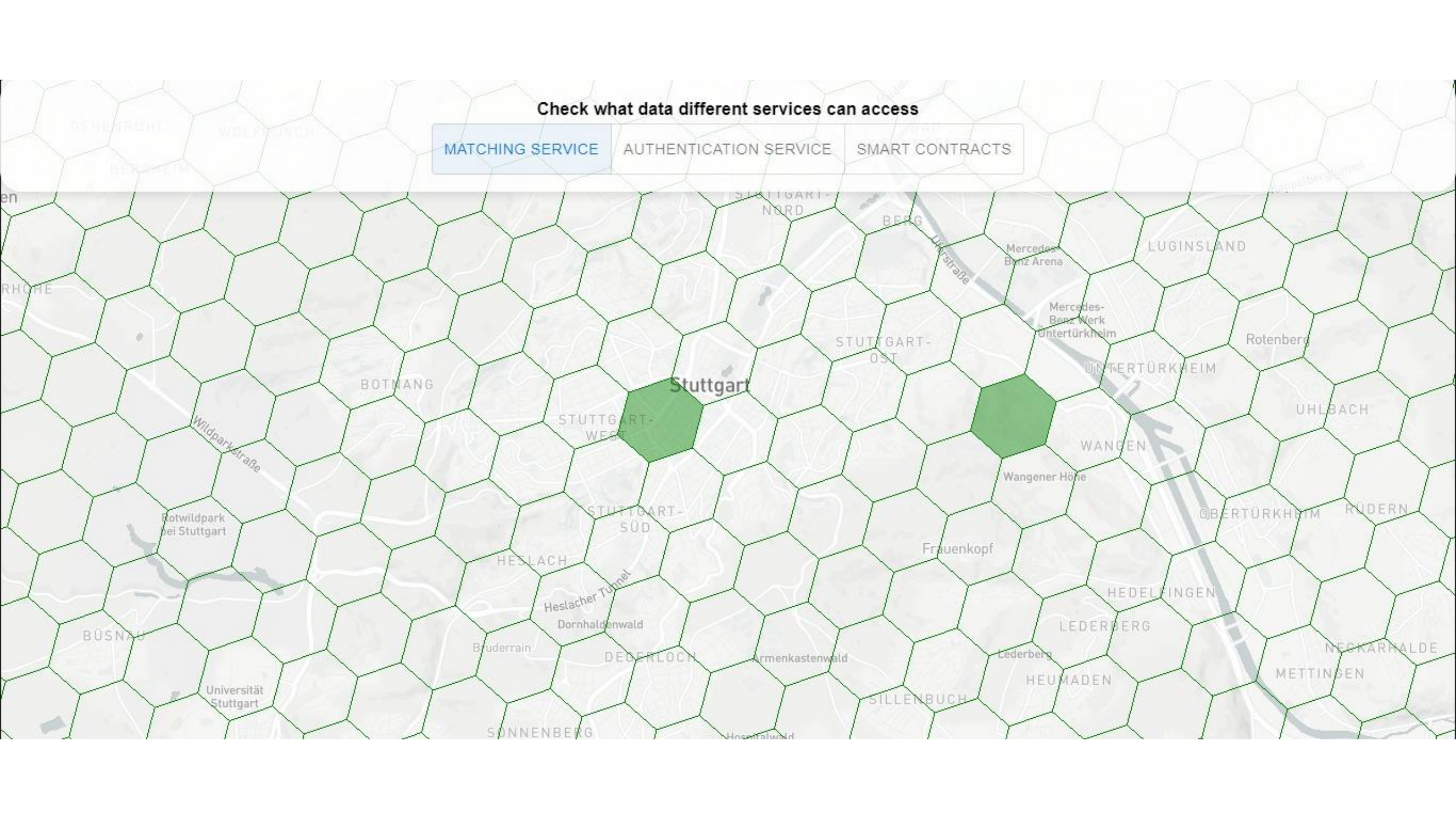
End Points

Area

## MATCHING SERVICE

AUTHENTICATION SERVICE

## SMART CONTRACTS





Check what data different services can access

MATCHING SERVICE

AUTHENTICATION SERVICE

SMART CONT

Hexagon: 881faa7a81ffff



Ride 1

UserID: abcd

Rating: 4.5/5

Max Passenger: 4

Max Waiting Time: 10min

Min Passenger Rating: 2.5/5

Pickup Location: ⬮ 48.7758, 9.1729

Dropoff Location: ⬮ 48.7758, 9.2229

User Public Key:

c18e0779fc19c6b5bd2446317fd2f22fc31bda63933bb14b1cdde688a  
a91f9b5



Ride 2

UserID: abcd

Rating: 4.5/5

Max Passenger: 4

Max Waiting Time: 10min

Min Passenger Rating: 2.5/5

Pickup Location: ⬮ 48.7758, 9.1729

Dropoff Location: ⬮ 48.7758, 9.2229

# SMART CONTRACT SERVICE VIEW

## Smart Contract Service

Ride (hidden details)

Ratings of people

### Check what data different services can access

MATCHING SERVICE

AUTHENTICATION SERVICE

SMART CONTRACTS

#### What is the Smart Contract for?

The smart contract outlines an agreement between a pseudonymized ride provider (Driver) and a pseudonymized ride requester (Passenger). Both parties, the ride provider and the requester, can provide feedback to each other.



Ride provider

fkuhkdfkdfh8euhiudf8his7ifaasd



Driver's Rating



Rahul's Rating



Ride requestor

askdhal37dauhd8dhai2h8dhda8d2h



THANK YOU

PRIVACY DRIFTERS