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Web application for finding information about Estonian gas stations and fuel prices

Scope of work in Building Distributed Systems(ICD0009)

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Author’s declaration of originality

I hereby certify that I am the sole author of this thesis. All the used materials, references to the literature and the work of others have been referred to. This thesis has not been presented for examination anywhere else.

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1. Application overview

1.1 Description

There are 905 353 vehicles registered in Estonia as of 25.02.2021. Roughly 53% of them run on gasoline, 45% of them run on diesel, and the rest run on gas, electricity or a combination of any. In order to use the vehicles, the owner must purchase the suitable fuel type for the vehicle from a retailer. Every retailer has their own prices, loyalty programmes, websites and promotions. For a vehicle owner to find the most suitable option, all of the retailers' offers and prices must be manually checked. This is time consuming and since offers and campaigns are not permanent, the customer can be confused easily. Some retailers do not even publish their prices on their official websites, so it is up to the customer to find out what the prices are. It is clear that a system where the customer could see all possible options would not only decrease time spent on searching for the most suitable option, but enable the customer to easily see what each retailer has to offer and make it easier to compare different retailers. The purpose of this work is to develop a system for estonian vehicle owners, in which they can see all estonian gas stations with their fuel prices and possible services both in a list and on the Estonian map, compare different gas station prices and have the system calculate the optimal refueling location for them, have their gas station customer cards in one place for a better overview of the discounts. Such a system will benefit all vehicle owners, who seek to find the best offers and deals on fuel prices. Placing all the retailers side by side on the same website might also trigger new campaigns or competitions between retailers to lower the fuel prices or offer better discounts from which the customer would greatly benefit from. Today there are no systems with such functionality. The closest alternative, according to the author, would be the navigation app 'Waze', in which the customer can look up different gas stations and see the fuel

prices, but comparing must be done manually, the gas stations are not displayed on the map, last updated price time is unknown and customer discounts are not displayed. Another drawback of the alternative is that it requires an application download, but some vehicle owners definitely do not use a smartphone and according to the author, having to install a navigation app to find out fuel prices is unnessecary, especially when the customer lives in the countryside, where navigation apps are not needed as often.

1.2 Entity-Relationship Diagram

Here will come the entity-relationship diagram once it is ready.

2. Scope of work

2.1 Mandatory milestones

2.1.1 Designing and defining the database