# Research

## Car recommendation tools:

- Mostly for UK
- No tools for NL
- Not that many (3-4)
- Asks direct questions, so it's more like sorting
- Gathered information:
    - Budget
    - What do you need it for
        - New driver
        - Company Car
        - Long Journey
        - All Seasons
        - Big Boot
        - Easy Access
        - City Driving
        - Flexing
    - Type of vehicle
    - Seating capacity
    - Fuel Type
    - Efficiency
    - Safety
    - Performance
    - Reliability
    - Environmental Footprint
    - Similar project which I found: https://github.com/tylermillis/car-choice-helper

## How does image processing works:

Image processing in machine learning typically involves using algorithms to analyze and understand patterns and features in image data. This process involves several steps:

1. Pre-processing: This step involves cleaning up the image data by removing noise, correcting for distortions, and converting the image into a suitable format for analysis.
2. Feature extraction: In this step, the algorithm tries to identify relevant features or characteristics of the image that can be used for classification or analysis. This could include identifying edges, textures, shapes, or other patterns in the image.

3. Dimensionality reduction: As images can contain a large amount of data, it is often necessary to reduce the dimensionality of the data to make it more manageable for analysis. This step involves reducing the number of features used to represent the image.
4. Model training: In this step, the algorithm is trained on a set of labeled images, allowing it to learn the relationships between the features and the classes they represent. This training process helps the algorithm to learn to recognize patterns in the images.
5. Model evaluation: After training, the model is evaluated on a separate set of images to measure its performance. The accuracy of the model can be improved by adjusting its parameters or by using a different algorithm.
6. Predictions: Finally, the trained model can be used to make predictions on new images by extracting features, reducing the dimensionality, and applying the learned relationships between the features and the classes.

Overall, image processing in machine learning is an iterative process of training models and adjusting parameters until the best possible performance is achieved.

## How to use data sets

In machine learning, working with datasets typically involves several stages, which are as follows:

1. Data Collection: The first step is to gather a large dataset that contains the information that you want to model. The quality and quantity of data greatly affect the performance of your machine learning model, so it's important to have a good understanding of the data you're working with.
2. Data Preprocessing: The next step is to clean and preprocess the data. This involves checking for missing values, handling outliers, removing duplicates, normalizing the data, and splitting the data into training and test sets.
3. Feature Engineering: In this stage, you extract features from the raw data that are useful for training your model. Feature engineering is an iterative process, and it requires a good understanding of the problem you're trying to solve and the data you're working with.
4. Model Training: Once you have preprocessed and engineered the features, you're ready to train your machine learning model. You'll typically use the training data to fit your model to the data and evaluate its performance on the test data.
5. Model Evaluation: This stage involves evaluating the performance of your model on the test data. Common metrics used to evaluate machine learning models include accuracy, precision, recall, F1 score, and AUC-ROC.
6. Model Deployment: After you have fine-tuned your model, you can deploy it in a production environment. This involves integrating the model into your application, deploying it on a server, and monitoring its performance to ensure it's working correctly.

# Possible dataset to use

https://www.kaggle.com/datasets/ander289386/cars-germany

https://www.kaggle.com/datasets/tr1gg3rtrash/cars-2022-dataset

https://www.kaggle.com/datasets/joanpau/cars-df