

LEGO enthusiasts often buy sets, but there are also dedicated fans who build their own creations and need to purchase individual bricks. These fans are trying to buy their desired bricks for the best price from multiple places as the price differs from store to store. However, they do this optimisation manually by comparing offers from multiple platforms as the existing tools are limited to their respective platforms and do not compare with LEGO's official listings. This bachelor thesis aims to create an optimisation tool that accepts offerings from any source in a predefined format.

The resulting web application addresses this issue by accepting offers from various platforms, allowing users to customize the optimization process by selecting algorithms and platforms, and enabling exclusions of specific countries or stores. Users can view the optimization results and download the optimized offers. Due to the NP-hard nature of the problem, approximation algorithms like greedy algorithms and simulated annealing were used. The frontend was developed in Next.js with TypeScript, while the backend for data manipulation and offer optimization was implemented in Python. The remainder of the backend was written in Node.js with TypeScript. The application is deployed on the Google Cloud Platform.