Goal

Design the architecture of a web url shortening service, similar to https://bitly.com/ or https://goo.gl/.

High level specification

As a user, I visit the site (it doesn't require the login) and insert in a textbox the URL that I want to shorten. At the submit I get a short URL (based on a hypothetical domain, for example http://cor.to/, followed by an unique string short enough, composed by simple characters, easy to insert from a mobile keyword.

The shortened URL can be used by me or by others (without limitation of usage) and once inserted in the browser, it causes a redirect to the long URL.

The shortened URL is valid for few months, and then it will expire (it means that the operation is no longer guaranteed).

In the same page in which I generated the shortened URL, I can see a list of shortened URL previously created from the same browser and yet valid.