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Design Document

Tech stack used in the project

Frontend:
javascript
Vue.js
Axios.js
Chart.js
Vue-Chart.js
Bootstrap 4

Backend:
Python
Flask
Sqlite
sql

Devtools:
Bower

client side

Index page:
The main page of the application.
Contains form, inside the form there is a text input and submit button.
When the user types a long URL text in the input and submits the form,the web page will present the generated "short URL".

before submitting the form:

Enter a long URL

after submitting the form:

Enter a long URL

| http://www.google.co.il | Create short URL |

http://localhost:5000/afhrjvcd

Statistics page:

Contains statistics about the URL redirections performed in the website.
Displaying the statistics in graphs.
The statistic include:
- How many URL redirections ("short URL" to "long URL") are registered in the database?
- How many URL redirections were performed in the last minute, hour and day?
- How many errors (bad requests) were performed in the last minute, hour and day?

For each period of time, the data is separated into smaller parts:
For the last day - display per hour the redirections count.
For the last hour - display per minute the redirections count.
For the last minute - display per seconds the redirections count.

Server side

API:

/resolveShortUrl - getting long URL string as request parameter and returns short URL code string as a response.

/getStatistics - returns as Json the statistics of the redirections in the website.

Flow:

1.When browsing to the domain url, the backend will service the front-end's main page (the index page).

2.When a client request for shot URL, the server checks in the DB if the short URL already exist, if exist it will return in to the client, otherwise it will generate new short URL code and insert new entry to the DB, and then it will return the generated code to the client.

3. When browsing to short URL link, the server will check if this short URL exists in the DB. If the url exists in the DB, the server will redirect the client's browser to the long URL. If the short URL doesn't exist in the DB, the server will return 404 code response.

Database

The database contains two tables:

urlLinks - All the redirections exist in the website. Each entry contains mapping between short URL to long URL.

urlRequests - All the redirection requests. Every time a user makes a request for redirection, new entry is added to this table. Bad requests are inserted with the value of NULL in linkID.

Name	Type
▼ ▦ Tables (3)	
▶ ▦ sqlite_sequence	
▼ ▦ urlLinks	
🔑 id	INTEGER
📄 longUrl	TEXT
📄 shortUrl	TEXT
▼ ▦ urlRequests	
🔑 id	INTEGER
📄 linkId	INTEGER
📄 date	TEXT