URL Shortener Web Application (Basic)

FINAL- PROJECT

Objective:

The main purpose of this project work is to convert the long tailed URLs to short tailed URLs which concise the length of the link which provides the same rendering functionality without any loss.

Process:

Generally, copying or sharing of long URLs are annoying .so for the shortening of URLs a web application is designed to shorten and can be used smoothly.This project consists of Frontend and Backend sections.

A. Frontend: HTML & CSS
B. Backend: Flask (python) & SQLAlchemy Database ORM

Code editor " VScode " is setup with the all the requirements needed for the flask app to run successfully.

A. Frontend-Section:

It consists of 2 webpages home and history. All the html files are stored under file named "templates" and CSS files in "static" folder in a root directory of this project. In a homepage user will input their long tailed url to shorten and when the shorten button is clicked, the shortened URL is displayed in the text field where the user can copy and use it . History Page Consists of all the Original URLs along with the Shortened URLs with a delete button to clear the database.

It is to be noted that ,the input field in home page will also checks whether the URL is according to norms or not. Otherwise it returns error.

B. Backend-Section:

For this backend process the code follows python script ,flask framework, SQLAlchemy, And some other libraries are used .So our **app.py** file consists of various routes for backend process.

- Initially we import necessary libraries required such as os, random, string, Flask ,render_template,validators,url_for,request,redirect,Migrate,SQLAlchemy respectively.

- Now we have to define the flask app assigning to variable "app" by passing the parameter "__name__" into the Flask .The basedir variable stores the path of the required files,in order to track any changes in database 'app.config" is used.

- A variable “db” is defined with SQLAlchemy passed with app parameter and then migrating both app and “db” together.it means a migration instance for the Flask application that can be used to run database migrations using SQLAlchemy.

- A database model is created using class URL, which defines the database by initializing long_url and short_url. Also we define function “shortUrl” for the size of the url should be generated. Here, I chose size=5.

- There are four routes created using decorators “app.route( )” which are the end points in a url.”/”,”/history”,”/<finalurl>”,”/delete/<int:id>” are respective end points.

- Home route acts as a index page for the webappliation which is a main page. It is the place whre the user inputs and get validated by the “POST” method and generates the short urls in respective text field.

- History route helps in store and viewing of past generated urls in table format can be accessible by using history in nav-bar.

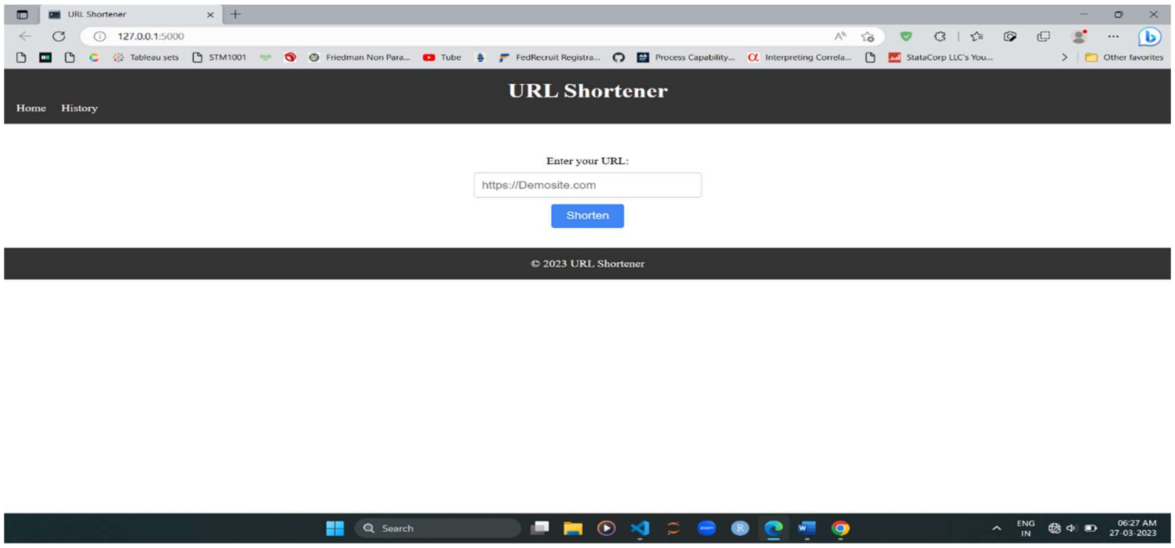
- The redirection route ('/<finalurl>') is used to redirect users to the long URL associated with a given short URL.if url is not in the databse it returns the error.

- And delete route is used to delete the urls in the history page that is from the database. If the URL with the given ID exists in the database, it is deleted and the user is redirected to the history page.

- To run the web application we use the main function for app.run(debug=True).

- Finally ,after completion of creating app.py,home.html,style.css,history.css and base.html files we need run these basic commands ..,
  - ✓ set FLASK_APP=app.py (it sets the app file)
  - ✓ python -m flask db init (installs the databse data.sqlite and __pycache__)
  - ✓ python -m flask db migrate -m “DB file” (provides migrations)
  - ✓ python -m flask db upgrade

Atlast,the webapplication looks like..,



URL Shortener

Enter your URL:

https://Demosite.com

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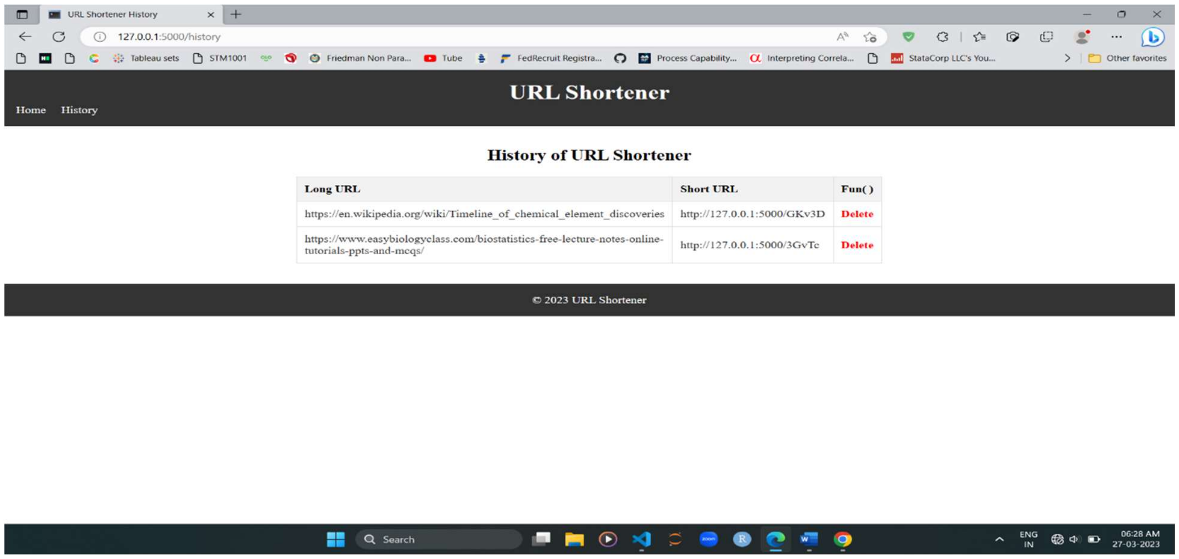
Home page



URL Shortener

History of URL Shortener

Long URL	Short URL	Fun( )
https://en.wikipedia.org/wiki/Timeline_of_chemical_element_discoveries	http://127.0.0.1:5000/GKv3D	Delete
https://www.easybiologyclass.com/biostatistics-free-lecture-notes-online-tutorials-ppts-and-mcqs/	http://127.0.0.1:5000/3GvTc	Delete

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History page

Student name

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