**URL SHORTENER USING FLASK**

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URL Shortener is used to make a long URL into a small URL so that whenever we access the shortener URL it should redirect to the original URL.

This Project is built using Flask. “app.py” is the Application Server where we imported required libraries

import os

from flask import Flask,render\_template,request,redirect

from flask\_sqlalchemy import SQLAlchemy

from flask\_migrate import Migrate

import random

import string

app=Flask(\_\_name\_\_)

After Importing libraries the next step is “SQL Alchemy Configuration”.

################### SQL Alchemy Configuration #####################

basedir = os.path.abspath(os.path.dirname(\_\_file\_\_))

app.config['SQLALCHEMY\_DATABASE\_URI'] = 'sqlite:///'+ os.path.join(basedir,'data.sqlite')

app.config['SQLALCHEMY\_TRACK\_MODIFICATIONS'] = False

db = SQLAlchemy(app)

Migrate(app,db)

The next step is to Create a Model using Class and def which helps to create a table name and column names

##################### Create a Model ##############################

class Project(db.Model):

    \_\_tablename\_\_='url\_shortner'

    id = db.Column(db.Integer, primary\_key = True)

    org = db.Column(db.Text)

    short=db.Column(db.Text)

    def \_\_init\_\_(self,org,short):

        self.org = org

        self.short = short

    def \_\_repr\_\_(self):

        return f"{self.org} - {self.short}"

Then come the Flask part to create the required routes with functions binded which helps in connecting the frontend (i.e to HTML Pages)

data={}

@app.route('/')

def home\_get():

    return render\_template('index.html')

@app.route('/', methods=['POST'])

def home\_post():

    dj=5

    original\_url = request.form.get('in\_1')

    short\_url = ''.join(random.choices(string.ascii\_letters+string.digits,k=dj))

    data[short\_url] = original\_url

    new\_original=Project(original\_url,short\_url)

    db.session.add(new\_original)

    db.session.commit()

    return render\_template('index.html',k=short\_url)

@app.route('/history')

def history\_get():

    all\_url=Project.query.all()

    return render\_template('history.html', data=data,all\_url=all\_url)

@app.route('/sh/<short>')

def fun(short):

    if (short) in data:

        return redirect(data[(short)])

    return "incorrect URL"

if \_\_name\_\_=="\_\_main\_\_":

    app.run(debug=True)

**HTML PAGES**

This Project Consists of 3 HTML Pages namely

* **“Layout.html”** – The Inheritance Page which gives the same layout to all the html pages and save time to create header footer again and again for every html file
* <!DOCTYPE html>
* <html lang="en">
* <head>
* <meta charset="UTF-8">
* <meta http-equiv="X-UA-Compatible" content="IE=edge">
* <meta name="viewport" content="width=device-width, initial-scale=1.0">
* <title>
* {% block title %}
* {% endblock %}
* </title>
* </head>
* <body>
* <nav>
* <a href='/'>Home</a>
* <a href='/history'>History</a>
* </nav>
* {% block body %}
* {% endblock %}
* </body>
* </html>
* **“Index.html”** - The Home Page where the original URL should be entered, and the shortened URL will be displayed with a copy button so that user can easily copy the URL to Clipboard and able to use in the browser. Here JS is used for Copy Button
* {% extends 'layout.html' %}
* {% block title %}
* Home Page
* {% endblock %}
* {% block body %}
* <h1 style="background-color:skyblue;" >Welcome to Rahul's URL Shortner</h1>
* <form method='post'>
* <input type="text" name="in\_1" placeholder="Enter original URL">
* <button>Shorten</button>
* </form>
* <br>
* Shortened URL is - 127.0.0.1:5000/sh/{{k}} <br>
* <br>
* <form>
* <input value= "127.0.0.1:5000/sh/{{k}}" id="myInput">
* <button onclick="myFunction()"> Copy </button>
* </form>
* <script>
* function myFunction() {
* /\* Get the text field \*/
* var copyText = document.getElementById(""+"myInput");
* /\* Select the text field \*/
* copyText.select();
* copyText.setSelectionRange(0, 99999); /\* For mobile devices \*/
* /\* Copy the text inside the text field \*/
* navigator.clipboard.writeText(copyText.value);
* /\* Alert the copied text \*/
* alert("Copied the text: " + copyText.value);
* }
* </script>
* {% endblock %}
* **“History.html”** - The Page displays the History of the URL’s and the respective Shortened URL’s which is the user’s data

{% extends 'layout.html' %}

{% block title %}

History Page

{% endblock %}

{% block body %}

<h1 style="background-color:tomato; ">History</h1>

<ul>

{% for short\_url in all\_url %}

    <li>{{ data[short\_url] }}  -  {{ short\_url }}</li>

{% endfor %}

</ul>

{% endblock %}

**OUTPUT**

127.0.0.1:5000/ - Home Page (index.html)

Graphical user interface, text

Description automatically generated

127.0.0.1:5000/history - History Page (history.html)

Graphical user interface, text

Description automatically generated