URL Shortener Web Application (Basic)

What will our Web app do (Objectives)?

1. As the name suggests, it shortens URLs.
2. Users can also save URLS by coming to the web app.

Why do we need a URL Shortener?

Sometimes we need to share or send links and this can be tiresome and annoying to copy and paste long URLs. That is where URL shorteners come in. Not only it helps in shortening the URL but it also allows the user to copy the shortened URL with a click of a button.

The project consists of 2 parts:

1. Frontend (done with HTML, CSS, and Bootstrap)
2. Backend - Flask (Python)
3. Backend - Database ORM

Front-End Information

The front end consists of 2 web pages:

1. Home Page - A page will be shown where the user can enter the URL he/she wants to shorten. After the ‘shorten’ button is clicked, the shortened URL is displayed in the text field which the user can copy using the copy button.

2. History Page - Containing all the Original URLs along with the Shortened URLs.

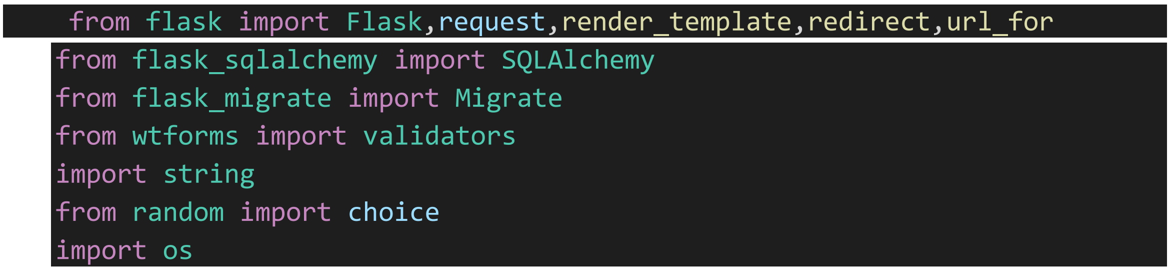
Project Workflow

1. Users can enter the URL they want to shorten. After entering a URL, click on the ‘Shorten’ URL button to display the shortened URL in the following text field which can be copied by clicking on the copy button.
2. After the ‘Shorten’ button is clicked, the URL that is entered is saved in our database with the shortened URL. It is saved in the database so that the user can look into the previous URLs he entered in our web app with their shortened URL.
3. Try to verify whether the URL entered by the user is correct or not. (Do some googling to find out how to make it possible)

URL Shortener Web Application (REPORT)

- **APPLICATION PART (python code, flask)**

1. Import Libraries



```
from flask import Flask,request,render_template,redirect,url_for
from flask_sqlalchemy import SQLAlchemy
from flask_migrate import Migrate
from wtforms import validators
import string
from random import choice
import os
```

2. **Create the flask**
3. **Configuration of SQLAlchemy ORM**

   It is used for connection between database and backend. It provides users with the flexibility of using the SQL database.
4. **Create the Model class**

   Here we defined table name and columns to create table schema in databases.
5. **Create shorten url**

   For short url, we need to minimize the characters of original URL. So, here we take ascii letters and digits.
6. **Create app route**

   In home_page() function, it takes url from user and check whether the url is valid or not. If url is valid it shorten the url and show it on home page. We can copy url from there and can directly explore that url by clicking on it.
7. **Create Display route**

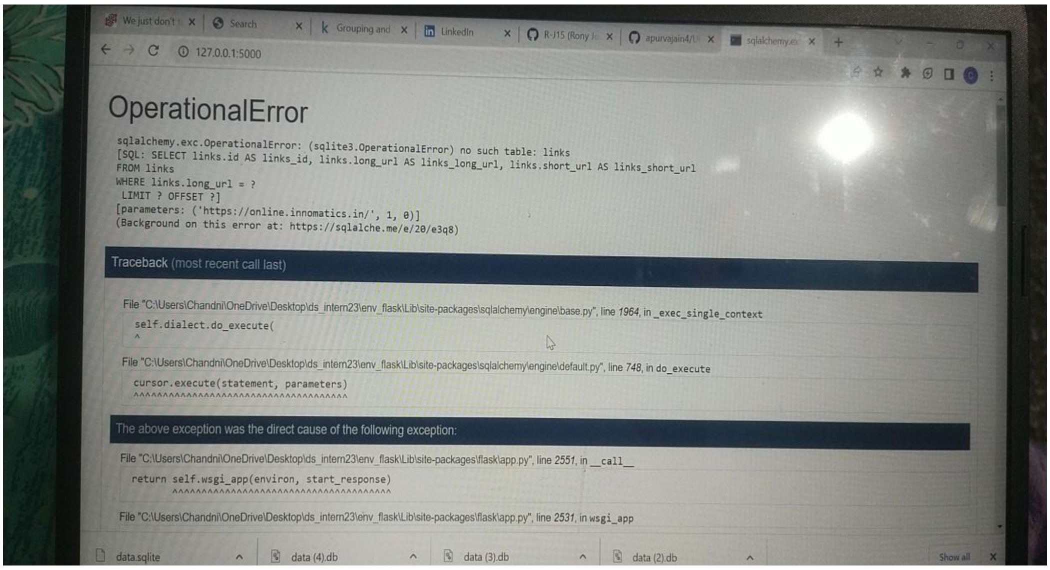
   This route function shows all the entered urls (original url and short url) from databases and show it to you. We can delete it too.
8. Create Final route with redirection function. It redirects the users to that site on which user clicked.
9. Create delete route

   The function of this route will delete the particular row after clicking it.
10. Run the application with debug=True

• HTML Part

1. **Layout.html page**
   It contains the designs and basic code of all the web pages.
2. **Home.html page**
   It inherites the layout.html designs and codes. This page takes original url from user and show the shorten url after clicking on shorten button. User can copy the shorten url from that page too.
3. **Display.html**
   It inherites the layout.html designs and codes. This page shows all the original url with shorten url. We can delete them too.

Errors:



OperationalError

```
sqlalchemy.exc.OperationalError: (sqlite3.OperationalError) no such table: links
[SQL: SELECT links.id AS links_id, links.long_url AS links_long_url, links.short_url AS links_short_url
FROM links
WHERE links.long_url = ?
 LIMIT ? OFFSET ?]
[parameters: ('https://online.innomatics.in/', 1, 0)]
(Background on this error at: https://sqlalche.me/e/20/e3q8)
```

Traceback (most recent call last)

```
File "C:\Users\Chandni\OneDrive\Desktop\ds_intern23\env_flask\Lib\site-packages\sqlalchemy\engine\base.py", line 1964, in _exec_single_context
  self.dialect.do_execute(
  ^
File "C:\Users\Chandni\OneDrive\Desktop\ds_intern23\env_flask\Lib\site-packages\sqlalchemy\engine\default.py", line 748, in do_execute
  cursor.execute(statement, parameters)
  ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
```

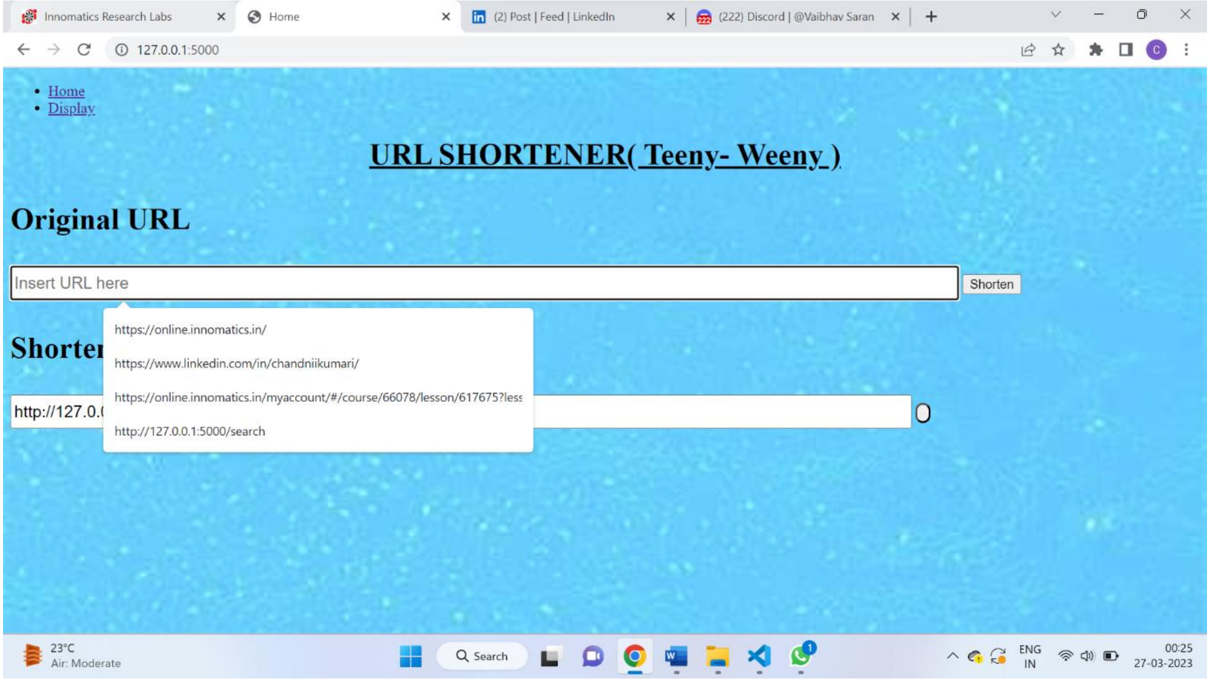
The above exception was the direct cause of the following exception:

```
File "C:\Users\Chandni\OneDrive\Desktop\ds_intern23\env_flask\Lib\site-packages\flask\app.py", line 2551, in __call__
  return self.wsgi_app(environ, start_response)
         ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
File "C:\Users\Chandni\OneDrive\Desktop\ds_intern23\env_flask\Lib\site-packages\flask\app.py", line 2531, in wsgi_app
```

Dozens of error faced today.

Working app:

Home page:



- Home
- Display

URL SHORTENER(Teeny- Weeny)

Original URL

Insert URL here

Shorten

Shorter

http://127.0.(

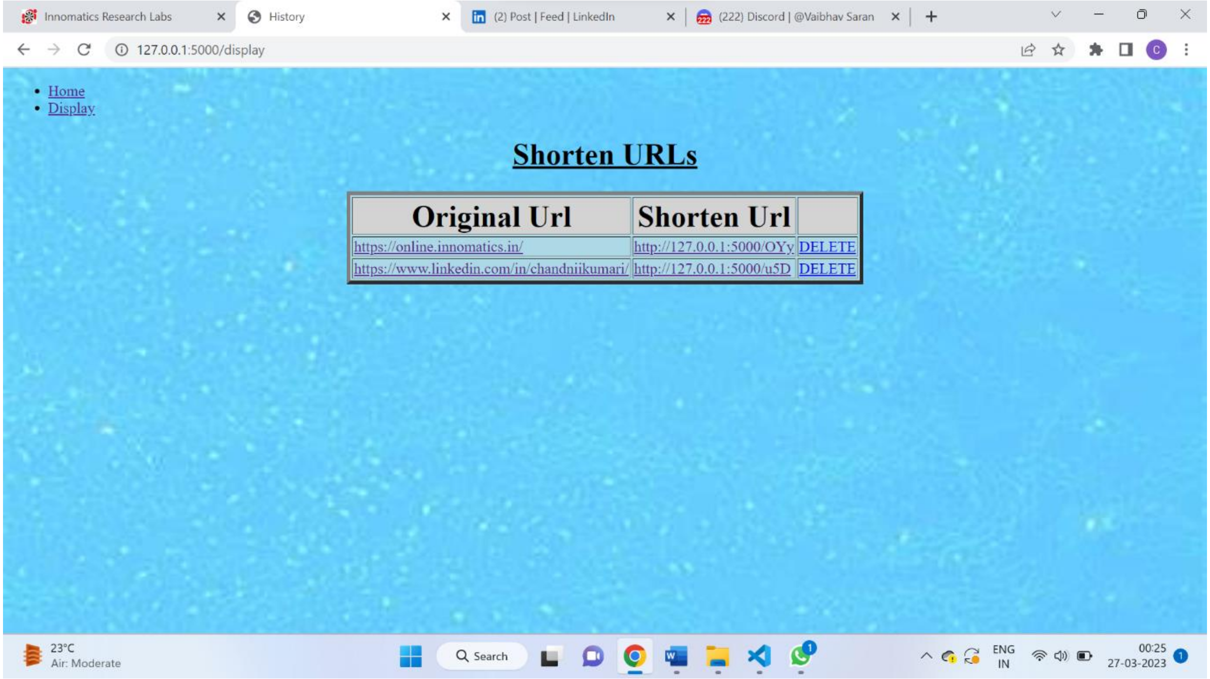
https://online.innomatics.in/

https://www.linkedin.com/in/chandniikumari/

https://online.innomatics.in/myaccount/#/course/66078/lesson/617675?less

http://127.0.0.1:5000/search

Display page:



- Home
- Display

Shorten URLs

Original Url	Shorten Url	
https://online.innomatics.in/	http://127.0.0.1:5000/OYy	DELETE
https://www.linkedin.com/in/chandniikumari/	http://127.0.0.1:5000/u5D	DELETE