

1. The Core Concept

We built a web application where users paste a long URL and instantly get a short, shareable link. We also save these links to a database so users can see a history of what they have shortened.

2. The Tech Stack

- **Backend:** Flask (Python) handles the logic and routing.
- **Database:** SQLite (via SQLAlchemy) stores the original URLs and their corresponding short IDs.
- **Frontend:** HTML & Bootstrap 5 for a responsive, clean user interface without writing custom CSS.
- **Tools:** validators (to check URL validity) and shortuuid (to generate unique random codes).

3. How It Works (The Workflow)

1. **Input:** The user pastes a link on the Home Page.
2. **Validate:** The backend checks if the link is real.
3. **Process:**
 - If valid, the app generates a unique 6-character ID.
 - It saves the Original URL + Short ID into the database.
4. **Output:** The user sees the short link and copies it.
5. **Redirect:** When someone clicks the short link (e.g., [/Xy7z1](#)), the app looks up the ID in the database and automatically redirects them to the original long URL.
6. **History:** The History Page queries the database to list all previously shortened links.

4. Why This Approach?

We chose Flask and SQLite because they are lightweight and require zero setup overhead, making them perfect for a Basic tool. We used Bootstrap to ensure the frontend looked professional.