Project Requirements Document (PRD)

Title: URL Shortener with Custom Codes & Analytics

Overview:

A web application that allows registered users to shorten URLs with an optional custom shortcode. Each user has a personalized dashboard where they can manage their shortened URLs and view analytics like total click counts.

Goals & Objectives:

- Allow users to register and log in to a secure dashboard.
- Let users shorten URLs using custom or auto-generated shortcodes.
- Ensure no duplicate shortcodes exist in the system.
- Track how many times each shortened URL has been accessed.
- Provide each user with a list of their shortened URLs and related statistics.
- Ensure the platform is user-friendly, clean, and responsive.

Target Users:

- Students, freelancers, marketers, and developers
- Age group: 18–35
- Anyone needing link management and analytics

Features

Feature	Description	Priority
User Registration/Login	Allow secure user signup and login to personalize the dashboard	High
Shorten URL	Users can shorten a long URL into a compact link	High
Custom Code Support	Users can optionally input a custom code (e.g., `myproject23`)	High
Prevent Duplicates	Ensure custom shortcodes are unique across the database	High
Click Analytics	Track number of times a shortened URL is visited	High
User Dashboard	Logged-in users can see a list of their shortened URLs and stats	High
Redirection	Redirects users from short link to the original full link	High
Logout	End the user session safely	Medium

UI Styling	Bootstrap-based clean layout	Medium

Functional Requirements

🔐 User Authentication

- Django's built-in auth system (Register, Login, Logout)
- Access control for dashboard views

🔗 URL Shortening

- Input: Long URL + optional shortcode
- Output: Unique shortened URL
- Store in PostgreSQL/SQLite with fields:
  - User (FK)
  - Original URL
  - Shortcode (Auto/Custom)
  - Created Timestamp
  - Click count

📊 Analytics

- Field `clicks` in the model (Integer)
- Each visit increments count before redirecting

💻 Dashboard View

- Shows all links created by logged-in user
- Table with original URL, shortcode, click count, delete option

UI/UX Requirements

- Simple, responsive UI using Bootstrap
- Pages:
  - Home (Shorten URL form)
  - Login/Register
  - Dashboard
- Clean color scheme and intuitive UX

Tech Stack

Layer	Stack
Frontend	HTML5, Bootstrap 5, Django Templating
Backend	Django 5.x, Python 3.12
Database	SQLite (dev), PostgreSQL (prod-ready)
Hosting	Localhost (dev), PythonAnywhere/Render (deploy)

Timeline

Task	Deadline

Requirements Finalized	Day 1
Auth System (Login/Register)	Day 2
URL Shortening Core	Day 3
Dashboard & History View	Day 4
Analytics Click Count	Day 5
Styling & Cleanup	Day 6
Final Testing	Day 7

Success Criteria

- URLs are shortened and unique
- Click count increments properly on every visit
- Users can log in and see their links
- Custom shortcodes are validated and stored
- All key views are mobile-friendly

Deliverables

- ✅ Working App (Localhost or Deployed)
- ✅ Source Code (GitHub)
- ✅ PRD Document (PDF)
- ✅ Screenshots of key views
- ✅ README.md with setup instructions