

Shorty URL Shortener - Design Document

Class Diagram

Class: UrlShortener

- db (MongoDB client)
- + shorten_url(url, user, custom_code)
- + get_url(code)
- + delete_url(code, user)
- + get_user_urls(user)

Class: UserAuthManager

- session (request.user)
- + is_authenticated()
- + get_username()

System Design Overview

Frontend: React Native + Expo (Web & Mobile)

- Handles login via GitHub/Google
- Routes: /login, /create, /analytics
- Uses BACKEND_URL env to call API

Backend: Django + Django REST Framework

- Routes:
 - /api/shorten/
 - /api/analytics/

/accounts/github/login/

/accounts/google/login/

- Auth via Django Allauth
- MongoDB used via pymongo in mongodb.py

Database: MongoDB Atlas

- Stores user short URLs, clicks, timestamps
- Tied to GitHub or Google username

Design Summary

Shorty is a full stack URL shortener app using Django for the backend and React Native (Expo) for the frontend.

MongoDB stores short URLs tied to user accounts authenticated via GitHub or Google OAuth.

Key Design Elements:

- Backend uses encapsulated database logic (mongodb.py) for raw MongoDB access.
- Session-based authentication is handled via Django Allauth.
- Frontend uses Expo web and mobile rendering with environment-aware backend URL switching.

Security:

- All routes protected with Django session auth
- CSRF protection enabled
- Secrets stored in .env files (excluded from repo)

Scalability:

- Backend deployable via Docker on EC2 or Elastic Beanstalk

- Frontend served through S3 + CloudFront