PROJECT PROPOSAL

RetroInsta: A Day-One Instagram Clone

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Table of Contents

Project Abstract

RestroInsta is a photo-sharing social media app where users can upload, edit, and share pictures, interact with others through following, likes, and comments (replicating Instagram's features at launch).

Users create and login to RetroInsta with a Google account, and have individual profiles with usernames, profile pictures, bios, etc. Users have a feed where posts from accounts they follow appear in reverse-chronological order. Each post has an image, a caption (with optional tags), a like button, displays the number of likes, and has a comment section.

Users can upload a photo from their device, apply filters, add a caption/tags, and post it to their profile. Users can interact with posts by liking them, commenting on them, or tapping the poster's username or profile picture to see their profile (where the user can follow them).

Users can also interact with the Explore Page, where the most popular posts of the last 30 minutes will appear.

Conceptual Design

The frontend will be built with React and TypeScript. The backend will be developed using Node.js, Express, and TypeScript, using RESTful APIs for handling authentication, user interactions, and uploads. MongoDB will be the database. Images will be stored in object-based cloud services like AWS S3 or Firebase Storage (or MinIO if self-hosted). Authentication will be managed through JSON Web Tokens for session management. The system will be containerized with Docker and scaled using Kubernetes.

A desktop/mobile app may also be created with Electron.

Proof of Concept

- Clone this Github repo.
- Install Docker. The easiest way is to install Docker Desktop.
- Open Docker Desktop to ensure the Docker daemon/engine is running or do so manually.
- Run the following command from the project's root directory (RetroInsta by default) to build a Docker image and start it in a container: docker compose up.
- Go to http://localhost:5173 to view the website.

Background

RetroInsta aims to clone Instagram's original features, and thus Instagram itself is a similar product. Instagram's feature set has been greatly expanded since launch, including video, messaging, and more (source). RetroInsta will not implement most of these features.

There are other Instagram clones as well (one such example). No code from any other Instagram-like project will be used.

Required Resources

To develop RetroInsta several cloud or server resources will be required. Either a cloud provider, like AWS or Google Cloud, or our own servers will be necessary to host the backend services, database, and object storage. The database can either be hosted via MongoDB on the cloud or self-hosted. The project will be more scalable and applicable to real world development if cloud services are used instead of self-hosted servers.