# Photo Stream

## A Scalable Cloud-Native Media Sharing Web Application

### Overview

PhotoStream is a cloud-based web application that enables users to share and interact with photo-based content. The platform supports two user roles: Creators, who can upload and manage photos, and Consumers, who can browse, search, comment on, and rate photos. The project demonstrates the use of scalable cloud-native architecture, REST API development with FastAPI, CI/CD automation, and cloud deployment in alignment with module requirements.

### Objectives

• Develop a cloud-hosted photo sharing system with Creator and Consumer user roles.

• Build a scalable backend using FastAPI to provide RESTful API functionalities.

• Deploy the system to a cloud platform to demonstrate scalability.

• Implement a CI/CD pipeline for automated deployment and improvement cycles.

• Produce a recorded demo presenting the system's deployment architecture and features.

### System Architecture

The system follows a three-tier cloud-native architecture:

1. Frontend – A web-based user interface for photo uploading (Creators) and browsing/reviewing (Consumers).

2. Backend – FastAPI: The backend will be built using FastAPI to provide REST API endpoints for user management, photo upload, metadata handling, comments, and ratings. Responsible for business logic, API routing, and database communication.

3. Database & Storage – A cloud database will store user information, image metadata, ratings, and comments, while cloud storage will handle photo files.

4. Cloud Deployment & CI/CD – Deployed on a cloud platform (AWS, Azure, GCP, or Render) with GitHub Actions for automated deployment

## Technology Stack

| Component | Technology |
|---|---|
| Backend | FastAPI (Python) |
| Frontend | React.js (or standard web interface) |
| Database | MongoDB Atlas (Cloud Database) |
| Storage | Cloud Object Storage (e.g., AWS S3 or equivalent) |
| Deployment | Cloud Platform required by the module |
| CI/CD | GitHub Actions |
| Version Control | Git + GitHub |

## Deliverables (20-Day Timeline)

| Phase | Duration |
|---|---|
| System Design & Setup | 3 Days |
| Frontend Development | 4 Days |
| FastAPI Backend & Database Integration | 5 Days |
| Cloud Deployment & CI/CD Setup | 4 Days |
| Testing & Documentation | 3 Days |
| Presentation & Demo Video | 1 Day |
| Total Duration | 20 Days |

## Quotation

| Component | Description | Cost |
|---|---|---|
| System Design & Architecture | Designing modules, database & flow | Rs 3,396 |
| Backend + Frontend Development | FastAPI backend + UI + DB integration | Rs 15,848 |
| Cloud Deployment & CI/CD Setup | Deploying system + GitHub Actions | Rs 6,792 |
| Presentation & Demo Video | Slides + recorded 5-min demo video | Rs 2,264 |
| Total Project Cost | Total Development Cost | Rs 28,300 |