Cafe Finder – Dehradun

Project Report

1. Introduction

Cafe culture in Dehradun is growing rapidly, especially among students, professionals, and travelers. However, users often struggle to find the right cafe based on preferences like budget, ambience, or study-friendly environment.

This project aims to build a Cafe Finder Web Application, which will be mobile responsive and help users:
- Discover cafes in Dehradun
- Filter cafes by budget, ratings, distance, and ambience
- View cafes on a map
- Get AI-powered recommendations (similar cafes, personalized suggestions)
- Analyze reviews sentiment to judge the cafe atmosphere

2. Objectives

1. Build a responsive and user-friendly platform to explore cafes in Dehradun.
2. Provide real-time location & map view for users.
3. Implement filters and sorting for better decision-making.
4. Use Machine Learning to enhance recommendations and review insights.
5. Ensure the system is built on free and open-source resources (Google Maps free tier, MongoDB Atlas, scikit-learn, HuggingFace models).

3. Tech Stack

Frontend:
- React.js
- Tailwind CSS
- Leaflet.js

Backend:
- FastAPI (Python)
- REST APIs

Database:
- MongoDB Atlas (Free Tier)
- Schema:
  - Cafe: { name, lat, lon, price_level, rating, tags }
  - User: { preferences, bookmarks }

Machine Learning:
- scikit-learn (Content-based filtering)
- HuggingFace Transformers (Sentiment analysis)
- Pandas, Numpy

Free APIs & Tools:
- Google Places API (free tier)
- OpenStreetMap (Leaflet)
- GitHub
- Vercel/Netlify
- Render/Heroku (free tier)

4. Project Workflow

Phase 1 – Core MVP (Basic Functionality)

Day 1–3
- Implement frontend (React + Tailwind)
- Implement cafe search (by location)
- Show cafes in list + map view
- Cafe detail page (ratings, address, opening hours)

Output: A working Cafe Finder for Dehradun with search & map

Phase 2 – Enhanced User Experience

Day 4–5
- Filters: budget, rating, ambience
- User login + Favorites system
- Content-Based Filtering (cosine similarity)

Output: Users can bookmark cafes and get personalized suggestions

Phase 3 – AI-Powered Features

Day 6–7
- Sentiment Analysis: Analyze reviews
- Popularity Prediction: Mock dataset
- Chatbot (Optional)
- Deploy project

Output: Fully functional AI-powered Cafe Finder specific to Dehradun

5. Why These Features?

Cafe Search + Map → Helps users quickly locate cafes nearby
Filters (Budget, Rating, Ambience) → Every user has different needs
Favorites & Bookmarks → Increases user engagement
Content-Based Filtering → Personalized recommendations
Sentiment Analysis → Saves users from reading lengthy reviews
Popularity Prediction → Helps plan visits during less crowded hours
AI Chatbot → Scalability & innovation

6. Data Collection Plan (Free Resources)

- Google Places API (Free tier) → cafes in Dehradun
- Manually enrich data with tags from Zomato/Google reviews
- Sample reviews dataset for sentiment analysis
- Store in MongoDB Atlas

7. Deliverables (By Next Weekend)

1. Responsive Web App
2. Functional Features – Search, Map, Filters, Bookmarks
3. AI Features – Recommendations + Review Sentiment
4. Deployed Project
5. Documentation

8. Future Scope

- Expand to multiple cities
- Add collaborative filtering
- Mobile App (React Native)
- Partnerships with local cafes