

# What should I build?

There are two ways to consider this question – and you need answers to both aspects:

## Usefulness

Solve the problem of helping users decide where to go for vacation by leveraging AI-driven recommendations based on their preferences and inputs.

Travelers seeking personalized vacation recommendations based on their interests, budget, preferred activities, and other criteria

The platform will output personalized vacation destination recommendations along with relevant details such as attractions, activities, climate information, and accommodation options.

\* What are other aspects you can build that add value?

## Technology

\* What data or inputs do you need?

User preferences (weather, cities, activities)

\* What will be outputted for the user? A location for them to travel to


User inputs are processed by the platform, which uses OpenAI's natural language processing capabilities to understand and analyze the inputs. This information is then matched against a database of vacation destinations and their attributes to generate personalized recommendations.

\* What pieces of technology will your project use (API, database, etc)? SQL database, ChatGPT 3 API, python for logic

# Project Requirements

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Your Week 2 project should use all the skills you learned in Week 1. Specifically...

1. API integration
2. Creation, Querying, and Updating of bases
3. A call to the ChatGPT API and incorporation of the received response
4. Adherence to PEP8 style
5. A clear testing plan and appropriate unit tests
6. Github Continuous Integration Automation for Style Checkers and Unit Tests

## Project Problem Pitch

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Once you have your group and an idea, you will need to create a short pitch deck that includes:

1. Name of Project
2. What problem are you solving?
  - a. 2 sentences
3. Who / What does the project interface with?
  - a. people?
  - b. other systems? (APIs)
  - c. Hardware?
4. What are the inputs?
5. What are the outputs?
6. List 5 steps to go from input -> output
7. What's the biggest risk? **Private user info**
8. How will you know you're successful

VacaQuest aims to solve the challenge of indecision and uncertainty when planning vacations. It provides personalized destination recommendations based on user preferences and interests, streamlining the travel planning process.

VacaQuest will work with travelers seeking vacation recommendations, OpenAI API for natural language processing and recommendation generation, and PostgreSQL for storing user data and destination information.

How will it work? Users will input their preferences such as preferred activities, budget, travel dates, traveling with kids, and any other interests or requirements. Then the platform will generate personalized vacation recommendations including destination options, activities, and travel tips tailored to the user's input.

1. User provides preferences via a web interface.
2. Inputs are sent to the backend server.
3. Backend processes user inputs and queries the PostgreSQL database for relevant destination data.
4. OpenAI API generates personalized recommendations based on user preferences and database insights.
5. Recommendations are displayed to the user via the web interface.

The biggest risk is safeguarding user personal information. The platform will also need to take note of accessibility issues when suggesting vacation locations and activities.

Success will be measured by all the number of recommendations accepted and number of satisfied customers.

# Steps to take

## 1. Define Project Scope and Requirements

**Problem Statement:** Design a platform that recommends vacation destinations based on user preferences using AI-driven analysis.

### Key Features:

- User input interface for preferences (activities, climate, budget, etc.).
- AI-driven recommendation engine powered by OpenAI API.
- Destination details (attractions, accommodations, weather).
- User profile management for personalized recommendations.

## 2. Set Up Development Environment

### Tools and Technologies:

- **Backend:** Python with Flask for API development.
- **Frontend:** HTML/CSS/JavaScript for user interface.
- **Database:** MySQL to store destination and user data.
- **APIs:** OpenAI API for natural language processing, (maybe) weather APIs for climate data, and flight APIs for travel options.

## 3. Design Database Schema

### Tables:

- **Users:** Store user profiles and preferences.
- **Destinations:** Details of vacation spots (name, location, attractions, weather, etc.).
- **Reviews/Ratings:** User feedback for destinations.

## 4. Develop Backend API

### Endpoints:

- `/api/recommendations`: Accepts user preferences and queries OpenAI API for recommendations.
- `/api/destinations`: CRUD operations for managing vacation spots.
- `/api/users`: User authentication, profile management.

## 5. Integrate OpenAI API for Recommendations

### Workflow:

- Receive user inputs (activities, budget, climate preference) via the frontend.
- Send these inputs to the backend API endpoints.
- Use OpenAI API to process user inputs, understand preferences, and generate personalized destination recommendations.
- Combine AI-generated insights with destination database queries to provide comprehensive recommendations.

## 6. Implement Frontend Interface

### User Interface:

- Develop responsive web pages using HTML/CSS/JavaScript.
- Design forms for capturing user preferences.
- Display recommended destinations with detailed information (attractions, weather forecasts).

## 7. Enhance User Experience

### Additional Features:

- Real-time updates on weather conditions and flight availability.
- User reviews and ratings for destinations.
- Itinerary planning tools and travel package suggestions.
- Social sharing options for recommended destinations.

## 8. Testing and Deployment

### Testing:

- Unit tests for backend API endpoints.
- Integration tests to ensure AI-driven recommendations align with user inputs.
- User acceptance testing for frontend usability and performance.

### Deployment:

- Deploy the application on a cloud platform (e.g., AWS, Azure) for scalability.
- Configure continuous integration and deployment pipelines (e.g., GitHub Actions, Jenkins) for automated builds and updates.

## 9. Maintenance and Updates

### Monitoring:

- Monitor application performance, user feedback, and API integrations.
- Regular updates to destination databases and AI models for accurate recommendations.
- Address security vulnerabilities and optimize performance based on user feedback.

By following these steps, you can effectively build a vacation recommendation platform that leverages OpenAI API for intelligent decision-making, enhancing user engagement and satisfaction with personalized travel suggestions.