DIET ROUTINE

1. An appropriate software engineering methodology for my system would be incremental development. The incremental methodology is well suited for projects that require flexibility and adaptability, as it emphasizes collaboration between cross-functional teams, continuous delivery, and rapid prototyping.

a. Context Models:

- Use Case Model:

  - Use Case: Request Personalized Diet Plan

  - Actors: User, Healthcare Provider

  - Description: User requests a personalized diet plan based on their health status and dietary restrictions/recommendations provided by healthcare providers.

- System Context Diagram:

  - External Entities: User, Healthcare Provider

  - Relationships: User interacts with the system to request a personalized diet plan, and the system interacts with the healthcare provider to gather dietary restrictions/recommendations.

- Stakeholder Map:

  - Stakeholders: Users, Healthcare Providers, Development Team

  - Relationships: Users interact with the system, healthcare providers provide dietary recommendations, and the development team builds and maintains the system.

b. Interaction Models:

- Sequence Diagram:

  - Description: This diagram illustrates the sequence of interactions between the user, healthcare provider, and the system when a user requests a personalized diet plan.

- Participants: User, Healthcare Provider, System

- Actions: User provides health symptoms and dietary restrictions, healthcare provider provides recommendations, and the system generates a personalized diet plan.

- Use Case Diagram:

- Use Cases: User Registration, Symptom Checking, Dietary Recommendations, Personalized Diet Plan

- Relationships: User interacts with each use case as needed, and the system coordinates the interactions between the use cases.

c. Structural Models:

- Class Diagram:

- Classes: User, Healthcare Provider, Symptoms, Dietary Restrictions, Food Items

- Relationships: User has health information and dietary preferences, healthcare provider provides recommendations, symptoms guide dietary decisions, and food items contribute to the diet plan.

- Entity-Relationship Diagram:

- Entities: User, Healthcare Provider, Symptoms, Dietary Restrictions, Food Items, Database

- Relationships: User has health information and dietary preferences, healthcare provider provides recommendations, symptoms affect dietary decisions, food items are stored in the database.

d. Behavioral Models:

- Activity Diagram:

- Description: This diagram illustrates the flow of activities when a user requests a personalized diet plan, including symptom checking, dietary recommendation, and diet plan generation.

- States: User Registration, Symptom Checking, Dietary Recommendation, Diet Plan Generation

- Transitions: User progresses through the states based on their actions and system responses.

- State Diagram:

- Description: This diagram represents the different states of the system and how it transitions between them based on user interactions.

- States: User Registration, Symptom Checking, Dietary Recommendation, Diet Plan Generation

- Transitions: User actions trigger transitions between the states.