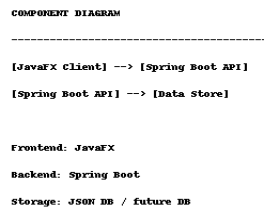# Project Report – Health & Diet Analyzer for Hostel Students

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1. Introduction

This project provides a diet logging and nutritional analysis system for hostel students using a Java-based implementation with optional Spring Boot and JavaFX modules.

2. System Architecture

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COMPONENT DIAGRAM
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[JavaFX Client] --> [Spring Boot API]

[Spring Boot API] --> [Data Store]


Frontend: JavaFX

Backend: Spring Boot

Storage: JSON DB / future DB
```

3. Use Case Diagram

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USE CASE DIAGRAM

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Actor: User


Use Cases:

 - Register/Login

 - Log Meal

 - View Dashboard

 - Get Recommendation


User --> (Register/Login)

User --> (Log Meal)

User --> (View Dashboard)

User --> (Get Recommendation)
```

4. Sequence Diagram

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SEQUENCE DIAGRAM

----------------------------------------

User -> Client: Open App

Client -> Server: POST /meals

Server -> DB: Store meal

DB -> Server: OK

Server -> Client: OK


Client -> Server: GET /summary

Server -> DB: Aggregate

DB -> Server: Totals

Server -> Client: Summary + Risk
```

5. Implementation Summary

The system includes: Java console app, Spring Boot REST API, JavaFX client, diagram set, and structured data storage.

6. Conclusion

The application demonstrates core software engineering principles including modular design, persistence, architecture, UML modelling, and multi-layered implementation.