

## **Individual Report SD**

**Adeeb Imam (Student Number: 23033904)**

### **Project Essence**

For the systems development group project we had the (Scenario A) in which we developed a Feeding Dashboard project which is cross-platform healthcare system that uses machine learning to analyze the patient data from a CSV file and helps the CCU staff to prioritize the dietitian referrals which would enable a faster, accurate and data driven nutrition care.

### **Project Contributions**

For this project my contribution lies in 3 different domains namely: Design, implementation, and group report.

In the design part I was given the responsibility to make the UML diagrams showing that the logical flow and the requirements of the project are fulfilled. Starting from the tools I used ASTAH tools to make them as different types of diagrams exchange crucial information with each other which made it easier for me to create a non-redundant and logical diagram. The first one that I made was the USE-CASE diagram highlighting the features of the different actors and their functional interactions with the system, showing a very high level view of what the system does. Following that I also made the CLASS diagram which is referred as a blueprint of the system as it highlights the different classes along with their different attributes and methods and visualizes the relationship between different classes giving out the logical overview of the system. Following that I also developed the sequence diagram. The sequence diagram illustrates the flow of the system for a specific scenario highlighting how and when do different parts of the system communicate, it also allows you to cross check if your Class diagram is made correctly ensuring all the necessary classes, methods, and attributes are covered. For this design part to work correctly I crossed checked them with my group members to ensure I have not missed anything crucial and also referred back to the requirements multiple times.

In the implementation part I had partnered with Sultan Ali in my group to run different test cases making sure that the necessary and crucial part of the testing is covered. We made sure that each new attribute we added did not effect the working of other attributes and gave us the right feedback on the front-end and back-end. To review all of this we created and reviewed different test cases that validates the systems behavior in realistic conditions. We created 8 different test cases ranging from sign up to Machine learning referrals, each test case illustrated different areas

of the system to be tested like in **TC-01**, we checked whether a valid CSV file uploads and populates the dashboard accurately and in **TC-07**, which related to unauthorized access, by integrating session management and password hashing we made sure that we complied with the data protection in healthcare

In the group report part, I was handed off the group report from my group members Berke and Rehaan. They gave me the initial outline and structure of the report which helped me develop the complete report. For my role in completing the report I took a deep dive in understanding how to effectively find different papers on the CCU and ML topics and take out the crucial information from it. Working on this report helped me improve my ability to present technical ideas in a academic writing.

### Problems Faced

In the design process, I struggled to convert our functional requirements into correct UML diagrams. It took a great deal of time and multiple attempts to grasp the proper representation of relationships in class diagrams and sequence diagrams. I

also struggled at the outset to achieve a balance between completeness and clarity in the diagrams, particularly when representing intricate interactions such as filtering or report generation. In the implementation process was to ensure that the features created would function reliably together with real-world datasets. For instance, integrating CSV upload and filtering needed dealing with inconsistent or missing values, which produced errors in the initial versions. Thus, I needed to find out how to efficiently clean and validate data using Python and Pandas, which was an excellent learning opportunity for me. Debugging the unexpected issues, especially with larger sets, was very time-consuming and required me to improve my problem-solving and testing skills.

### Conclusion

This project improved my design, implementation, and academic writing skills. I gained practical experience with UML diagrams, data validation, and test case development for real healthcare scenarios. Preparation of the group report also improved my research and communication skills. Overcoming difficulties in diagram accuracy and data handling made me a better problem-solver and team player. Overall, this experience has prepared me for future roles in software development, and specifically for high-risk, user-facing domains like healthcare.

## Appendix

### CV

#### Work Experience

Apple Retail UK

08 2024 - Present

*Specialist, Bristol (Cribbs Causeway), UK*

- Successfully transitioned to the Technical Specialist role, leveraging strong problem-solving skills and technical expertise. Will begin in March 2025, focusing on advanced troubleshooting and Apple ecosystem solutions.
- Delivered exceptional customer service to customers by using APPLE steps of service making sure to understand the customer's needs at a deeper level and find the best possible solution for them.
- Guided customers through device configurations, software troubleshooting, and ecosystem integration, ensuring seamless user experience and technical proficiency.
- Actively contributed to multiple product launch events, delivering exceptional customer service in high-traffic environments while maintaining performance excellence under pressure.
- Generated 42 business leads in the last quarter, with 43% classified as high-quality leads and contributing to a 22% business mix. These efforts directly supported the business team in identifying valuable opportunities.
- Maintained an average NPS score of 89, reflecting exceptional customer satisfaction and alignment with Apple's high service standards.

University of the West of England (UWE)

03 2024 - 08 2024

*Student Ambassador, Bristol, United Kingdom*

Represented UWE at various events, supporting prospective and current students by providing guidance, promoting university initiatives, and enhancing student engagement.

- Engaged with prospective students, sharing insights about academic and campus life.
- Delivered impactful presentations to showcase the university's strengths and programs.
- Guided and mentored incoming students, promoting a positive university experience.
- Organized events to facilitate smooth integration for new students, enhancing event coordination and communication skills.

SportChek

07 2022 - 07 2023

*Soft-goods Advisor, Terrace, BC, Canada*

Provided expert guidance to customers in selecting performance footwear, leveraging product knowledge to enhance their experience and drive sales.

- Provided expert advice to customers on product selection, contributing to increased sales
- Achieved personal best sales during peak seasons, selling up to 50 pairs of shoes daily.
- Maintained up-to-date knowledge of products, enabling informed recommendations.
- Improved customer satisfaction by addressing individual needs with tailored solutions

#### EDUCATION

University of the West of England  
Bristol, United Kingdom - BSc Computer Science, 2<sup>nd</sup> Year (Expected year of Graduation 2027)  
Achieved First-Class in Year-1

Coast Mountain College  
Terrace, BC, Canada – Associate Science degree, completed coursework (2019-2021)  
Achieved GPA: 3.33

## PROJECTS

### Cinema Booking System(Ongoing)

- Designed and developed a **scalable cinema booking system** using **OOP principles**.
- Created **UML class diagrams, sequence diagrams, and database models**.
- Developed a **Python-based** backend using Flask, implemented SQL for database management, and optimized performance using indexing and query optimization techniques.
- Used **Git for version control** and **GitHub for collaboration**.

### Hotel Booking Web Project

- Developed a **full-stack hotel booking system**.
- Implemented **Python backend** with SQL database support.
- Integrated **authentication, real-time availability tracking, and dynamic pricing**.
- Implemented a dynamic Role-Based Access Control (RBAC) system using Django's authentication framework and database permission models.

More projects can be found at [adeebimam\\_github](#)

## SKILLS

**Languages:** Hindi, Urdu, and English (All fluent)

**Programming Languages:** Python, HTML, CSS, SQL

**Software Development:** Object-Oriented Programming (OOP), Data Structures & Algorithms (DSA), API Development

**Database & Backend:** SQL, PostgreSQL, Database Design, Query Optimization

**Version Control & CI/CD:** Git, GitHub

**Software & System Design:** UML Diagrams, System Architecture, Design Patterns

**Artificial Intelligence & Machine Learning:** AI/ML Fundamentals (Basic)

**Soft Skills:** Effective Communication, Active Listening, Problem Solving, Critical Thinking, Adaptability, Time Management and Event coordination

### Certifications, Awards and Recognition:

During the quarter of the Apple Intelligence launch, I ranked #1 on the leaderboard, achieving an 80% awareness rate by effectively educating customers on its features and impact.

Awarded the Not Impossible Bronze Award for career research, psychometric testing, and work experience at Illumo Digital, earning commendation for positivity, speaking, and teamwork skills.

Awarded a Gold Medal by the business team for being among the top lead generators of the week.

Earned multiple badges on Apple's Learning app for completing modules and courses, including Apple Intelligence, the September Event, Mac Launch, and more.

## HOBBIES & INTERESTS & OTHER RELEVANT ACTIVITIES

**Student Representative at UWE** – Elected for two consecutive years, advocating for student concerns and facilitating communication between students and faculty.

**Technology Enthusiast** – Staying up to date with the ongoing events in the world of technology, understanding different domains and applications of technology. Specifically keen about AI and ML.

**Community Engagement** – Organized and managed a WhatsApp group during COVID to facilitate communication and technical support for 50+ members.

**Peer Tutor (Calculus I & Linear Algebra)** – Provided academic support to university students, simplifying complex mathematical concepts and improving their understanding.