**Work contribution and Reflection**

Our group project was a collaborative effort involving the design and development of a **Student Profile Management System** and a **Performance Analytics Dashboard**. This system was developed in Python using object-oriented programming, data visualization, and file handling concepts. Each team member was assigned specific roles and responsibilities based on their strengths and interests. The collaboration not only improved our technical skills but also enhanced our ability to communicate and coordinate effectively as a team. Below is a detailed account of each member’s contributions and a reflection on their personal learning experience during the project.

**Member 1 (Yukta): System Design & Authentication**

Yukta led the initial planning and design of the system. They created the foundational structure of the project by designing the User, Admin, and Student classes using object-oriented principles. They implemented the login and authentication mechanism to ensure secure access and defined how different roles (admin/student) interact with the system. She also laid out the folder and file structure and ensured seamless role-based navigation. Their contributions formed the backbone of the entire project. Throughout this process, She developed a deeper understanding of class hierarchies, role segregation, and security in system design.

**Member 2 (Nabina): Admin Functionalities & File Handling**

Nabina was responsible for implementing all administrative operations such as adding, updating, and deleting student records. They handled the interaction between the system and external text files (users.txt, grades.txt, passwords.txt, and eca.txt), ensuring proper read/write operations were performed without errors. They played a key role in testing the admin interface for different edge cases and made sure that changes to records reflected correctly across all files. During the process, she gained strong skills in file I/O, input validation, and maintaining data integrity in multi-file environments.

**Member 3 (Aayushma): Performance Dashboard & Data Visualization**

Aayushma developed the analytics module in Task 2, which focused on visualizing student performance trends and their involvement in extracurricular activities. They created three major features: a line graph of grade trends, a scatter plot showing the correlation between ECA and grades, and a warning system for underperforming students. Using pandas and matplotlib, they transformed raw text file data into insightful visual representations. This enhanced the project's analytical capabilities and made it more interactive. Through this, she developed proficiency in data manipulation and data visualization techniques essential in real-world applications.

**Member 4 (Sadikshya): Report, Presentation & Integration**

Sadikshya handled the documentation and presentation deliverables. They prepared the final written report, designed flowcharts to represent logical flows, and created the PowerPoint presentation for the team’s final submission. Additionally, they worked on integrating Task 1 and Task 2 into a single coherent system, ensuring consistent input/output functionality. They also ensured all modules worked smoothly together and contributed to aesthetic enhancements such as layout planning and output formatting. Their efforts were critical to tying together all parts of the project and presenting it in a professional manner.