Final Report: Development Process and Challenges Faced

1. Introduction

The E-Commerce System was developed as a group project to implement basic e-commerce functionality using C++ and Object-Oriented Programming (OOP) principles. The system allows Admins to manage products and customers to place orders. This report highlights the development process and challenges we faced.

2. Development Process

a. Planning: We began by analyzing the project requirements, which included implementing classes like Admin, Customer, Product, and Order. The system had to handle user management, product management, and order processing using OOP principles.

b. Design: We created class and interaction diagrams to visualize the system's structure. The Admin and Customer classes inherited from the User class, and separate classes for Product and Order were developed.

c. Implementation: The Admin class managed product addition/removal, while the Customer class handled placing orders. We also implemented file I/O to save orders and used exception handling to manage errors during file operations.

d. Integration and Testing: We integrated individual modules and tested them with basic scenarios to ensure everything worked smoothly, including product management, customer orders, and saving orders to a file.

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3. Challenges Faced

a. Understanding OOP Concepts: Some team members struggled with abstract classes and inheritance, especially ensuring the correct implementation of pure virtual functions.

b. File Handling and Exceptions: Handling file I/O, especially appending data and managing file-related exceptions, was challenging and required thorough testing and error handling.

c. Team Coordination: The team faced difficulties in coordinating the work, with different levels of understanding of C++ concepts, leading to delays in some tasks.

d. Debugging: We encountered issues like products not updating the stock or being added to orders. Debugging and ensuring seamless integration took additional time.

e. Time Management: Balancing the project with other academic responsibilities led to some delays, requiring us to adjust our schedule and priorities.

4. Conclusion

Despite the challenges, we successfully developed the system, applying OOP principles and ensuring the program functions as intended. This project improved our understanding of C++ and team collaboration, providing valuable insights into software development.