

Reflection on Developing a Library Seat Reservation System

During my learning journey, I noticed that the library's booking system was cumbersome and unclear, making it both frustrating and time-consuming to use. While studying Python, I was tasked with creating a project of practical significance. The first idea that came to mind was developing a solution to streamline seat reservations for students.

After discussing with my group, we decided to pursue this project. I took the initiative to use GitHub to synchronize our work, and our team assigned me the most challenging task: connecting our program to the internet.

To accomplish this, I needed to handle internet requests. Before tackling my portion, I dedicated time to learning the basics of HTML, CSS, and JavaScript. However, as I began coding, I realized that the typical solutions available online did not provide guidance on logging into our specific library website. This issue led to prolonged debugging as I struggled to identify the root causes. Through this process, I learned about different communication methods used by web browsers and experimented by replacing `request.get` with `request.post`, but without success. I then studied cookies and sessions, yet continued to face challenges. During this debugging phase, I also learned the syntax of try statements in Python, which helped me handle exceptions more effectively and made my code more robust.

As the project deadline approached, I discussed with my teammates the possibility of making requests our "Plan B" and decided to switch from using the requests library to Selenium. Fortunately, the Selenium library enabled me to complete my task more quickly, although I encountered some difficulties. Specifically, another Python file (`main.py`) needed to invoke my file (`test_selenium.py`). However, the function `booking_seats` in `test_selenium.py` relied on the output of another function, `find_available_seats`, which prevented `main.py` from running properly, even though my program successfully completed the booking process. After hours of debugging, I discovered that `main.py` was unable to retrieve the output of `find_available_seats`. I resolved this by making the output variable a class variable, allowing `main.py` to function correctly.

This project was my first opportunity to undertake a practical and technically challenging endeavor. As a student new to programming, this was my first pragmatic Python program. Despite some minor conflicts within our team due to cultural differences, this project was both wonderful and fruitful. I learned a great deal about Python programming, effective teamwork, the importance of selecting the right teammates, and collaborative cooperation.

Moreover, since our seat reservation system is actively being used by students, I recognize the need for continuous improvement, particularly in enhancing its speed and performance. Moving forward, I plan to upgrade the project by optimizing the codebase, implementing more efficient algorithms, and leveraging advanced libraries to ensure faster response times. These enhancements will not only improve user experience but also ensure the system can handle increased usage seamlessly.