Project(Systems & Services) Proposal Submission:

My proposal for the project is to develop a library management system as a website, featuring two user roles: administrators (librarians) and patrons (users). The site will include a registration and login page, enabling users to create accounts, access their respective portals, and log out.

The system will include core features such as book management, user management, search functionality, data visualisation, and a map feature highlighting selected library locations across Ireland. Administrators will have access to a dedicated portal that presents a dashboard for managing books, allowing them to add, edit, and delete entries in the database through user-friendly forms. Patrons will be directed to a separate dashboard where they can manage their accounts, search for books by title, author, or genre, and explore a map showcasing library locations. This design structure ensures both administrators and users have intuitive access to the system's various functionalities.

The website will be developed using frontend technologies such as HTML, CSS, PHP, and JavaScript (with the React framework). The backend will utilise Python, JSON API, GeoJSON, an SQLite database, Java, and the Django framework. The database will be prepopulated with ebooks downloaded from Project Gutenberg to demonstrate the core features of the system. Additionally, the JSON web API will be sourced from Gutendex, enabling the fetching of data from the Gutenberg website. The website will utilise this data to display visualisations on the homepage, highlighting metrics such as book popularity, the number of books by genre, and by author. This information, sourced from the API, updates daily, allowing for dynamic and real-time visualisations.

The project will also utilise additional APIs from data.gov.ie, specifically from the library datasets. These datasets provide information on the locations of various libraries across Ireland. The project will use GeoJSON to visualise these locations on a map, marking them with pins to enhance user navigation and accessibility. The project will fetch 8 APIs from library datasets: Libraries DLR, Wicklow Branch Libraries, Wexford Libraries, Libraries FCC, Libraries - Roscommon, GCC Libraries, Library Services SDCC, cork-city-council-libraries. (API Gateway). The initial scope of the project will be restrained to basic features. If correctly and successfully implemented, the project scope will be expanded to implement additional features.