Functional Design Document

Subtitle

**Introduction**

The Bradford Mechanics Institute Library is looking for a WW1 servicemen and servicewomen database system to allow library visitors to search for historical records and allow administrators to manage and maintain their data. The system will be built around an SQL database, storing 5 separate datasets related to servicemen and servicewomen from Bradford and the surrounding areas. The application will provide two levels of access. Guest access will provide visitors with access to search through and read entries within the database. Administrator access will provide full database control including adding, editing, deleting and downloading records as required.  
The database will be hosted locally on a library laptop and accessed via a front-end web application. This application will not be accessible via any other device.

This specification document is based on the interview we had with the client regarding the functionality required, the data involved and the case in which it will be used.

**Team expertise**Our team is proficient in a wide range of development areas including Python, HTML, JavaScript and CSS. We also have experience working with SQL and group development.

**Non-Functional Requirements**

The software solution we create should meet the following non-functional requirements:

**Usability Requirements**  
The web-based application should be straight forward and simple to use with a clean, cohesive and approachable user interface. While we are following the established colour scheme of the current website, we are aiming to make the application as accessible as possible via the use of contrasting colours for text as well as legible font sizes.

**Performance Requirements**The application should load pages in a short timespan under normal operating conditions. When making a database query, the user should get the results within a similar timeframe, though this may vary between the different database tables that are available.

**Security Requirements**  
The application is only accessible to guests who have received prior permission from institute staff. The guest account is only able to read and search through the database information, while the password protected administrator account can access tools such as add, edit, delete or download. In addition, the application and its database is only accessible on a single machine in the institute with no way to remotely access the application itself.

**Reliability Requirements**The application must be failure resistant and able to handle unexpected errors gracefully and without crashing. In the event a crash does occur, the application should log its errors. The application should also reopen itself in order to prevent unintended access to the host machine. Additionally, the application must ensure that database operations which are perform by administrators are safely conducted and has safeguards from unintended actions.

**Portability Requirements**The application and database should be able to run entirely on a single Windows computer and does not rely on any other network devices. While it will be hosted on a local machine, it is to be expected that down the road the software will be moved to a new Windows host device, hence it should be capable of being set up again with its existing data.

**Availability Requirements**The application and database needs to be available during the institutes opening hours when the host machine is powered on and functioning. System failures should be logged and available for viewing by admin users.

**Scalability Requirements**The database must be able to handle the existing records as well as new records as they are added. The application should also be able to support further changes to the environment, including adding additional users.

**Compatibility Requirements**The application should be able to operate on the majority of modern browsers such as Google Chrome, Mozilla Firefox, Microsoft Edge and more. The database should be able to run on any modern Windows operating system, with the current target being Windows 10 and 11. Additionally, the software should be able to operate seamlessly without the need for any other third-party software beyond the required SQL server software.