### **Project Overview: Water Quality Monitoring Application**

**Objective**: Develop an application to help users query, analyze, and export water quality data for the UK/EU regions.

**Target Audience**: Water companies, government agencies, the World Health Organization (WHO), environmental protection organizations, etc.

### **Core Features:**

1. **Data Query**: Allow users to search for specific water quality information based on time, location, and pollution levels.
2. **Data Export**: Provide functionality to export data for external use.

### **Technical Choices:**

1. **Framework**: The application will be built using the Qt framework.
2. **Fonts**:
   * Primary data will be displayed using the Source Code Pro Regular font, ensuring clarity and readability.
   * Titles and key information will be emphasized with bold and larger font sizes to make them more noticeable.
3. **Colors**:
   * A common and simple color scheme of black (#000000) font on a white (#FFFFFF) background.
   * Alternatively, a softer color combination of gray (#444444) font on an off-white (#F5F5F5) background may be used.

### **Interface Design:**

1. **Entry Point**: Ensure a clear entry point for users starting the application.
2. **Navigation**: Implement an intuitive navigation system within the app.
3. **User Interaction**: Data queries, exports, analysis, and report generation,etc.
4. **Error Handling**: Provide prompts for incorrect user inputs during queries.
5. **Data Presentation**: Enhance readability by paginating data displays.
6. **Exit Mechanism**: Direct close or designated exit button.

### **Data Handling:**

1. **Database**:Choose SQLite for managing complex data due to its proficiency over handling more extensive datasets than CSV.
2. **Database Connection**: Utilize Qt’s MySQL driver, including the correct headers, and establish connections using the QSqlDatabase class.

### **Customer Flow:**

1. **Application Launch**: Users double-click the application icon to open it.
2. **Main Interface**: Upon launching, users are greeted with a clear navigation menu outlining the application's features.
3. **Data Query Interface**: Users navigate to the data query interface where they can input parameters such as time to retrieve relevant water quality data presented in tables or other formats.
4. **Error Handling**: If a user inputs incorrect information during a search, the application provides an error feedback.
5. **Data Export**: In the data query interface, users can export the desired data by clicking an “Export Data” button; the application confirms the successful completion of the task.
6. **Application Closure**: Users close the application by clicking the “Close” button.