

4. REQUIREMENT ANALYSIS

4.1 Functional Requirements

The functional requirements for the "Visualizing and Predicting Heart Diseases using Tableau" project encompass a range of features designed to address the identified problems and achieve the project's goals. These include:

1. Data Integration:
 - The system should allow seamless integration of diverse datasets, including patient demographics, medical history, and lifestyle factors.
 - Ensure compatibility with various data sources to enhance flexibility in data gathering.
2. Interactive Visualization:
 - Develop visually intuitive and interactive dashboards using Tableau to represent complex health data.
 - Enable zooming, filtering, and drill-down functionalities for detailed exploration of data points.
3. Predictive Analytics:
 - Implement machine learning algorithms to predict the likelihood of heart diseases based on integrated datasets.
 - Integrate the predictive model seamlessly into Tableau for real-time analysis.
4. User Authentication and Authorization:
 - Implement secure user authentication mechanisms to control access to sensitive health data.
 - Define user roles and permissions to ensure appropriate levels of access for healthcare professionals and individuals.
5. Personalized Insights:
 - Provide personalized health insights for individual users based on their specific health data.
 - Offer clear visualizations and explanations of the factors contributing to the predictive analysis.

4.2 Non – Functional Requirements

The non-functional requirements for the "Visualizing and Predicting Heart Diseases using Tableau" project define the aspects that are crucial for the system's performance, usability, and security. These include:

1. Performance:
 - Response Time: Ensure that the system provides real-time or near-real-time responses to user queries and interactions with the visualizations.
 - Scalability: The system should be scalable to handle an increasing volume of users and data without compromising performance.
2. Usability:
 - User Interface Design: Design an intuitive and user-friendly interface within Tableau for both healthcare professionals and individual users.
 - Accessibility: Ensure the system is accessible to users with different levels of technical expertise and any potential disabilities.
3. Reliability:

- System Availability: Aim for high availability to ensure that the system is accessible to users whenever they need it.
 - Fault Tolerance: Implement mechanisms to handle system failures gracefully and minimize downtime.
4. Security:
- Data Encryption: Employ strong encryption protocols to secure the transmission and storage of sensitive health data.
 - Access Control: Implement robust access control mechanisms to restrict unauthorized access to health information.
 - Compliance: Ensure compliance with healthcare data protection regulations and standards.
5. Integration:
- Interoperability: Ensure seamless integration with various data sources and electronic health record systems.
 - Compatibility: The system should be compatible with different web browsers and devices for a broader user base.