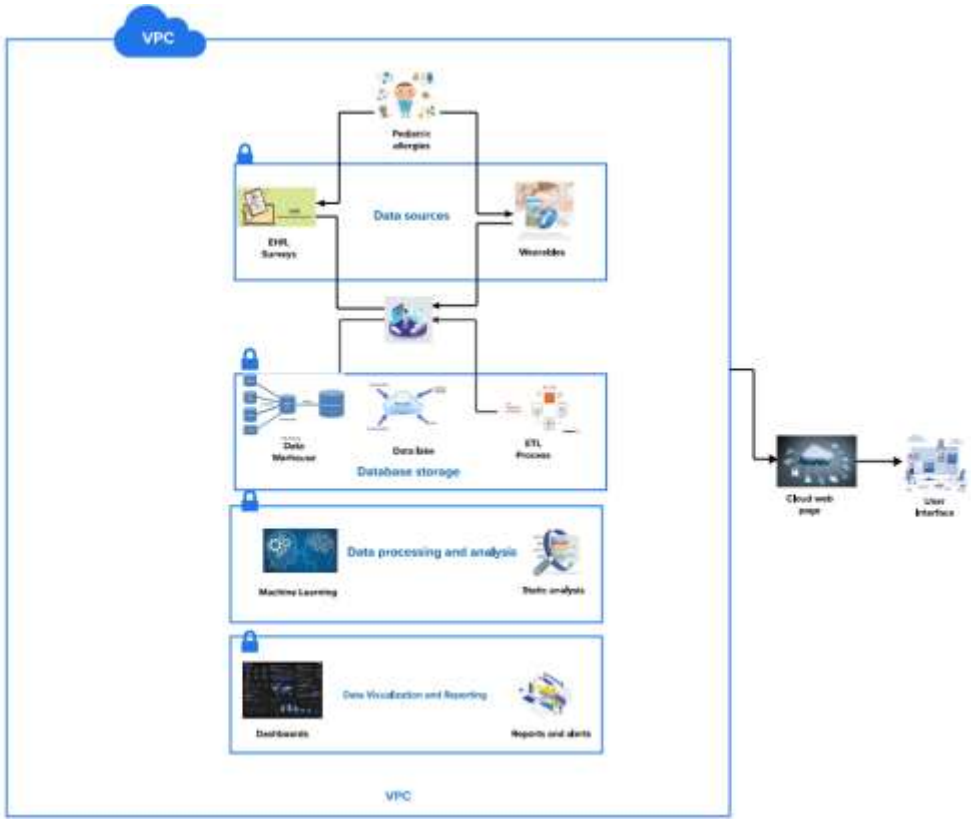
Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	26 October 2023
Team ID	Team- 591194
Project Name	Pediatric Allergies Unveiled: A Tableau Exploration of Prevalence and Demographics
Maximum Marks	4 Marks

Technical Architecture:



Guidelines:

1.Utilize a modular, microservices-based architecture for flexibility and easy maintenance.
2. Ensure reliable data integration and ETL processes to maintain data quality.
3. Leverage cloud services for scalability and cost-efficiency.
4. Implement strong data security measures and comply with data protection regulations.
5. Design for scalability and optimize performance for growing data and user needs.

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	Data Collection	Gathering Pediatric allergy data from various sources	Data Collection Tools and APIs
2.	Data Integration	Combining and integrating data from diverse sources	ETL (Extract, Transform, Load) Tools
3.	Data Cleaning	Ensuring data accuracy and consistency	Data Cleaning and Preprocessing Tools
4.	Data Analysis	Analyzing pediatric allergy prevalence and demographics	Statistical Analysis Tools, Machine Learning Libraries
5.	Visualization	Creating interactive visualizations to present data	Tableau, Power BI, Data Visualization Libraries
6.	Reporting	Generating reports on allergy trends and insights	Reporting Tools, Custom Dashboards
7.	Machine Learning	Implementing machine learning models for predictive analysis	Python, R, Machine Learning Frameworks
8.	Data Security	Ensuring data privacy and compliance with regulations	Data Encryption, Access Control
9.	Performance Optimization	Optimizing analytics processes for efficiency	Performance Tuning Tools
10.	Data Storage	Storing analyzed data for future reference	Databases, Data Warehouses
11.	Collaboration	Facilitating collaboration among data analysts and stakeholders	Collaboration Software, Communication Tools

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	List the open-source frameworks used	HTML, CSS, JavaScript, Tableau, Python, R, etc.
2.	Security Implementations	List all the security / access controls implemented, use of firewalls etc.	Data Encryption, Access Control, Secure Data Transmission, OWASP, etc.
3.	Scalable Architecture	Justify the scalability of architecture (3 – tier, Micro-services)	Cloud Deployment, Modular Design, Scalable Infrastructure, etc.
4.	Availability	Justify the availability of application (e.g. use of load balancers, distributed servers etc.)	Load Balancers, Redundancy, Cloud Services, High Availability Setup, etc.
5.	Performance	Design consideration for the performance of the application (number of requests per sec, use of Cache, use of CDN's) etc.	Caching Mechanisms, Content Delivery Networks (CDNs), Performance Optimization Tools, etc.