Project Design Phase-II
Technology Stack (Stack)

Date	14 OCT 2023
Team ID	NM2023TMID09424
Project Name	Globetrek Insights: Navigating Global Country Data With Ibm Cognos

Architecture:

Client-Side:

Web-Based User Interface: A responsive and user-friendly web-based interface for easy access on various devices.

Mobile Applications: Optional mobile apps for users on the go.

Server-Side: Web Application Server: The core of the system, handling user requests, data processing, and analytics.

Database Server: For storing and managing the vast amount of global country data.

Data Processing Server: Dedicated servers for data analysis and transformation.

Machine Learning Server: If predictive analytics are part of the solution.

APIs: For integrating data from various sources.

ETL (Extract, Transform, Load) Tools: For cleaning and transforming data before analysis.

Data Storage:

Relational Databases: For structured data storage.

NoSQL Databases: For unstructured or semi-structured data.

Data Visualization:

IBM Cognos: For data visualization, reporting, and dashboard creation.

JavaScript Libraries: For enhancing data visualizations on the web interface.

User Authentication and Authorization:

Authentication Services: For user login and registration.

Access Control Lists (ACLs): For controlling data access based on user roles and permissions.

Technology Stack:

Programming Languages:

- **Java or Python: For backend development.**
- **JavaScript: For client-side scripting.**

Web Frameworks:

- **Spring Boot (Java) or Django (Python): For building robust and scalable web applications.**

Frontend Technologies:

- **HTML5, CSS3, JavaScript: For creating a responsive and interactive user interface.**
- **React or Angular: Popular JavaScript frameworks for building dynamic web applications.**

Database Management:

- **MySQL or PostgreSQL: For relational data storage.**
- **MongoDB or Cassandra: For NoSQL data storage.**

Data Processing and Analytics:

- **Apache Hadoop: For distributed data processing and analytics.**
- **Apache Spark: For fast in-memory data processing.**

Machine Learning (If Required):

Python Libraries (scikit-learn, TensorFlow, etc.): For developing machine learning models.

API Integration:

RESTful APIs: For connecting with external data sources.

Data Visualization:

- **IBM Cognos Analytics: For creating visually appealing dashboards and reports.**
- **D3.js or Chart.js: JavaScript libraries for enhancing data visualizations on the web.**

Security and Identity Management:

- **OAuth2 or OpenID Connect: For secure user authentication and authorization.**
- **SSL/TLS: For secure data transmission.**

Deployment:

- **Containerization: Docker for packaging and deploying applications.**
- **Orchestration: Kubernetes for container orchestration.**

Cloud Services (Optional):

- **AWS, Azure, or Google Cloud: For cloud-based deployment and scalability.**
- **Monitoring and Logging:**
- **ELK Stack (Elasticsearch, Logstash, Kibana): For monitoring and log management.**
- **DevOps and CI/CD:**
- **Git, Jenkins, or Travis CI: For version control and continuous integration/continuous deployment.**