MongoDB vs MySQL

What is MongoDB?

- MongoDB is an open-source database developed by MongoDB, Inc.

- MongoDB stores data in JSON-like documents that can vary in structure.

- Related information is stored together for fast query access through the MongoDB query language.

- MongoDB uses dynamic schemas, meaning that you can create records without first defining the structure, such as the fields or the types of their values.

- You can change the structure of records (which we call documents) simply by adding new fields or deleting existing ones.

- This data model give you the ability to represent hierarchical relationships, to store arrays, and other more complex structures easily.

- Documents in a collection need not have an identical set of fields and denormalization of data is common.

- MongoDB was also designed with high availability and scalability in mind, and includes out-of-the-box replication and auto-sharding.

Terminology and Concepts

Many concepts in MySQL have close analogs in MongoDB. This table outlines some of the common concepts in each system.

MySQL	MongoDB
Table	Collection
Row	Document
Column	Field
Joins	Embedded documents, linking

Why use MongoDB instead of MySQL?

Development is simplified:
MongoDB documents map naturally to modern, object-oriented programming languages. Using MongoDB removes the complex object-relational mapping (ORM) layer that translates objects in code to relational tables.

Flexible Data Model
MongoDB's flexible data model also means that your database schema can evolve with business requirements.

Scalability

MongoDB can also be scaled within and across multiple distributed data centers, providing new levels of availability and scalability previously unachievable with relational databases like MySQL. As your deployments grow in terms of data volume and throughput, MongoDB scales easily with no downtime, and without changing your application. In contrast, to achieve scale with MySQL often requires significant, custom engineering work.

Use of Mongo DB in IDP

1. Simulation events are stored in mongo as documents (JSON format) in MongoDB leading to fast storage access and retrieval: Avoiding latency
2. Event structure (i.e. parameters of simulation) can be dynamically set according to type of event
3. Since the events are retrieved as JSON strings which can be easily parse for UI table and chart development
4. AJAX handling are simplified as web components can be separately refreshed for reflecting latest events