Assignment Spark and Cassandra system

Your company is planning to build a big data processing system using Apache Spark and Apache Cassandra technologies. As a member of the architecture team, you are tasked with designing and implementing this system. Your goal is to provide the following features:

1. Real-time data processing: The system should be able to process and analyze large volumes of data in real-time.
2. Scalability: The system should be able to handle increasing volumes of data as the company grows.
3. Fault-tolerance: The system should be able to handle hardware and software failures gracefully without losing data.
4. High availability: The system should be available 24/7 without any downtime.
5. Data consistency: The system should ensure that data is consistent across all nodes in the cluster.
6. Security: The system should provide secure access to data and prevent unauthorized access.

Your task is to design and implement a system that fulfills these requirements using Apache Spark and Apache Cassandra technologies. You should also provide documentation on the architecture, data model, and deployment process for the system.

Deliverables:

1. Architecture design document
2. Data model document
3. Deployment guide document
4. Source code for the system

Evaluation:

Your project will be evaluated based on the following criteria:

1. Architecture design: Is the system well-designed and able to meet the requirements?
2. Data model: Is the data model well-designed and efficient?
3. Implementation: Does the system work as expected?
4. Documentation: Are the documents well-written and informative?
5. Code quality: Is the code well-organized and easy to understand?
6. Scalability and Performance: How well does the system scale with increasing volumes of data and how well does it perform?

Note: You can choose a use case of your choice for this project.