**Samuel Rincon**

**Journal 6**

**Identification and Description of Disruptive Technologies**

**Blockchain Technology**  
Blockchain is a technology that stores data securely through a decentralized ledger system. It was created to support cryptocurrencies, but now it is used in other fields like supply chain management and digital identities. Data is spread across multiple computers, making it almost impossible to hack or alter records. Companies use blockchain to verify transactions and maintain transparency.

For my career in backend development, blockchain means learning new ways to build secure applications. I would need to understand smart contracts, peer-to-peer systems, and encryption. This is exciting because there are increasing opportunities in data security and fintech. Blockchain can impact communities by reducing fraud, offering secure payment options, and improving access to financial services in areas without banks.

**Quantum Computing**  
Quantum computing can process complex calculations much faster than traditional computers. It relies on quantum bits that can represent both 0 and 1 simultaneously. This ability allows quantum computers to solve problems that would take regular computers years to complete. Major companies like IBM and Google are leading research in this area.

Quantum computing will push the limits of computer science. It will change the way encryption works and require us to develop new algorithms that can handle quantum capabilities. For my career, it could mean working with systems that rely on advanced simulations or AI. Quantum breakthroughs can improve areas like drug discovery, helping doctors create new treatments quickly. It could also optimize global supply chains and reduce costs for industries.

**Status Checkpoints Table**

| **Checkpoint** | **Software Design and Engineering** | **Algorithms and Data Structures** | **Databases** |
| --- | --- | --- | --- |
| **Name of Artifact Used** | E-commerce web application | Binary Search Tree Implementation | Animal Shelter Management Dashboard |
| **Status of Initial Enhancement** | Completed authentication and error handling | Optimized traversal algorithms, added balanced tree functionality | Enhanced CRUD operations, added logging, optimized queries, updated Dash callbacks |
| **Submission Status** | Submitted for review | Submitted for review | Submitted for review |
| **Status of Final Enhancement** | Pending revisions | Pending feedback | Completed for Milestone 4 |
| **Uploaded to ePortfolio** | Pending upload | Pending upload | Pending upload |
| **Status of Finalized ePortfolio** | Pending completion | Pending completion | Pending completion |