

SOFTWARE ENGINEERING CS 487

Participation 3

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Q1. Describe 2 systems that you depend on and discuss how reliable you find each to be.

– Explain how this reliability can be formally tested.

– Discuss the engineering of each system which you believe contributes most significantly to its reliability.

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1-Blackboard University App:

Reliability: generally Reliable for facilitating online education and collaboration.

Formal testing: Testing methods such as regression testing, usability testing and load testing also regular security audits to ensure data integrity and user privacy.

Engineering Contribution: Redundancy, failover mechanisms, seamless integration and continuous performance monitoring enhance overall system reliability.

2-Divvy Bikes Chicago App:

Reliability: generally dependable for bike-sharing services.

Formal Testing: usability, transaction and security ensure reliability

Engineering Contribution: well designed for real-time transactions, error handling mechanisms and continuous monitoring enhance overall reliability.

Q2. What is the “value” of reliability?, and how can we measure it / test for it? Discuss in terms of nonfunctional requirements and associated test cases.

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It guarantees constant system performance, user happiness and trustworthiness, reliability offers a great amount of value.

Measuring and Testing

1. Availability Test Case:

- Uptime and downtime measurement.
- Peak Load simulations
- Failover and redundancy assessments

2. Performance Test Cases:

- Load testing for various user loads
- Response time evaluation
- Throughput and latency measurement

3. Fault Tolerance Test cases:

- Simulated fault scenarios.
- Error handling and recovery assessments
- Data integrity check after unexpected events

4. Scalability Test Cases:

- Gradual increase in user load.
- Impact on response time and resource usage.

Q3.Discuss the role of user awareness in the runtime state of a system's reliability.

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User awareness directly impacts the runtime state of a system's reliability by influencing user perception, enabling timely issue reporting and checking adaptive user behavior. Prioritizing user education and transparent communication strategies is crucial for optimizing the positive impact of user awareness on system reliability.