Overview

Database administrators and programmers who are building software or websites that will rely upon a database must be able to make informed decisions about locking strategies and transaction isolation levels. This assignment will give you the opportunity to reflect on each of these critical databases administration considerations.

Tasks

1. Choose one of the following web-based organizations:
   - Wikipedia.org
   - PayPal.com

   Consider the primary objective of your chosen organization's website and form a consensus in your group about the types and relative quantities of interactions (i.e., SELECTs, INSERTs, UPDATEs, and DELETEs) that users are likely to have with the organization's underlying database. With these considerations in mind, answer the following question in 250 words or less. Be sure to justify your answer:

   Which locking strategy is most appropriate for your organization's database, optimistic locking or pessimistic locking?

2. The ANSI SQL standard defines four transaction isolation levels, namely:
   - READ UNCOMMITTED
   - READ COMMITTED
   - REPEATABLE READ
   - SERIALIZABLE

   These isolation levels are differentiated from each other according to whether they allow or disallow dirty reads, nonrepeatable reads, and phantom reads. Consider the matrix below in which the three concurrency control problems are contrasted with the four transaction isolation levels. A check mark (✓) in a cell indicates that a concurrency control problem is allowed within the associated isolation level.

	Dirty Read	Nonrepeatable Read	Phantom Read
Read Uncommitted	✓	✓	✓
Read Committed		✓	✓
Repeatable Read			✓
Serializable			

   Investigate these isolation levels in your group, and then answer the following question in 250 words or less. Be sure to justify your answer:

Which transaction isolation level should be used by default for your chosen organization's relational database?

Please type your answers in a Microsoft Word document using a 12-point, sans-serif font with double-spacing and 1-inch margins.

Deliverables

To ensure that you receive credit for this assignment, please complete the following tasks:

1. Complete the Group Assignment Participation Form for this assignment (available on the course website). **Each group member who contributed to the assignment should complete this task.**
2. Assemble your group's responses to Tasks 1 and 2 above into a single Word document. After creating your Word document, submit the file using the appropriate link on the course website. **Each group should submit just one file.**