**FINAL EXAM**

**Hien Tu – tun1**

**Question 1**

**Q1.1.**

* SQL does not know what a NULL value means
* Comparing with a NULL value has an *unknown* result
* SQL does not know whether that *unknown* is true or false
* A = NULL 🡪 unknown
* NULL = A 🡪 unknown
* A <> NULL 🡪 unknown
* NULL <> A 🡪 unknown
* Rules for **AND**
  + A **AND** true = A
  + A **AND** false = false
  + unknown **AND** unknown = unknown
* Rules for **OR**
  + A **OR** true = true
  + A **OR** false = A
  + unknown **OR** unknown = unknown
* Rules for **NOT**
  + **NOT** true = false
  + **NOT** false = true
  + **NOT** unknown = unknown

**Q1.2.**

Dirty read is when a transaction can read uncommitted data by another transaction.

An example is in page 76/195 in Part 8 of lecture slides.

Schedule

|  |  |
| --- | --- |
| Read(A) |  |
|  | Read(A) |
|  | Write(A) |
|  | Read(E) |
|  | Write(E) |
|  | Commit |
| (A) |  |
| Read(B) |  |
| (B) |  |
| Commit |  |

Instance (initial)

|  |  |
| --- | --- |
| A | $500 |
| B | $800 |
| E | $0 |

Instance (final)

|  |  |
| --- | --- |
| A | $900 |
| B | $400 |
| E | $300 |