DA 320 Assignment 3 M. Blanco

**Part 1: Short Answers (use 3-5 lines to answer the following questions)**

**Problem 1:** Discuss how relational databases allow for a very flexible model for storing and querying data.

The relational database model provides an accessible interface to complex data problems and a method for unlocking the value of data. Relation database are ACID compliant which ensures that inserts must be all or nothing (not partial), the state of database is the same at any given time, one transaction does not affect another, and if system goes down the database will revert to the last state. Relational database provides flexible data query through SQL.

**Problem 2:** Discuss the reasons that the relational database concept became the dominant form of data management.

One of the reasons is that relational database strives to provide a great deal of data consistency but does not scale well when size the gets very large. Highly normalized guarantees change in only one place.

**Problem 3:** Discuss the advantages and disadvantages of the key-value store.

The following is a list advantages: performance and easy to scale and replicate.

The following is a list disadvantages: data cannot be accessed by value, cannot use query techniques common to relational databases, and difficult to enforce transaction

**Problem 4:**Explain why the table below is not considered relational.

|  |  |  |
| --- | --- | --- |
| A | B | A |
| 1 | 2 | 3 |
|  | 4 | 5 |
| 6 | 7 | 8 |
| 9 | 9 | ? |
| 1 | 2 | 3 |

To be considered relational individuals records must be expressed in “tuples”, table be normalized, and a primary key assigned.

1. Two columns (field) with same name (“A”). Repeating groups of fields is a violation of 1NF.
2. First column “A” has missing value in row 2 and a repeating value in row 1 and 6. If first column “A” is a primary key then this violates relational database rule.
3. First column “A” has missing. A null market was not used.
4. There is not unique ID (primary key)
5. Third column “A” has Inconsistent value.

**Part 2: Problem 5:** Learn how to use Redis by performing the tutoring found at <http://try.redis.io/> and answer the following questions

1. What is the command to store the value “30” at key “student\_age”?

**SET student\_age 30**

1. What is the command to increment the number stored at “student\_age”?

[**INCR student\_age**](http://try.redis.io/#run)

1. Suppose we have a list of students:

1) “Tom”, 2) “Jerry”, 3) “David”, 4) “John”, 5) “Charlie

Write Redis command that replace “David” by “William” Hint: Read <http://redis.io/commands/lset>

[**LSET students 2 "William"**](http://try.redis.io/#run)

**Part 3:** Save your file as ***DA320\_Assignment3\_XXXXX.docx (or .pdf)*** where ***XXXXX*** is the first five letters of your last name, and submit it online.