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Database Management

March 23, 2015

**Part One:**

1. A computer (uniquely identified by a Tag Number) can have multiple software packages installed and Package software (uniquely identified by a Package ID) can be installed on numerous computers. By looking at this alone, we know that we have a many to many relationship which already tells us that there is a high potential for duplicate data in the table. This can be a really big issue because if we needed to update a value in the table, let’s say that one of the software packages was revamped and has a new Package ID, we would need to update in the table everywhere there is an instance of the older software Package ID. This, along with the risk of duplication, leaves room for inconsistent data which kills the purpose of us trying to store data in a database. If the information is not accurate, why even bother?



1. The primary key would be the composite key of Tag Number and Package ID because it uniquely identifies each entry of data that Kramerica Enterprises has provided.

**Part Two:**





1. The new table is **not** in third normal form because the primary key for this table is the Tag Number but if you look at the second dependency in that awesome table above (question 5), we see that the is functionally dependent on . This means that the primary key does not provide facts about the Package Name and this violates the third normal form. The golden rule is

 (Literally written in gold or what I hope is gold).

**Part 3:**









1. The new tables are in third normal form because in the , the Computer Model is completely dependent on the Tag Number and the Tag Number can uniquely identify each column and row in the table. The same goes for the. Package Names are completely dependent on the Package ID. With the , the Tag Number alone is not a strong enough primary key to identify each column of information in the entire table as well as the Package ID, but with a composite key of both the Tag Number and Package ID, we can uniquely identify each row and column in the table and have full dependency on the composite key.

