BCPR203 Database Management Systems

Assignment One:

Signal Tester Log Database Analysis

for Vector Advanced Metering Services (AMS)

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# Introduction

antennaTestType ENUM('Blade', 'Whip', 'Blade&Whip'), the test equipment has ability to test blade and whip antennas at the same. Although vector has not tested both antennas at the same time, there are possibility that vector will test both antennas at the same time in the future. Therefore, a data of 'Blade&Whip' is included in the ENUM of antennaTestType attribute in Test Table

A constraint of NOT NULL AUTO\_INCREMENT was added in the attributes such as thresholdId in Threshold Table, testId in Test Table and BtSigId in BluetoothSignal Table. A constraint of NOT NULL was added in the attributes testId in Test Table (not auto-increment for prevent mis-match between PK and FK).

A constraint of NOT NULL was added in the attributes testId in Test Table and Job Table.

The attribute testId in Job Table was set to be Unique Key, Foreign Key and part of the composite primary key.

All PK and FK and UK are set as NOT NULL.

# Data Cleansing

antennaTestType: Blade and/or Whip

Signal Result Vodafone Blade: Fail

Signal Result Vodafone Whip: Fail (fake fail) fail is because the test was not done but not really a fail (correct the data to ‘NotTested’)

Signal Result Telstra Blade: Pass

Signal Result Telstra Blade: Fail (it should be whip)

Signal Result External Modem: Fail (add a Denied) Vector answer: These corresponds to the network status of the modem. Sometimes I noticed the signal failed and it is not due to poor signal, but the network rejects the modem from registering.

For RSSI, RSCP & RSRP, Data cleansing is required. Some values of zero are not because the tests got zero but because the tests were not conducted or the network was denied. For these cases, the zero will be changed to Null.

For RSSI, RSCP & RSRP, Client required to round the numerical values to 2 decimal points

For Timeout, Data cleansing is required. Some values of False are not because the tests got False but because the tests were not conducted. For these cases, the False will be changed to Null.

For Network attributes (5 similar items), Data cleansing is required. Values of Unknown were because the networks were not used or the connections were denied. The unknown values were changed to NULL if not tested or Denied accordingly

Raw Array Vodafone Blade: [] Empty arrays are not inserted into RawData table

Found 16 data in 2.txt file and 5.txt file

Frequency number I ??????? in 4.txt and don’t know the network provider

Address the null used in the missing of GPS value

My git <https://github.com/harrykhlo/DatabaseAnalysis>

# Database Normalisation

## 1st Normalised Form

### Primary Key

A composite primary key consisting of the Bluetooth Name, the Work Order and the Date is chosen to represent an entire individual signal tester logfile. For convenient propose, a primary key named JobId is introduced to represent this composite key. The representatives (Andy and Marco, named representatives hereinafter) from Vector mentioned that the Bluetooth Name in the logfile is unique and the combination of the Work Order and Date in the logfile is unique too.

### Partial Dependency

### Transitive Dependency

## 2nd Normalised Form

## 3rd Normalised Form

# Entity Relationship Diagram

## Identify Entity Relationship

## Data Dictionary

# Suggestions

dataNature attribute in the RawData Table is a composite attribute can be separated, then the database size can be reduced.