Week 8 Activity Instruction

Purpose

The purpose of this activity is for students to become familiar with Call Charge Records and using tools to visualise mobile phone communications based on telco-provided data:

- Graphviz to create various types of network diagrams;
- GIS tools such as Google MyMaps and QGIS to plot a phones's geographical movement.

NOTE: due to the sensitive nature of telco-provided data and metadata, only publicly available data can be used. In this activity we are limiting it to material published by the Northern Territory Government[1].

Preparatory work

Telco-provided data is almost always provided as a PDF or TIFF image. Access the Call Charge Records provided by Telstra to the Stella Maris inquiry i.e. 110.pdf.

Convert the CCR (i.e. pages 4 to 15) into a usable format using OCR tools. For a real case, you would use tools that maintain the confidentiality of the scanned data. I use a high-quality scanner with built-in OCR. For the activity, you will use free OCR tools on the Internet – your tutor will provide guidance on these. The outcome should be a CSV file which you would then construct a spreadsheet, either Microsoft Excel or OpenOffice.

Graphviz

From your spreadsheet, construct columns with:

- Mobile number;
- Number dialled (you will need to clean the data);
- Total secs.

Create the following layouts: DOT, FDP/SFDP, OSAGE, CIRCO. Play around by grouping the data in different ways e.g. by number of calls, by time spent etc

Google MyMaps & QGIS

Use one of the GIS tools (i.e. Google My Maps or QGIS) to create a map of the phone's, and thus the person's), journey across the billing periods. For the purpose of the activity, you can assume that the "Origin" corresponds to a town/suburb e.g. Camooweal, TennantTown, Daly Waters, etc. You may find it easier to break this down by each monthly billing period.

Repeat the exercise using the other GIS.

[1] See http://stellamarisinquiry.nt.gov.au/documents/bibliography/110.pdf

Assessment

- up to 1 mark – At least 2 of the Graphviz layouts;
- up to 1 mark – A map showing the journey of the mobile phone based on the CCR;
- up to ½ mark – Another map showing the journey of the mobile phone based on the CCR.