Child Support Case Management Predictive Analytics

Issues & Objectives

➢ Child support cases - involving the payment of support by one parent - are ranked on a scale of 1 (full payment) to 5 (no payment)
➢ The project objective is to predict the collection category of cases based on its past payment pattern and various attributes

Solution

➢ Multinomial Logistics Regression technique was used to build the predictive models
➢ Models were developed for 4 major states in the United States.

Challenges

➢ Extremely large data – Approx. 300,000 cases per month
➢ Available data and relevant variables differ from state to state. Predictive models built for four states so far
➢ Collection categories definition

Results

➢ The accuracy of prediction for a dataset of 12 months was 71–83%.

Sr. No.	Month	Correct Classification
1	Feb-13	83%
2	Mar-13	77%
3	Apr-13	77%
4	May-13	71%
5	Jun-13	80%
6	Jul-13	74%

The project was implemented for 4 major US states. There are two parents in every child support case. One is the Custodial Parent (CP) – the parent who lives with the child the majority of the time and has the primary day-to-day responsibility; the other is the Non-Custodial Parent (NCP) who also has important responsibilities. An aggrieved CP may appeal to the state to enforce child support by the NCP.

Smart Analysis on Bus Transportation System

Issues & Objectives

➤ Transport regulatory authority in Singapore commissioned a system to:
- ❖ Automatically discover wrong fare incidents and flag commuter's cards affected by wrong fare charging; and
- ❖ Detect emerging fault trends in fare collection equipment so that corrective action could be taken in a timely manner

Solution

➤ Data Storage: Hadoop and MySQL
➤ Query Tools: Hive and SQL
➤ Algorithms: rmr (Parallel versions of R) and Java
➤ Reporting and Dashboards: Pentaho

Challenges

➤ Large data 15 million transactions per day, which translates to more than 5 billion historical transactions in a year needs to be processed to identify fault patterns and trends
➤ The data consisted of financial, operations, transit and events data of buses

Results

Robust solution in use for over 2 years allows pro-active rather than reactive maintenance