Phone Bill Analyser

COMP8780 – Information and Human Centred Computing Project

Implementation Project

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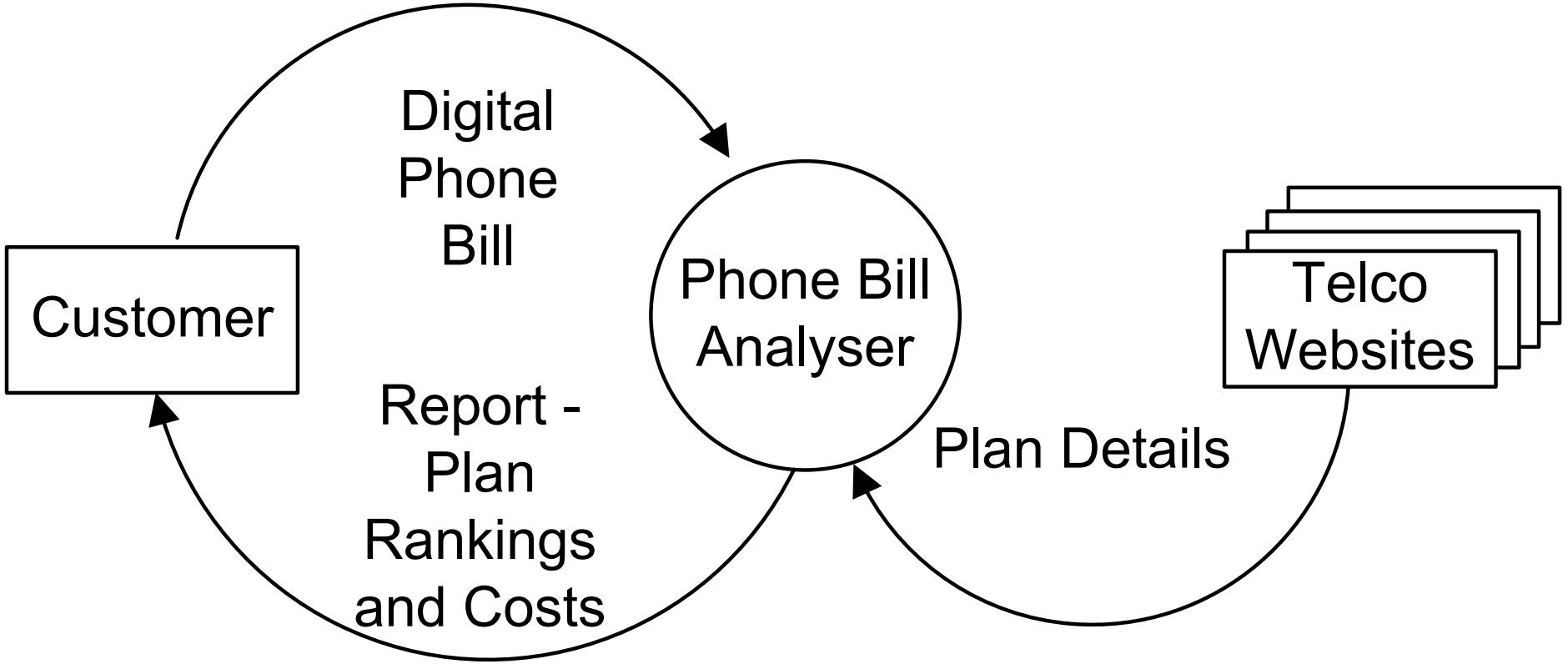
Context Diagram



Problems Finding the Best Plan

- Too many options
  - 302 Australian telephone service providers[1]
  - Assuming 5 plans per service provider, 1,510 plans
- Too many calculations
  - Assuming 50 calls per month, ~75,500 calculations
- Limitations of existing systems
- How to predict future call activity
- Unclear/ tricky conditions

[1] Telecommunications Industry Ombudsman

Example Plans – Conditions[2]

Plan	Plan A	Plan B
Access Fee	$49.95	$49
Includes	National calls capped at $1.50 for 20 mins	$300 worth of national calls
National calls	20c/min	40c per 30 seconds

[2] Adapted from Optus Website

Example Plans – Assumptions

Plan	Plan A	Plan B
Access Fee	$49.95	$49
Includes	National calls capped at $1.50 for 20 mins	$300 worth of national calls
National calls	20c/min	40c per 30 seconds
Example Comparison		
Assumptions		
	1 call per day	1 call per day

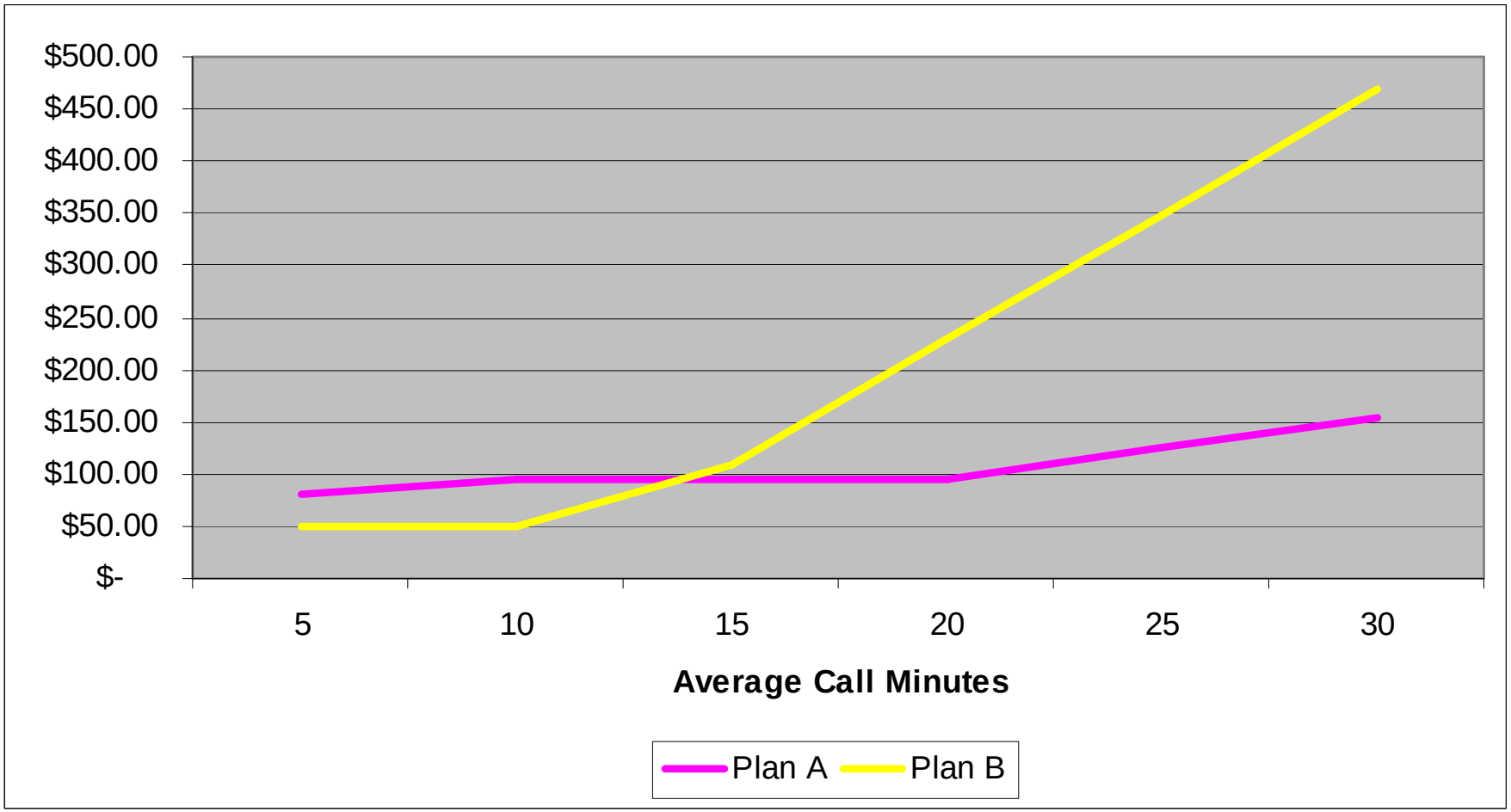
Example Plans – Call Durations

Plan	Plan A	Plan B
Access Fee	$49.95	$49
Includes	National calls capped at $1.50 for 20 mins	$300 worth of national calls
National calls	20c/min	40c per 30 seconds
Example Comparison		
Assumptions		
	1 call per day	1 call per day
Call Duration (Minutes)		
5		
10		
15		
20		
25		
30		

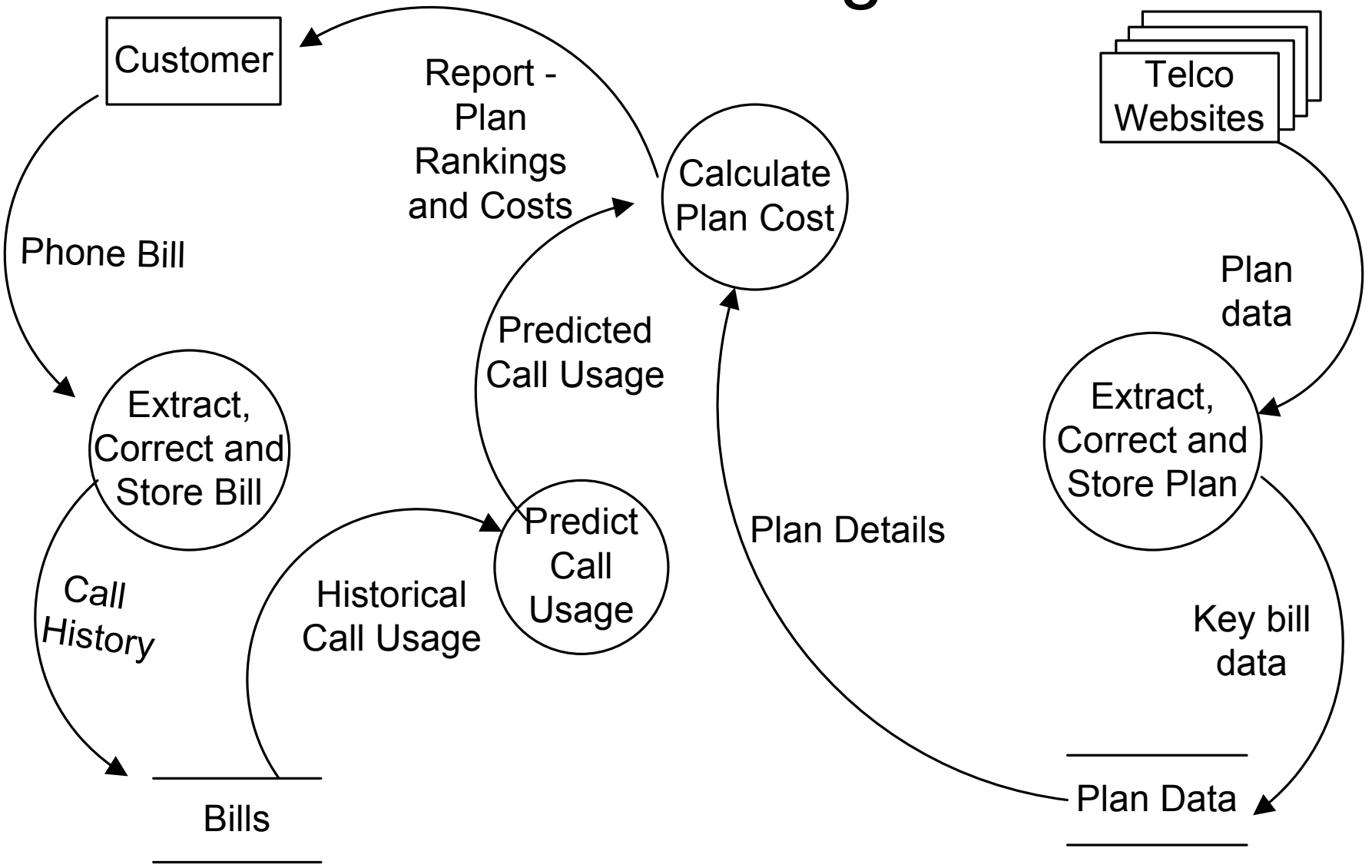
Example Plans - Costs

Plan	Plan A	Plan B
Access Fee	$49.95	$49
Includes	National calls capped at $1.50 for 20 mins	$300 worth of national calls
National calls	20c/min	40c per 30 seconds
Example Comparison		
Assumptions		
	1 call per day	1 call per day
Call Duration (Minutes)		
5	$ 79.95	$ 49.00
10	$ 94.95	$ 49.00
15	$ 94.95	$ 109.00
20	$ 94.95	$ 229.00
25	$ 124.95	$ 349.00
30	$ 154.95	$ 469.00

Example Plans – Cost Graph



Data Flow Diagram



Scope of COMP8780 Project

In	Out	TBD
- Calculator - Predictor - Data-store - Test data generator -Manual plan and bill data extraction -Major telcos	- Real bills -Plan wrapper generation - Automated bill data extraction (including OCR) -Medium – Small telcos -International calls	- Types of data mining

Potential Types of Data Mining

- Plan selection/ scoring – rule-based, clustering, categorisation
- Usage prediction – time-series analysis, seasonal adjustment, effect of plan conditions on call patterns
- Linkage – match customers, standardise call types
- Plan data extraction – supervised or automatic wrapper generation

Post-COMP8780 Work

- Complete rest of system
- Provide access to public
- Enhance data mining sophistication

Full References

- [1] Telecommunications Industry Ombudsman, 2009, *Search Members List*, http://www.tio.com.au/aboutmembership/searchmembers.htm, downloaded 16 March 2009.
- [2] Optus, 2009, *Home Phone Plans,* http://personal.optus.com.au/web/ocaportal.portal?_nfpb=true&_pageLabel=Template_woRHS&FP=/personal/homephone/homephoneplans/compareallhomephoneplans&site=personal, downloaded 16 March 2009.