

Sequence Analysis

items sequences of events (one per savings card)

similarity edit-distance of two sequences
(how many insertions/deletions/reversals
are needed to transform one into the other)

clustering based on similarity yields

- likely **travel groups**
(use ID and time of use to verify)
- popular **patterns of card usage**

Travel Groups

Typical example:

card ID	type	event sequence
42140947129	adult	88 126 24 126 93 132 20 139 138 172 172 173 172 155 123 121 151 92
42140947130	adult	88 126 24 126 132 93 20 139 138 172 172 173 172 155 12 123 121 151 92
42221201127	child	88 126 24 126 93 132 20 139 138 184 172 172 173 172 155 12 123 121 151 92
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- mostly 1–2 adults with 0–3 children
(frequently – but not necessarily – consecutive IDs for cards of same type)
- some mid-size groups of adults, pairs of families
- very few singles
- very few larger groups of children

Analyze Observable Patterns of Usage

(sorry for not providing figures and easy-to-imagine cool graphics)

- geographic focus
 - groups working their way from A to B
 - groups cycling back to point of arrival
 - groups doing excursions from a single place
- social focus
 - groups splitting up for certain events
 - children doing extras
- event focus
 - likely preceding events
 - likely subsequent events
 - recurrences

How did the Flintstones spend their vacation? (15–24 Aug 1999, in or near Mittersill)

two adults (cards 41021458100 and -101), one child (card 29220857107)

Sunday			4:23pm	public pool Mittersill
Monday	11:11am	wildlife park Fusch-Ferleiten	5:56pm	public pool Mittersill
Tuesday	11:47am	national park Kolm Saigurn	8:07pm	public pool Mittersill
	2:25pm	gold washing Bodenhaus (child only)		
Wednesday	10:48am	water falls Krimml		
Thursday			6:15pm	public pool Mittersill
Friday			6:05pm	public pool Mittersill
Saturday	1:56pm	train (glacier Weißsee)		
Sunday	1:41pm	train (Schloßalmbahn)		
Monday			12:32pm	public pool Mittersill
Tuesday	10:32am	Mozart: place of living (Salzburg)		
	11:38am	Mozart: place of birth (Salzburg)		
	12:34pm	Hohensalzburg fortress (two sections)		
	1:50pm	House of Nature (Salzburg)		

total savings 5475 ATS (net: 4235 ATS)

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recommendation: non-consecutive IDs, record only order (neither time nor date)