repex - separating date time

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Contents

Example data

Table 1: Example data

	driver	ping_time	ping_id
1	bar	2015-05-27 16:12:00	1
2	bar	2015-05-27 16:31:00	2
3	bar	2015-05-27 16:39:00	3
4	bar	2015-05-27 16:53:00	4
5	bar	2015-05-27 17:29:00	5
6	bar	2015-05-27 17:41:00	6
7	bar	2015-05-27 17:58:00	7
8	bar	2015-05-27 18:09:00	8
9	bar	2015-05-27 18:23:00	9
10	bar	2015-05-27 18:43:00	10
11	bar	2015-05-27 20:51:00	11
12	foo	2015-05-27 07:11:00	12
13	foo	2015-05-27 07:25:00	13
14	foo	2015-05-27 07:35:00	14
15	foo	2015-05-27 07:42:00	15
16	foo	2015-05-27 07:53:00	16
17	foo	2015-05-27 08:09:00	17
18	foo	2015-05-27 08:23:00	18
19	foo	2015-05-27 08:39:00	19
20	foo	2015-05-27 08:52:00	20
21	foo	2015-05-27 09:12:00	21
22	foo	2015-05-27 10:25:00	22

1 Solution 1: floor cumulative time

1.1 Separate ping using `flag0`

Table 2: Flagged ping data (solution 1)

	ping_id	driver	ping_time	diff	cum_mins	flag0
1	1	bar	2015-05-27 16:12:00	0	0	0
2	2	bar	2015-05-27 16:31:00	19	19	0
3	3	bar	2015-05-27 16:39:00	8	27	0
4	4	bar	2015-05-27 16:53:00	14	41	1
5	5	bar	2015-05-27 17:29:00	36	77	2
6	6	bar	2015-05-27 17:41:00	12	89	2
7	7	bar	2015-05-27 17:58:00	17	106	3
8	8	bar	2015-05-27 18:09:00	11	117	3
9	9	bar	2015-05-27 18:23:00	14	131	4
10	10	bar	2015-05-27 18:43:00	20	151	5
11	11	bar	2015-05-27 20:51:00	128	279	9
12	12	foo	2015-05-27 07:11:00	0	0	0
13	13	foo	2015-05-27 07:25:00	14	14	0
14	14	foo	2015-05-27 07:35:00	10	24	0
15	15	foo	2015-05-27 07:42:00	7	31	1
16	16	foo	2015-05-27 07:53:00	11	42	1
17	17	foo	2015-05-27 08:09:00	16	58	1
18	18	foo	2015-05-27 08:23:00	14	72	2
19	19	foo	2015-05-27 08:39:00	16	88	2
20	20	foo	2015-05-27 08:52:00	13	101	3
21	21	foo	2015-05-27 09:12:00	20	121	4
22	22	foo	2015-05-27 10:25:00	73	194	6

1.2 Construct trips data

Table 3: Constructed trips data (solution 1)

	trip_id	driver	start_time	end_time	trip_time	cum_mins
1	1	bar	2015-05-27 16:12:00	2015-05-27 16:39:00	27	0
2	2	bar	2015-05-27 16:39:00	2015-05-27 16:53:00	14	27
3	3	bar	2015-05-27 16:53:00	2015-05-27 17:41:00	48	41
4	4	bar	2015-05-27 17:41:00	2015-05-27 18:09:00	28	89
5	5	bar	2015-05-27 18:09:00	2015-05-27 18:23:00	14	117
6	6	bar	2015-05-27 18:23:00	2015-05-27 18:43:00	20	131
7	7	bar	2015-05-27 18:43:00	2015-05-27 20:51:00	128	151
8	8	foo	2015-05-27 07:11:00	2015-05-27 07:35:00	24	0
9	9	foo	2015-05-27 07:35:00	2015-05-27 08:09:00	34	24
10	10	foo	2015-05-27 08:09:00	2015-05-27 08:39:00	30	58
11	11	foo	2015-05-27 08:39:00	2015-05-27 08:52:00	13	88
12	12	foo	2015-05-27 08:52:00	2015-05-27 09:12:00	20	101
13	13	foo	2015-05-27 09:12:00	2015-05-27 10:25:00	73	121

1.3 Merge trip_df back to ping_df to have a common id

Table 4: Merged ping and trips data (solution 1)

	ping_id	driver	ping_time	trip_id	start_time	end_time	trip_time
1	1	bar	2015-05-27 16:12:00	1	2015-05-27 16:12:00	2015-05-27 16:39:00	27
2	2	bar	2015-05-27 16:31:00	1	2015-05-27 16:12:00	2015-05-27 16:39:00	27
3	3	bar	2015-05-27 16:39:00	1	2015-05-27 16:12:00	2015-05-27 16:39:00	27
4	3	bar	2015-05-27 16:39:00	2	2015-05-27 16:39:00	2015-05-27 16:53:00	14
5	4	bar	2015-05-27 16:53:00	2	2015-05-27 16:39:00	2015-05-27 16:53:00	14
6	4	bar	2015-05-27 16:53:00	3	2015-05-27 16:53:00	2015-05-27 17:41:00	48
7	5	bar	2015-05-27 17:29:00	3	2015-05-27 16:53:00	2015-05-27 17:41:00	48
8	6	bar	2015-05-27 17:41:00	3	2015-05-27 16:53:00	2015-05-27 17:41:00	48
9	6	bar	2015-05-27 17:41:00	4	2015-05-27 17:41:00	2015-05-27 18:09:00	28
10	7	bar	2015-05-27 17:58:00	4	2015-05-27 17:41:00	2015-05-27 18:09:00	28
11	8	bar	2015-05-27 18:09:00	4	2015-05-27 17:41:00	2015-05-27 18:09:00	28
12	8	bar	2015-05-27 18:09:00	5	2015-05-27 18:09:00	2015-05-27 18:23:00	14
13	9	bar	2015-05-27 18:23:00	5	2015-05-27 18:09:00	2015-05-27 18:23:00	14
14	9	bar	2015-05-27 18:23:00	6	2015-05-27 18:23:00	2015-05-27 18:43:00	20
15	10	bar	2015-05-27 18:43:00	6	2015-05-27 18:23:00	2015-05-27 18:43:00	20
16	10	bar	2015-05-27 18:43:00	7	2015-05-27 18:43:00	2015-05-27 20:51:00	128
17	11	bar	2015-05-27 20:51:00	7	2015-05-27 18:43:00	2015-05-27 20:51:00	128
18	12	foo	2015-05-27 07:11:00	8	2015-05-27 07:11:00	2015-05-27 07:35:00	24
19	13	foo	2015-05-27 07:25:00	8	2015-05-27 07:11:00	2015-05-27 07:35:00	24
20	14	foo	2015-05-27 07:35:00	8	2015-05-27 07:11:00	2015-05-27 07:35:00	24
21	14	foo	2015-05-27 07:35:00	9	2015-05-27 07:35:00	2015-05-27 08:09:00	34
22	15	foo	2015-05-27 07:42:00	9	2015-05-27 07:35:00	2015-05-27 08:09:00	34
23	16	foo	2015-05-27 07:53:00	9	2015-05-27 07:35:00	2015-05-27 08:09:00	34
24	17	foo	2015-05-27 08:09:00	9	2015-05-27 07:35:00	2015-05-27 08:09:00	34
25	17	foo	2015-05-27 08:09:00	10	2015-05-27 08:09:00	2015-05-27 08:39:00	30
26	18	foo	2015-05-27 08:23:00	10	2015-05-27 08:09:00	2015-05-27 08:39:00	30
27	19	foo	2015-05-27 08:39:00	10	2015-05-27 08:09:00	2015-05-27 08:39:00	30
28	19	foo	2015-05-27 08:39:00	11	2015-05-27 08:39:00	2015-05-27 08:52:00	13
29	20	foo	2015-05-27 08:52:00	11	2015-05-27 08:39:00	2015-05-27 08:52:00	13
30	20	foo	2015-05-27 08:52:00	12	2015-05-27 08:52:00	2015-05-27 09:12:00	20
31	21	foo	2015-05-27 09:12:00	12	2015-05-27 08:52:00	2015-05-27 09:12:00	20
32	21	foo	2015-05-27 09:12:00	13	2015-05-27 09:12:00	2015-05-27 10:25:00	73
33	22	foo	2015-05-27 10:25:00	13	2015-05-27 09:12:00	2015-05-27 10:25:00	73

2 Solution 2: round cumulative time to nearest half hour

2.1 Separate ping using `flag0`

Table 5: Flagged ping data (solution 2)

	ping_id	driver	ping_time	diff	cum_mins	flag0
1	1	bar	2015-05-27 16:12:00	0	0	0
2	2	bar	2015-05-27 16:31:00	19	19	0
3	3	bar	2015-05-27 16:39:00	8	27	0
4	4	bar	2015-05-27 16:53:00	14	41	1
5	5	bar	2015-05-27 17:29:00	36	77	1
6	6	bar	2015-05-27 17:41:00	12	89	2
7	7	bar	2015-05-27 17:58:00	17	106	3
8	8	bar	2015-05-27 18:09:00	11	117	3
9	9	bar	2015-05-27 18:23:00	14	131	4
10	10	bar	2015-05-27 18:43:00	20	151	4
11	11	bar	2015-05-27 20:51:00	128	279	8
12	12	foo	2015-05-27 07:11:00	0	0	0
13	13	foo	2015-05-27 07:25:00	14	14	0
14	14	foo	2015-05-27 07:35:00	10	24	0
15	15	foo	2015-05-27 07:42:00	7	31	0
16	16	foo	2015-05-27 07:53:00	11	42	1
17	17	foo	2015-05-27 08:09:00	16	58	1
18	18	foo	2015-05-27 08:23:00	14	72	2
19	19	foo	2015-05-27 08:39:00	16	88	2
20	20	foo	2015-05-27 08:52:00	13	101	3
21	21	foo	2015-05-27 09:12:00	20	121	3
22	22	foo	2015-05-27 10:25:00	73	194	5

2.2 construct trips data

Table 6: Constructed trips data (solution 2)

	trip_id	driver	start_time	end_time	trip_time	cum_mins
1	1	bar	2015-05-27 16:12:00	2015-05-27 16:39:00	27	0
2	2	bar	2015-05-27 16:39:00	2015-05-27 17:29:00	50	27
3	3	bar	2015-05-27 17:29:00	2015-05-27 17:41:00	12	77
4	4	bar	2015-05-27 17:41:00	2015-05-27 18:09:00	28	89
5	5	bar	2015-05-27 18:09:00	2015-05-27 18:43:00	34	117
6	6	bar	2015-05-27 18:43:00	2015-05-27 20:51:00	128	151
7	7	foo	2015-05-27 07:11:00	2015-05-27 07:42:00	31	0
8	8	foo	2015-05-27 07:42:00	2015-05-27 08:09:00	27	31
9	9	foo	2015-05-27 08:09:00	2015-05-27 08:39:00	30	58
10	10	foo	2015-05-27 08:39:00	2015-05-27 09:12:00	33	88
11	11	foo	2015-05-27 09:12:00	2015-05-27 10:25:00	73	121

2.3 Merge trip_df back to ping_df to have a common id

Table 7: Merged ping and trips data (solution 2)

	ping_id	driver	ping_time	trip_id	start_time	end_time	trip_time
1	1	bar	2015-05-27 16:12:00	1	2015-05-27 16:12:00	2015-05-27 16:39:00	27
2	2	bar	2015-05-27 16:31:00	1	2015-05-27 16:12:00	2015-05-27 16:39:00	27
3	3	bar	2015-05-27 16:39:00	1	2015-05-27 16:12:00	2015-05-27 16:39:00	27
4	3	bar	2015-05-27 16:39:00	2	2015-05-27 16:39:00	2015-05-27 17:29:00	50
5	4	bar	2015-05-27 16:53:00	2	2015-05-27 16:39:00	2015-05-27 17:29:00	50
6	5	bar	2015-05-27 17:29:00	2	2015-05-27 16:39:00	2015-05-27 17:29:00	50
7	5	bar	2015-05-27 17:29:00	3	2015-05-27 17:29:00	2015-05-27 17:41:00	12
8	6	bar	2015-05-27 17:41:00	3	2015-05-27 17:29:00	2015-05-27 17:41:00	12
9	6	bar	2015-05-27 17:41:00	4	2015-05-27 17:41:00	2015-05-27 18:09:00	28
10	7	bar	2015-05-27 17:58:00	4	2015-05-27 17:41:00	2015-05-27 18:09:00	28
11	8	bar	2015-05-27 18:09:00	4	2015-05-27 17:41:00	2015-05-27 18:09:00	28
12	8	bar	2015-05-27 18:09:00	5	2015-05-27 18:09:00	2015-05-27 18:43:00	34
13	9	bar	2015-05-27 18:23:00	5	2015-05-27 18:09:00	2015-05-27 18:43:00	34
14	10	bar	2015-05-27 18:43:00	5	2015-05-27 18:09:00	2015-05-27 18:43:00	34
15	10	bar	2015-05-27 18:43:00	6	2015-05-27 18:43:00	2015-05-27 20:51:00	128
16	11	bar	2015-05-27 20:51:00	6	2015-05-27 18:43:00	2015-05-27 20:51:00	128
17	12	foo	2015-05-27 07:11:00	7	2015-05-27 07:11:00	2015-05-27 07:42:00	31
18	13	foo	2015-05-27 07:25:00	7	2015-05-27 07:11:00	2015-05-27 07:42:00	31
19	14	foo	2015-05-27 07:35:00	7	2015-05-27 07:11:00	2015-05-27 07:42:00	31
20	15	foo	2015-05-27 07:42:00	7	2015-05-27 07:11:00	2015-05-27 07:42:00	31
21	15	foo	2015-05-27 07:42:00	8	2015-05-27 07:42:00	2015-05-27 08:09:00	27
22	16	foo	2015-05-27 07:53:00	8	2015-05-27 07:42:00	2015-05-27 08:09:00	27
23	17	foo	2015-05-27 08:09:00	8	2015-05-27 07:42:00	2015-05-27 08:09:00	27
24	17	foo	2015-05-27 08:09:00	9	2015-05-27 08:09:00	2015-05-27 08:39:00	30
25	18	foo	2015-05-27 08:23:00	9	2015-05-27 08:09:00	2015-05-27 08:39:00	30
26	19	foo	2015-05-27 08:39:00	9	2015-05-27 08:09:00	2015-05-27 08:39:00	30
27	19	foo	2015-05-27 08:39:00	10	2015-05-27 08:39:00	2015-05-27 09:12:00	33
28	20	foo	2015-05-27 08:52:00	10	2015-05-27 08:39:00	2015-05-27 09:12:00	33
29	21	foo	2015-05-27 09:12:00	10	2015-05-27 08:39:00	2015-05-27 09:12:00	33
30	21	foo	2015-05-27 09:12:00	11	2015-05-27 09:12:00	2015-05-27 10:25:00	73
31	22	foo	2015-05-27 10:25:00	11	2015-05-27 09:12:00	2015-05-27 10:25:00	73

3 Solution 3: Fixed half-hour intervals

3.1 Construct trips data

Table 8: Constructed trips data (solution 3)

	new_trip_id	driver	start_time	end_time	trip_time
1	1	bar	2015-05-27 16:12:00	2015-05-27 16:42:00	30
2	2	bar	2015-05-27 16:42:00	2015-05-27 17:12:00	30
3	3	bar	2015-05-27 17:12:00	2015-05-27 17:42:00	30
4	4	bar	2015-05-27 17:42:00	2015-05-27 18:12:00	30
5	5	bar	2015-05-27 18:12:00	2015-05-27 18:42:00	30
6	6	bar	2015-05-27 18:42:00	2015-05-27 19:12:00	30
7	7	bar	2015-05-27 19:12:00	2015-05-27 19:42:00	30
8	8	bar	2015-05-27 19:42:00	2015-05-27 20:12:00	30
9	9	bar	2015-05-27 20:12:00	2015-05-27 20:42:00	30
10	10	bar	2015-05-27 20:42:00	2015-05-27 20:51:00	9
11	11	foo	2015-05-27 07:11:00	2015-05-27 07:41:00	30
12	12	foo	2015-05-27 07:41:00	2015-05-27 08:11:00	30
13	13	foo	2015-05-27 08:11:00	2015-05-27 08:41:00	30
14	14	foo	2015-05-27 08:41:00	2015-05-27 09:11:00	30
15	15	foo	2015-05-27 09:11:00	2015-05-27 09:41:00	30
16	16	foo	2015-05-27 09:41:00	2015-05-27 10:11:00	30
17	17	foo	2015-05-27 10:11:00	2015-05-27 10:25:00	14

3.2 Merge trip_df back to ping_df to have a common id

Table 9: Merged ping and trips data (solution 3)

	ping_id	driver	ping_time	new_trip_id	start_time	end_time	trip_time
1	1	bar	2015-05-27 16:12:00	1	2015-05-27 16:12:00	2015-05-27 16:42:00	30
2	2	bar	2015-05-27 16:31:00	1	2015-05-27 16:12:00	2015-05-27 16:42:00	30
3	3	bar	2015-05-27 16:39:00	1	2015-05-27 16:12:00	2015-05-27 16:42:00	30
4	4	bar	2015-05-27 16:53:00	2	2015-05-27 16:42:00	2015-05-27 17:12:00	30
5	5	bar	2015-05-27 17:29:00	3	2015-05-27 17:12:00	2015-05-27 17:42:00	30
6	6	bar	2015-05-27 17:41:00	3	2015-05-27 17:12:00	2015-05-27 17:42:00	30
7	7	bar	2015-05-27 17:58:00	4	2015-05-27 17:42:00	2015-05-27 18:12:00	30
8	8	bar	2015-05-27 18:09:00	4	2015-05-27 17:42:00	2015-05-27 18:12:00	30
9	9	bar	2015-05-27 18:23:00	5	2015-05-27 18:12:00	2015-05-27 18:42:00	30
10	10	bar	2015-05-27 18:43:00	6	2015-05-27 18:42:00	2015-05-27 19:12:00	30
11	11	bar	2015-05-27 20:51:00	10	2015-05-27 20:42:00	2015-05-27 20:51:00	9
12	12	foo	2015-05-27 07:11:00	11	2015-05-27 07:11:00	2015-05-27 07:41:00	30
13	13	foo	2015-05-27 07:25:00	11	2015-05-27 07:11:00	2015-05-27 07:41:00	30
14	14	foo	2015-05-27 07:35:00	11	2015-05-27 07:11:00	2015-05-27 07:41:00	30
15	15	foo	2015-05-27 07:42:00	12	2015-05-27 07:41:00	2015-05-27 08:11:00	30
16	16	foo	2015-05-27 07:53:00	12	2015-05-27 07:41:00	2015-05-27 08:11:00	30
17	17	foo	2015-05-27 08:09:00	12	2015-05-27 07:41:00	2015-05-27 08:11:00	30
18	18	foo	2015-05-27 08:23:00	13	2015-05-27 08:11:00	2015-05-27 08:41:00	30
19	19	foo	2015-05-27 08:39:00	13	2015-05-27 08:11:00	2015-05-27 08:41:00	30
20	20	foo	2015-05-27 08:52:00	14	2015-05-27 08:41:00	2015-05-27 09:11:00	30
21	21	foo	2015-05-27 09:12:00	15	2015-05-27 09:11:00	2015-05-27 09:41:00	30
22	22	foo	2015-05-27 10:25:00	17	2015-05-27 10:11:00	2015-05-27 10:25:00	14