repex - separating date time

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Contents

Example data

Table 1: Example data

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

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	foo	2015-05-27 07:11:00	0	0	0
12	12	foo	2015-05-27 07:25:00	14	14	0
13	13	foo	2015-05-27 07:35:00	10	24	0
14	14	foo	2015-05-27 07:42:00	7	31	1
15	15	foo	2015-05-27 07:53:00	11	42	1
16	16	foo	2015-05-27 08:09:00	16	58	1
17	17	foo	2015-05-27 08:23:00	14	72	2
18	18	foo	2015-05-27 08:39:00	16	88	2
19	19	foo	2015-05-27 08:52:00	13	101	3
20	20	foo	2015-05-27 09:12:00	20	121	4

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	foo	2015-05-27 07:11:00	2015-05-27 07:35:00	24	0
8	8	foo	2015-05-27 07:35:00	2015-05-27 08:09:00	34	24
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 08:52:00	13	88
11	11	foo	2015-05-27 08:52:00	2015-05-27 09:12:00	20	101

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	11	foo	2015-05-27 07:11:00	7	2015-05-27 07:11:00	2015-05-27 07:35:00	24
17	12	foo	2015-05-27 07:25:00	7	2015-05-27 07:11:00	2015-05-27 07:35:00	24
18	13	foo	2015-05-27 07:35:00	7	2015-05-27 07:11:00	2015-05-27 07:35:00	24
19	13	foo	2015-05-27 07:35:00	8	2015-05-27 07:35:00	2015-05-27 08:09:00	34
20	14	foo	2015-05-27 07:42:00	8	2015-05-27 07:35:00	2015-05-27 08:09:00	34
21	15	foo	2015-05-27 07:53:00	8	2015-05-27 07:35:00	2015-05-27 08:09:00	34
22	16	foo	2015-05-27 08:09:00	8	2015-05-27 07:35:00	2015-05-27 08:09:00	34
23	16	foo	2015-05-27 08:09:00	9	2015-05-27 08:09:00	2015-05-27 08:39:00	30
24	17	foo	2015-05-27 08:23:00	9	2015-05-27 08:09:00	2015-05-27 08:39:00	30
25	18	foo	2015-05-27 08:39:00	9	2015-05-27 08:09:00	2015-05-27 08:39:00	30
26	18	foo	2015-05-27 08:39:00	10	2015-05-27 08:39:00	2015-05-27 08:52:00	13
27	19	foo	2015-05-27 08:52:00	10	2015-05-27 08:39:00	2015-05-27 08:52:00	13
28	19	foo	2015-05-27 08:52:00	11	2015-05-27 08:52:00	2015-05-27 09:12:00	20
29	20	foo	2015-05-27 09:12:00	11	2015-05-27 08:52:00	2015-05-27 09:12:00	20

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	foo	2015-05-27 07:11:00	0	0	0
12	12	foo	2015-05-27 07:25:00	14	14	0
13	13	foo	2015-05-27 07:35:00	10	24	0
14	14	foo	2015-05-27 07:42:00	7	31	0
15	15	foo	2015-05-27 07:53:00	11	42	1
16	16	foo	2015-05-27 08:09:00	16	58	1
17	17	foo	2015-05-27 08:23:00	14	72	2
18	18	foo	2015-05-27 08:39:00	16	88	2
19	19	foo	2015-05-27 08:52:00	13	101	3
20	20	foo	2015-05-27 09:12:00	20	121	3

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	foo	2015-05-27 07:11:00	2015-05-27 07:42:00	31	0
7	7	foo	2015-05-27 07:42:00	2015-05-27 08:09:00	27	31
8	8	foo	2015-05-27 08:09:00	2015-05-27 08:39:00	30	58
9	9	foo	2015-05-27 08:39:00	2015-05-27 09:12:00	33	88

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	11	foo	2015-05-27 07:11:00	6	2015-05-27 07:11:00	2015-05-27 07:42:00	31
16	12	foo	2015-05-27 07:25:00	6	2015-05-27 07:11:00	2015-05-27 07:42:00	31
17	13	foo	2015-05-27 07:35:00	6	2015-05-27 07:11:00	2015-05-27 07:42:00	31
18	14	foo	2015-05-27 07:42:00	6	2015-05-27 07:11:00	2015-05-27 07:42:00	31
19	14	foo	2015-05-27 07:42:00	7	2015-05-27 07:42:00	2015-05-27 08:09:00	27
20	15	foo	2015-05-27 07:53:00	7	2015-05-27 07:42:00	2015-05-27 08:09:00	27
21	16	foo	2015-05-27 08:09:00	7	2015-05-27 07:42:00	2015-05-27 08:09:00	27
22	16	foo	2015-05-27 08:09:00	8	2015-05-27 08:09:00	2015-05-27 08:39:00	30
23	17	foo	2015-05-27 08:23:00	8	2015-05-27 08:09:00	2015-05-27 08:39:00	30
24	18	foo	2015-05-27 08:39:00	8	2015-05-27 08:09:00	2015-05-27 08:39:00	30
25	18	foo	2015-05-27 08:39:00	9	2015-05-27 08:39:00	2015-05-27 09:12:00	33
26	19	foo	2015-05-27 08:52:00	9	2015-05-27 08:39:00	2015-05-27 09:12:00	33
27	20	foo	2015-05-27 09:12:00	9	2015-05-27 08:39:00	2015-05-27 09:12:00	33

3 Solution 3: Fixed half-hour intervals

3.1 Separate ping using `flag0`

Table 8: 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	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	foo	2015-05-27 07:11:00	0	0	0
12	12	foo	2015-05-27 07:25:00	14	14	0
13	13	foo	2015-05-27 07:35:00	10	24	0
14	14	foo	2015-05-27 07:42:00	7	31	1
15	15	foo	2015-05-27 07:53:00	11	42	1
16	16	foo	2015-05-27 08:09:00	16	58	1
17	17	foo	2015-05-27 08:23:00	14	72	2
18	18	foo	2015-05-27 08:39:00	16	88	2
19	19	foo	2015-05-27 08:52:00	13	101	3
20	20	foo	2015-05-27 09:12:00	20	121	4

3.2 construct trips data

Table 9: Constructed trips data (solution 3)

	trip_id	driver	start_time	end_time	trip_time	cum_mins
1	1	bar	2015-05-27 16:12:00	2015-05-27 16:42:00	30	0
2	2	bar	2015-05-27 16:42:00	2015-05-27 17:12:00	30	27
3	3	bar	2015-05-27 17:12:00	2015-05-27 17:42:00	30	41
4	4	bar	2015-05-27 17:42:00	2015-05-27 18:12:00	30	89
5	5	bar	2015-05-27 18:12:00	2015-05-27 18:42:00	30	117
6	6	bar	2015-05-27 18:42:00	2015-05-27 18:43:00	1	131
7	7	foo	2015-05-27 07:11:00	2015-05-27 07:41:00	30	0
8	8	foo	2015-05-27 07:41:00	2015-05-27 08:11:00	30	24
9	9	foo	2015-05-27 08:11:00	2015-05-27 08:41:00	30	58
10	10	foo	2015-05-27 08:41:00	2015-05-27 09:11:00	30	88
11	11	foo	2015-05-27 09:11:00	2015-05-27 09:12:00	1	101

3.3 Merge trip_df back to ping_df to have a common id

Table 10: Merged ping and trips data (solution 3)

	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 16:42:00	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 18:43:00	1
11	11	foo	2015-05-27 07:11:00	7	2015-05-27 07:11:00	2015-05-27 07:41:00	30
12	12	foo	2015-05-27 07:25:00	7	2015-05-27 07:11:00	2015-05-27 07:41:00	30
13	13	foo	2015-05-27 07:35:00	7	2015-05-27 07:11:00	2015-05-27 07:41:00	30
14	14	foo	2015-05-27 07:42:00	8	2015-05-27 07:41:00	2015-05-27 08:11:00	30
15	15	foo	2015-05-27 07:53:00	8	2015-05-27 07:41:00	2015-05-27 08:11:00	30
16	16	foo	2015-05-27 08:09:00	8	2015-05-27 07:41:00	2015-05-27 08:11:00	30
17	17	foo	2015-05-27 08:23:00	9	2015-05-27 08:11:00	2015-05-27 08:41:00	30
18	18	foo	2015-05-27 08:39:00	9	2015-05-27 08:11:00	2015-05-27 08:41:00	30
19	19	foo	2015-05-27 08:52:00	10	2015-05-27 08:41:00	2015-05-27 09:11:00	30
20	20	foo	2015-05-27 09:12:00	11	2015-05-27 09:11:00	2015-05-27 09:12:00	1