



Insights taken from timestamp data of TM

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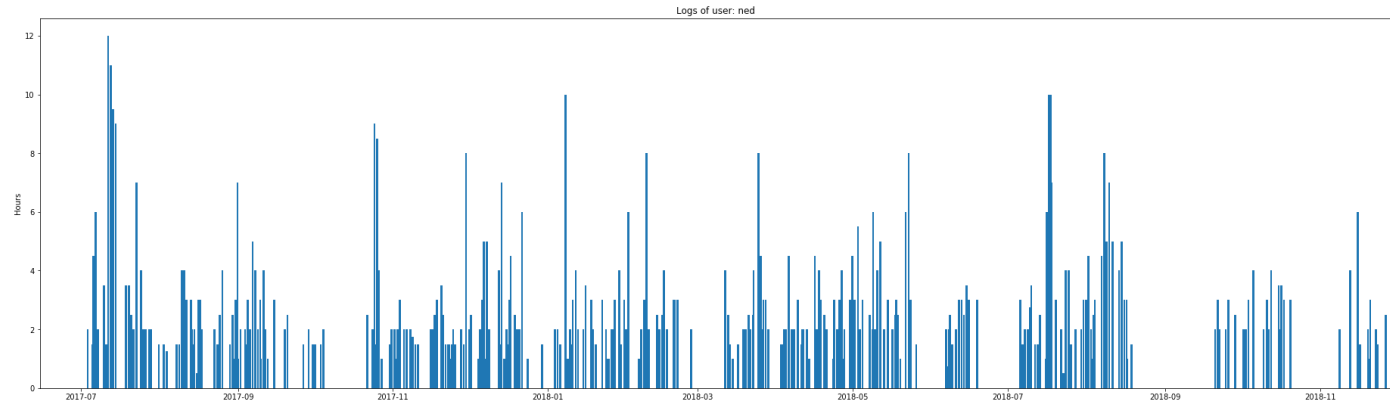
INSIGHT #1:

USER TYPES

- Users have log-in patterns
 - How many times have they logged-in the past year?
 - How many projects in which they are involved?
- From these patterns we can deduce their positions and responsibilities
 - Project bosses/Company bosses (founding/early employee, lots of projects)
 - Regulars (recently employed, limited projects)
 - Interns/Temporary (employed only for a while, few projects)

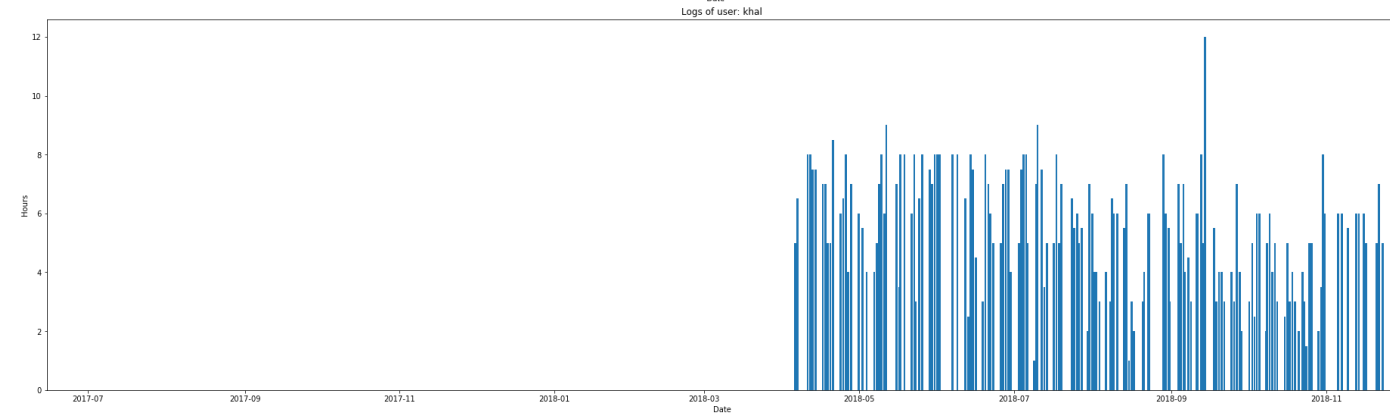
Boss

- 30 projects or more
- greater than or equal to 1000 hours logged
- ex. 'ned'



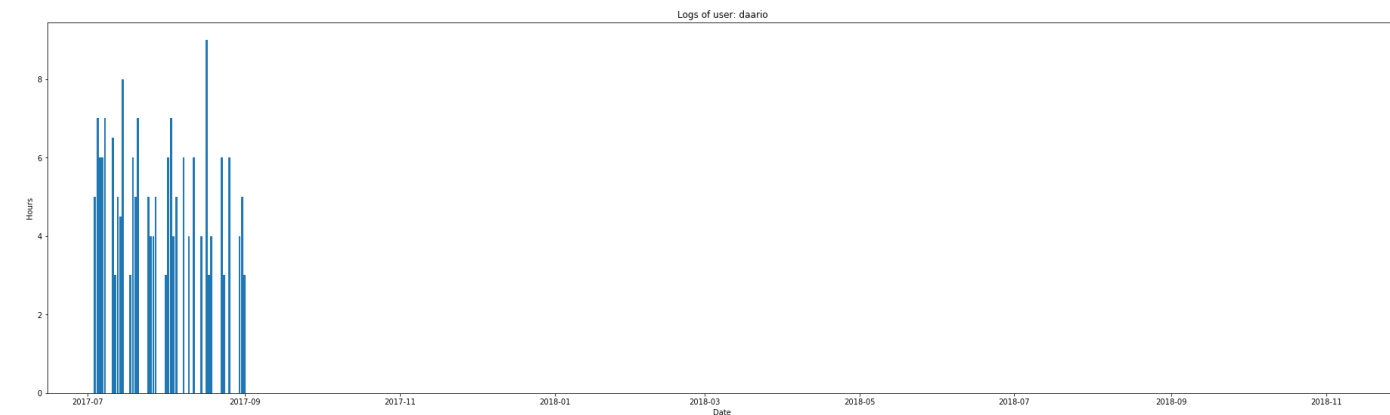
Regular

- 10-20 projects
- more than 500 hours logged
- ex. 'khal'



Temporary

- 15 projects or less
- less than 500 hours logged
- ex. 'daario'



Bosses

'ned'
'davos'
'bronn'
'jorah'
'littlefinger'

Employees

Regulars

'robert'
'margaery'
'shae'
'samwell'
'theon'
'jaime'
'tyrion' – was on leave

Resigned or Fired

'gendry'
'tywin'

New

'catelyn' – high position
'sansa' – high position
'joffrey' – high position
'varys'
'jeor'
'melisandre'
'stannis'
'khal'
'hound'
'bran'
'robb'
'arya'
'jon'
'viserys'
'daenerys'

Interns/Temps

'tommen'
'ellaria'
'daario'
'missandei'
'talisa'
'ygritte'
'tormund'
'bran'
'gilly'
'ramsay'
'brienne'

Above is the deduced company structure. These are all based on the logs:

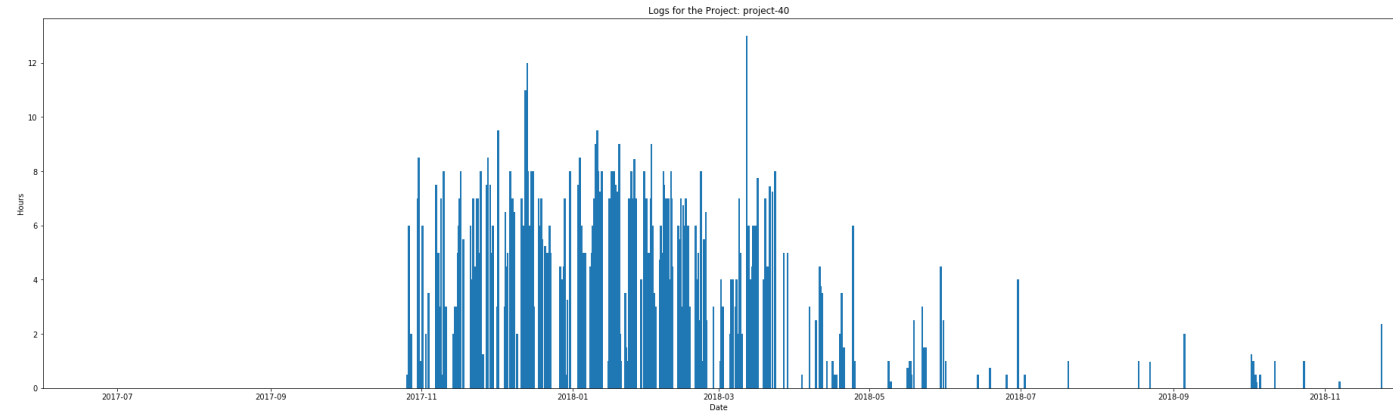
- Bosses have a lot of hours logged and projects to look after
- New - logged later, but have the minimum projects for a regular
- 'high position' means they are new, but have enough or more projects than a regular
- Resigned or fired– since they have projects and hours that of a regular but stopped logging before the year ended
- 'tyrion' went on leave during October 2017 but returned in August 2018

INSIGHT #2: PROJECT TYPES

- Projects also have log-in patterns
 - How many times have they been logged-in the past year?
 - How many projects in which they are involved?
- From these patterns we can deduce their importance
 - Main projects – important ones, therefore requiring more of the company's time and resources
 - Side projects – could be partnership with another company or just a smaller project
 - Either: Ad hoc or Internship or Starting, Projects – projects made when necessary, given to interns

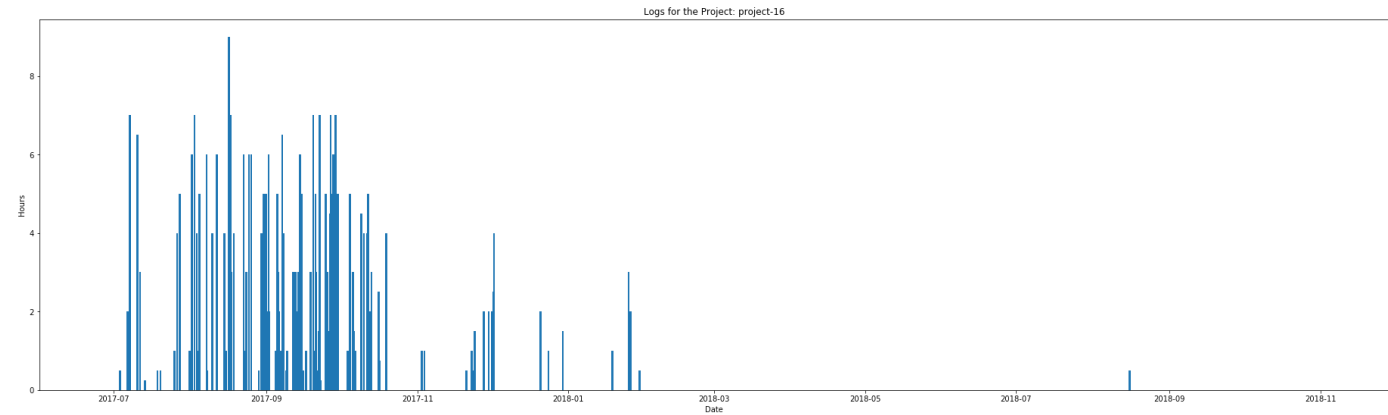
Main Project

- 35 hours or more
- 15 or more user have logged
- ex. 'project-40'



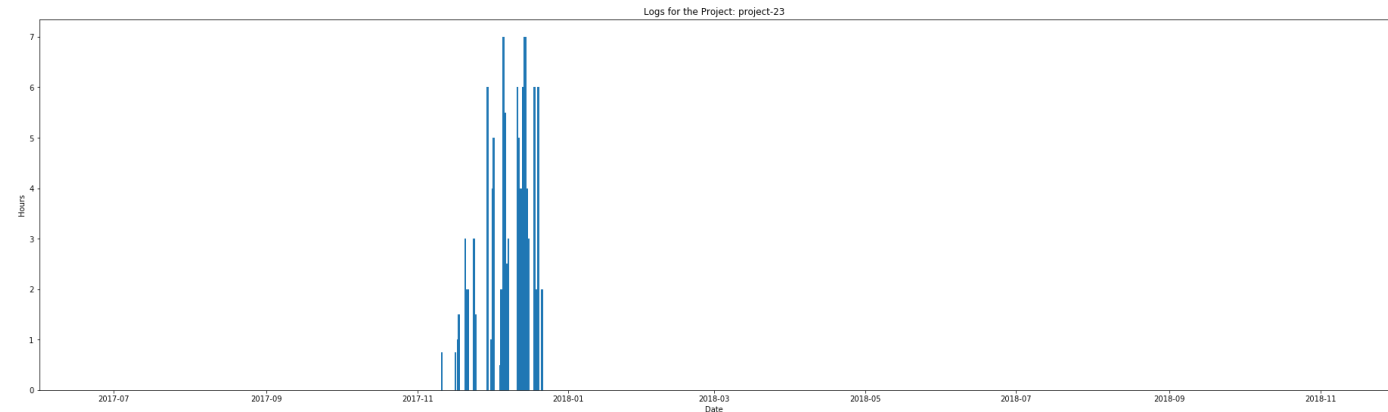
Side Project

- 10-20 hours
- 10 users have logged
- ex. 'project-16'

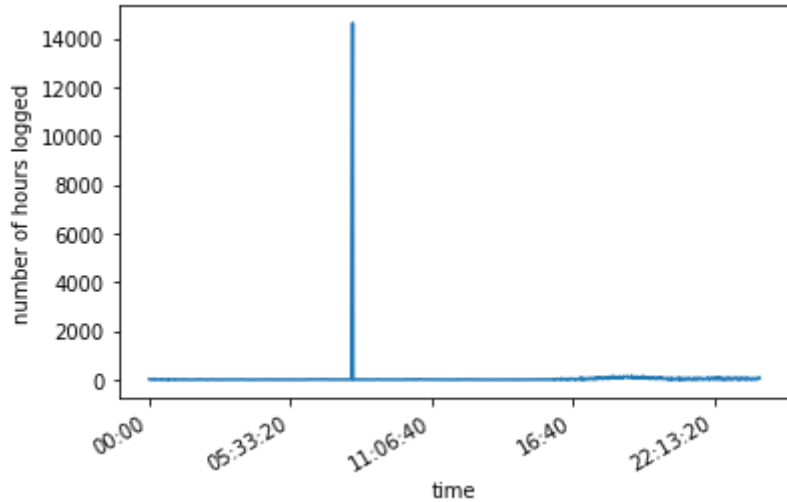


Ad Hoc Project

- 10 hours or less
- around 5 users have logged
- ex. 'project-23'

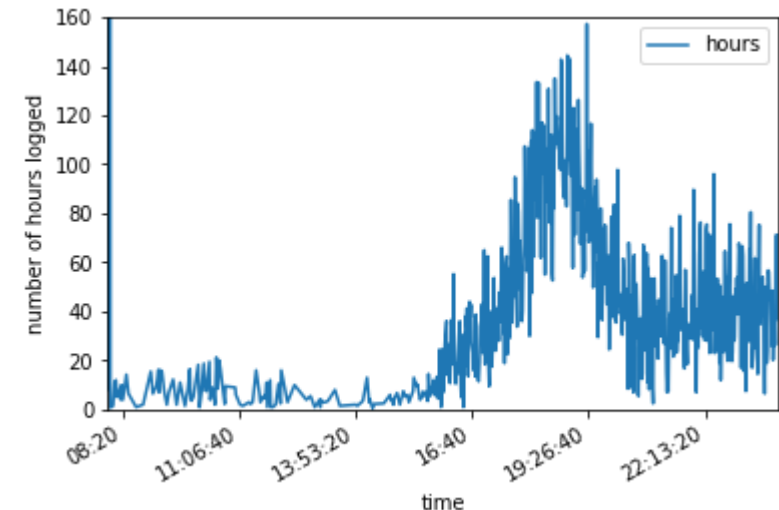
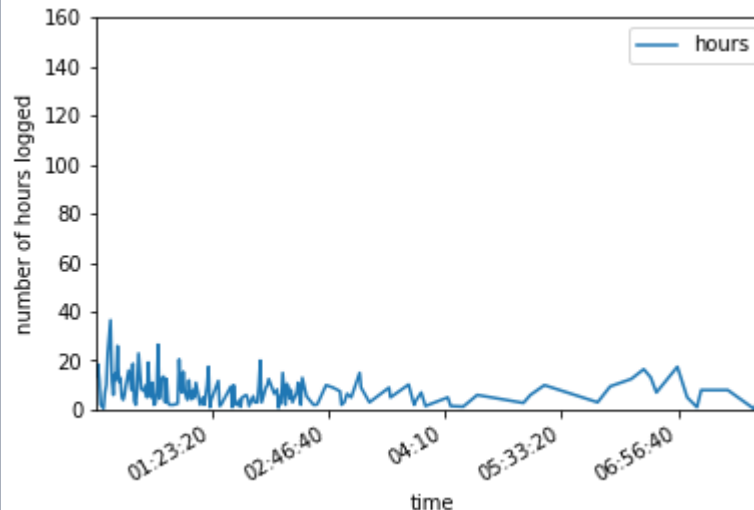


INSIGHT #3: USER SHIFTS

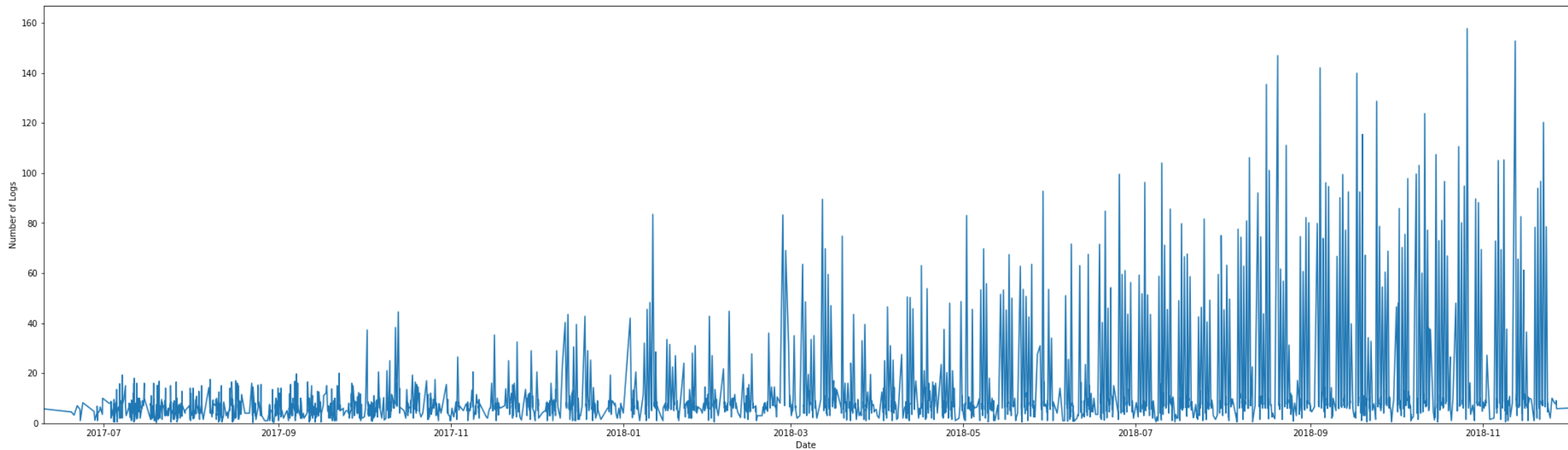


An outlier! This particular time (8:00am) has 14621.40 hours of log. That means this is usually the time when people come in the office.

Removing the outlier value, we see that people log into and work on their respective projects later in the night.



INSIGHT #4: COMPANY GROWTH



From the plot above, we see that there are more hours of work later in the year. This could mean the following:

- The company has been hiring more people recently
- The employees have been working more hours
- New projects are being made, thus asking more hours for the employees

Of course, whichever one is true, we are sure that the company is doing great.

INSIGHT #5: MISSING USER LOGS

- From the data given, some user logs were found to be NaN, or null.
- With cross-referencing and some deduction we have a shortlist for whom the NaN user might be.
- These are at most two people since the logs are at the same time at two different instances.

	user	timestamp	hours	project	
15797	NaN	2017-12-27 10:36:14.000121 UTC	4.00	project-40	['bronn' 'catelyn' 'cersei' 'davos' 'jorah' 'margaery' 'ned' 'person' 'samwell' 'shae' 'theon' 'tywin']
15798	NaN	2017-12-27 10:36:14.000121 UTC	3.00	machine-learning	
17572	NaN	2017-10-12 10:31:44.000227 UTC	2.75	project-47	['jaime' 'littlefinger' 'margaery' 'ned' 'person' 'shae']
17573	NaN	2017-10-12 10:31:44.000227 UTC	4.00	finance-and-marketing	
17574	NaN	2017-10-12 10:31:44.000227 UTC	1.00	transit	

INSIGHT #5: MISSING USER LOGS

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['bronn' 'catelyn' 'cersei' 'davos' 'jorah' 'margaery' 'ned' 'person'  
'samwell' 'shae' 'theon' 'tywin']
```

	timestamp	user	hours	project
15139	2017/12/27 21:59	tywin	4.00	finance-and-marketing
15140	2017/12/27 21:59	tywin	4.00	external-affairs
15141	2017/12/27 21:59	tywin	1.00	machine-learning
15142	2017/12/27 21:38	bronn	8.00	external-affairs
15143	2017/12/27 18:36	person	4.00	project-40
15144	2017/12/27 18:36	person	3.00	machine-learning
15145	2017/12/27 15:28	margaery	3.00	machine-learning
15146	2017/12/27 15:28	margaery	2.00	project-24
15147	2017/12/27 14:03	theon	3.50	project-40
15148	2017/12/27 08:00	brienne	1.25	external-affairs
15149	2017/12/27 08:00	brienne	5.50	recruitment
15150	2017/12/27 08:00	brienne	1.50	internal-affairs
15151	2017/12/27 08:00	brienne	5.00	recruitment
15152	2017/12/27 08:00	littlefinger	6.00	internal-affairs

- These are all the people logged at Dec. 27, 2017.
- It cannot be 'catelyn', 'cersei', since they first logged at 2018.
- Best guess would be either 'margaery' or 'theon' since they are the recent ones that dealt with 'project-40' and 'machine-learning'.

INSIGHT #5: MISSING USER LOGS

['jaime' 'littlefinger' 'margaery' 'ned' ~~'person'~~ 'shae']

	timestamp	user	hours	project
16830	2017/10/12 19:32	brienne	2.50	internal-affairs
16831	2017/10/12 19:32	brienne	2.00	internal-affairs
16832	2017/10/12 19:32	brienne	2.25	external-affairs
16833	2017/10/12 19:08	jaime	4.00	finance-and-marketing
16834	2017/10/12 19:08	jaime	0.25	finance-and-marketing
16835	2017/10/12 19:08	jaime	2.75	project-47
16836	2017/10/12 18:57	davos	2.00	project-16
16837	2017/10/12 18:57	davos	1.00	culture-and-management
16838	2017/10/12 18:57	davos	5.00	machine-learning
16839	2017/10/12 18:57	littlefinger	2.50	external-affairs
16840	2017/10/12 18:57	littlefinger	5.50	internal-affairs
16841	2017/10/12 18:55	bronn	5.00	machine-learning
16842	2017/10/12 18:55	bronn	2.00	internal-affairs
16843	2017/10/12 18:53	tyrion	3.00	machine-learning
16844	2017/10/12 18:53	tyrion	4.00	datascience
16845	2017/10/12 18:31	person	2.75	project-47
16846	2017/10/12 18:31	person	4.00	finance-and-marketing
16847	2017/10/12 18:31	person	1.00	transit
16848	2017/10/12 17:05	theon	1.00	culture-and-management
16849	2017/10/12 17:05	theon	2.00	external-affairs
16850	2017/10/12 17:05	theon	5.00	machine-learning
16851	2017/10/12 16:20	jorah	1.50	finance-and-marketing
16852	2017/10/12 16:20	jorah	1.00	culture-and-management
16853	2017/10/12 16:20	jorah	5.00	machine-learning
16854	2017/10/12 08:00	ramsay	1.00	project-48
16855	2017/10/12 08:00	tywin	5.00	machine-learning
16856	2017/10/12 08:00	tywin	1.00	culture-and-management
16857	2017/10/12 08:00	tywin	2.00	datascience
16858	2017/10/12 08:00	robert	9.00	events
16859	2017/10/12 08:00	ramsay	2.00	machine-learning
16860	2017/10/12 08:00	ramsay	1.00	finance-and-marketing
16861	2017/10/12 08:00	ramsay	4.00	finance-and-marketing
16862	2017/10/12 08:00	samwell	1.00	finance-and-marketing
16863	2017/10/12 08:00	samwell	5.00	machine-learning
16864	2017/10/12 08:00	ramsay	0.25	project-16
16865	2017/10/12 08:00	shae	4.00	finance-and-marketing
16866	2017/10/12 08:00	shae	0.25	finance-and-marketing
16867	2017/10/12 08:00	shae	2.75	project-47

- These are all the people logged at Oct. 12, 2017.
- Best guess would be 'jaime' or 'shae' since they recently handled 'project-47' and 'finance-and-marketing'. 'Transit' could mean they are transferring from one building to another.