

University of Stuttgart
Institute for Visualization and Interactive Systems

Notification Dashboard: Enabling Reflection on Mobile Notifications

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Notifications



Related Work

Mobile Notifications

Category	Apps	Mean	SD
messenger	WhatsApp	19.9	64.5
mail	Gmail	7.0	15.8
messenger	SMS/MMS (Stock)	4.2	16.7
social	Facebook	3.7	23.1
messenger	Facebook Messenger	3.4	16.4
mail	Email (Stock)	1.7	17.8
calendar	Google Calendar	1.6	33.0
calendar	Any.do To-do List	1.5	15.5
social	Google Plus	1.0	8.9
calendar	Calendar (Stock)	0.9	19.1

Table 2: Top-10 Applications in terms of notifications generated per day. “Stock” refers to applications that are pre-installed on the Android OS.

Alireza Sahami Shirazi, Niels Henze, Tilman Dingler, Martin Pielot, Dominik Weber, and Albrecht Schmidt. 2014. **Large-Scale Assessment of Mobile Notifications**. CHI '14.

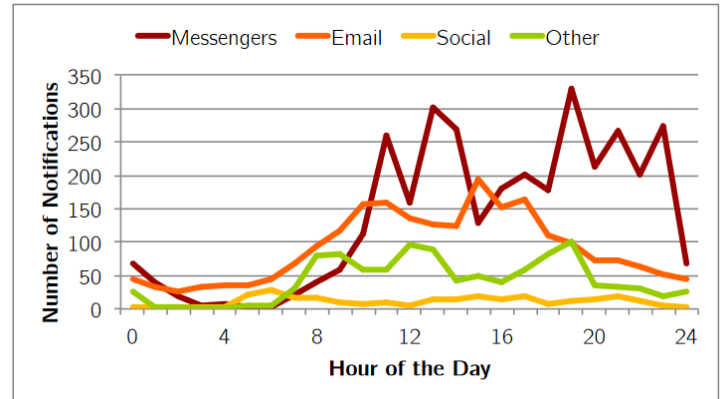


Figure 3. Notifications by hour of the day

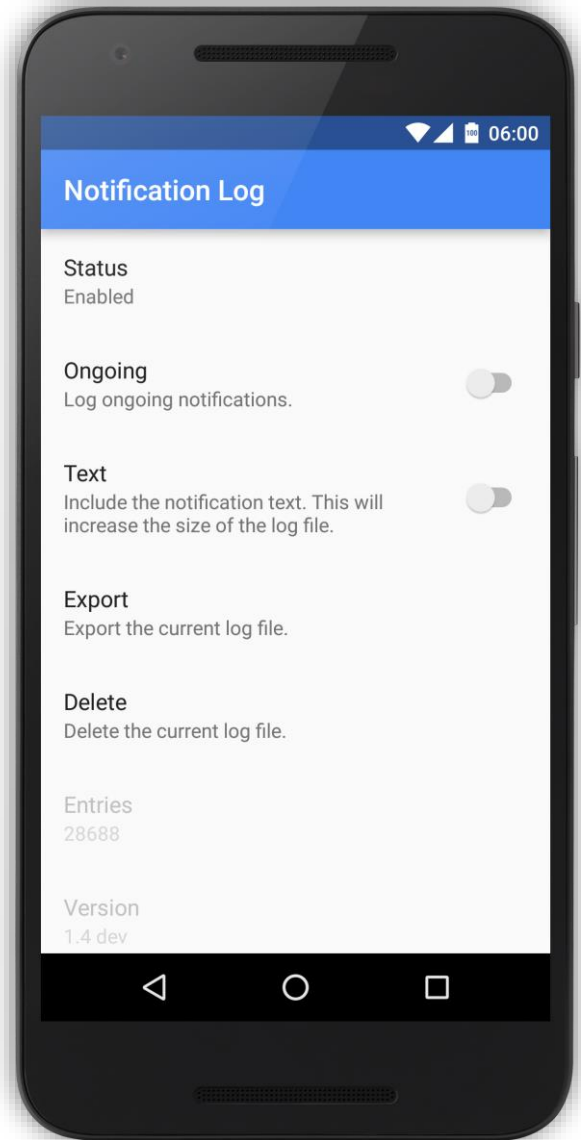
Martin Pielot, Karen Church, and Rodrigo de Oliveira. 2014. **An In-Situ Study of Mobile Phone Notifications**. MobileHCI '14.

Notification Log

- App for Android 4.0+
- Notifications are stored in a log file
 - Filter for *ongoing* notifications
 - Meta-data and optional text



<https://goo.gl/SQd3Ri>



Notification Dashboard

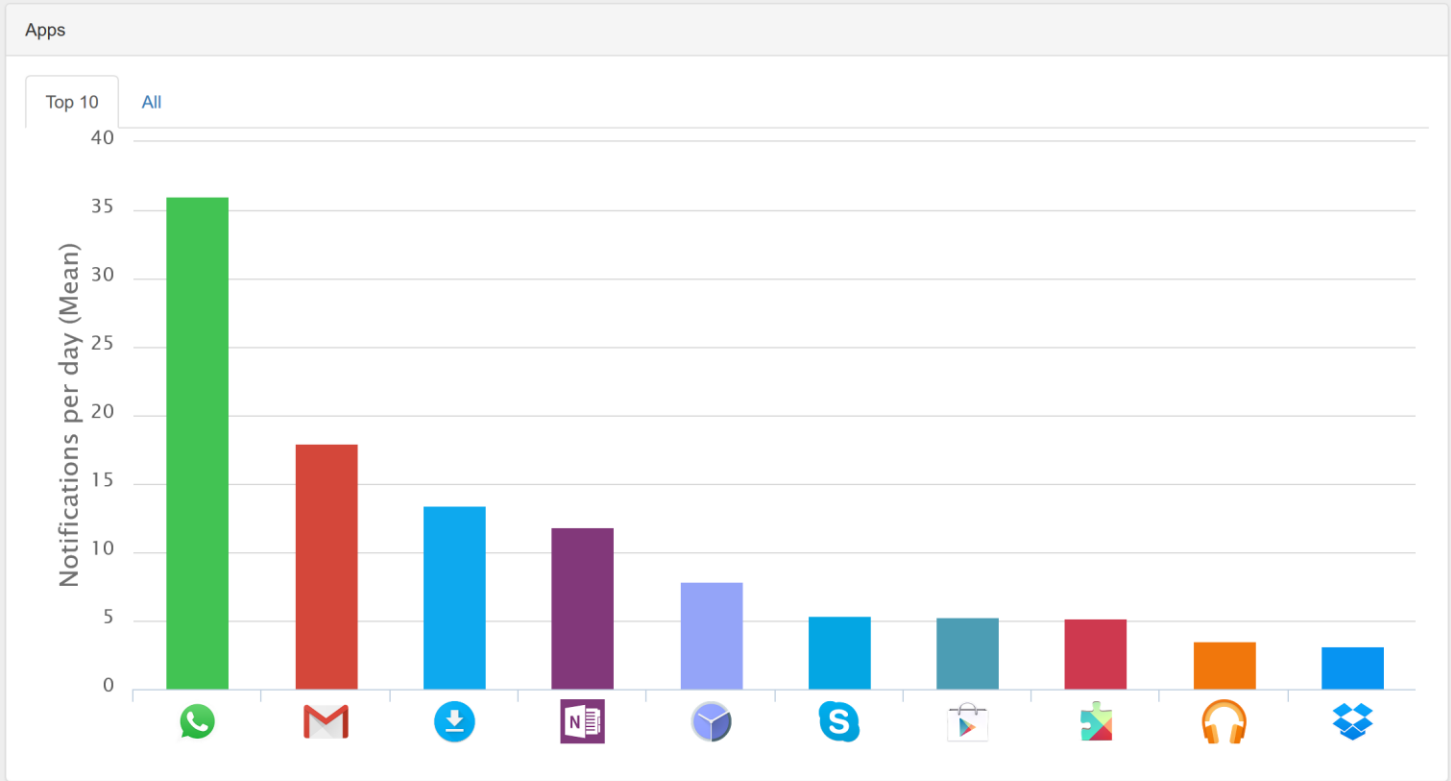
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{  
  "packageName": "com.google.android.gm",  
  "postTime": 1464044185721,  
  "systemTime": 1464047319955,  
  "offset": 7200000,  
  "isOngoing": false,  
  "isClearable": true,  
  "when": 1464044185566,  
  "number": 0,  
  "flags": 25,  
  "defaults": 4,  
  "ledARGB": 0,  
  "ledOn": 0,  
  "ledOff": 0,  
  "ringerMode": 0,  
  "isScreenOn": true,  
  "isGroupSummary": false,  
  "category": "email",  
  "actionCount": 2,  
  "isLocalOnly": false,  
  "style": "android.app.Notification$BigTextStyle",  
  "priority": 0,  
  "nid": -590422375,  
  "key": "0|com.google.android.gm|-590422375|null|10041",  
  "visibility": 0,  
  "color": -2407369,  
  "interruptionFilter": 4,  
  "listenerHints": 0,  
  "matchesInterruptionFilter": false  
}
```

Load log file in
web app



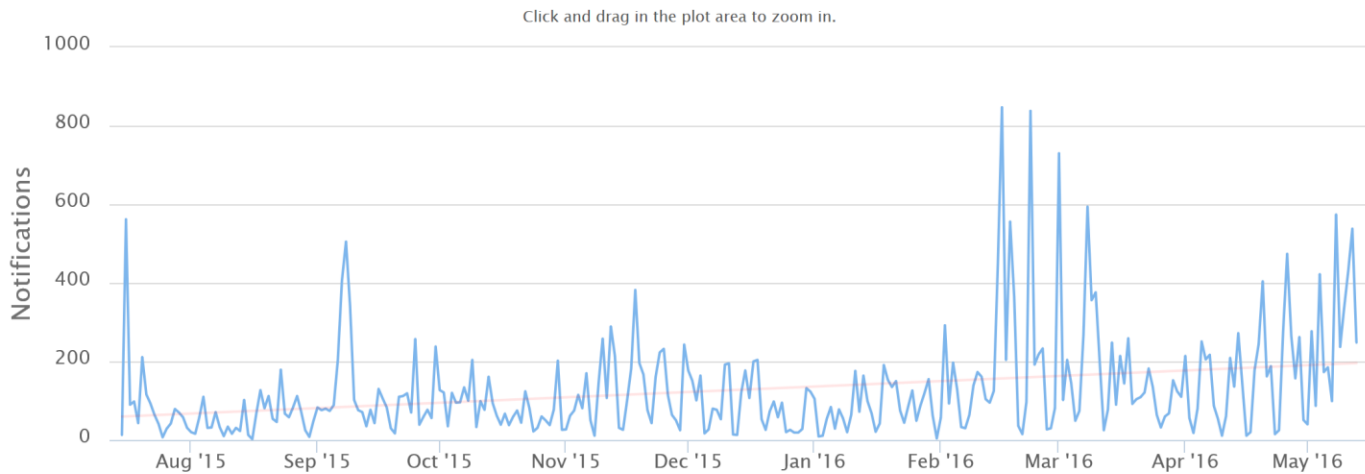
Notification Dashboard

Device	Notifications	Date range	Apps
Nexus 5	38,872	7/15/2015 - 5/13/2016	56

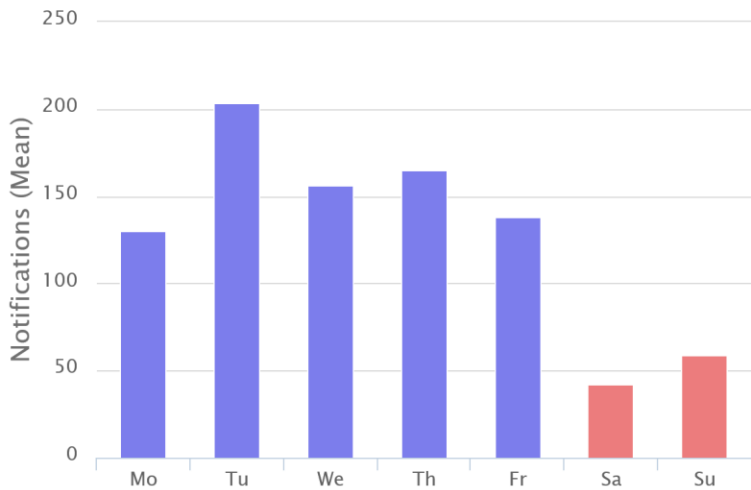


Timeline

Timeline



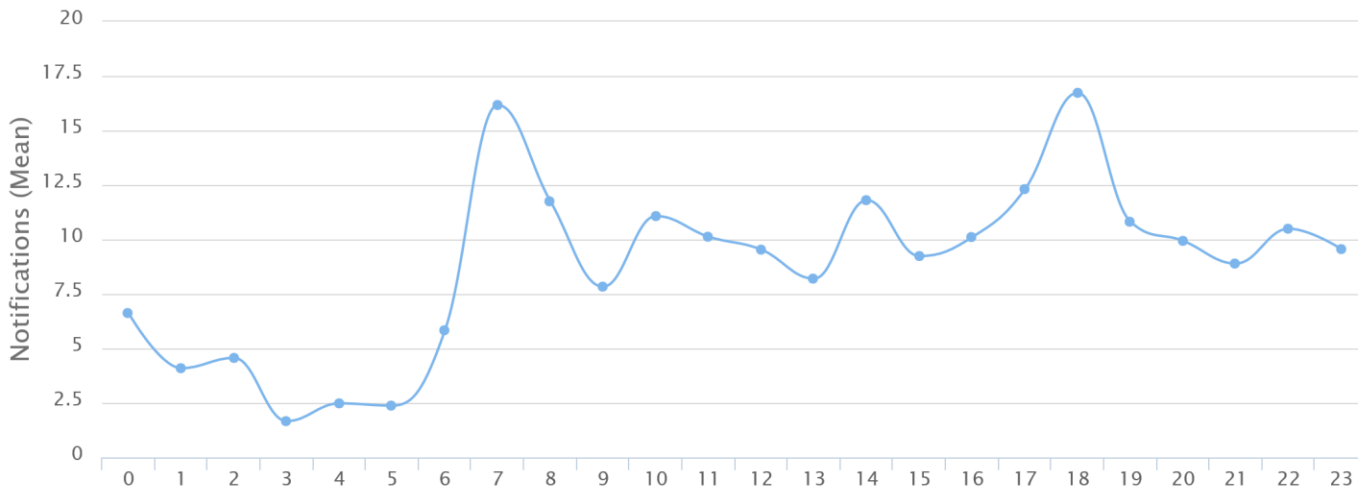
Days



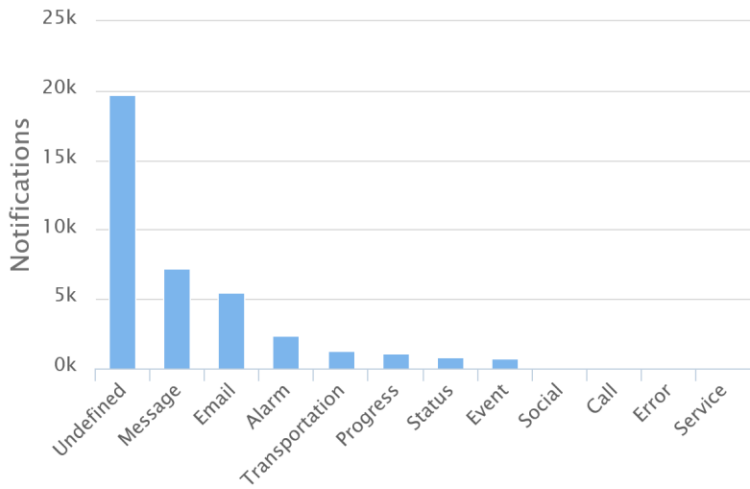
Weekday and Weekend



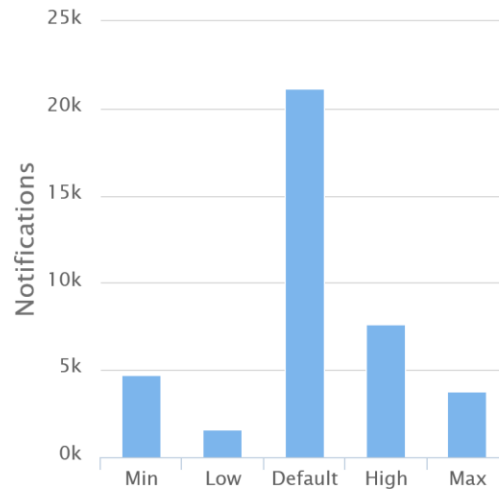
Hours



Categories



Priorities



Interview Study

Overview

- Semi-structured interviews
- 3 participants (all male; age $M=22.3$, $SD=2.3$)
- All computer science students

- Asked participants to install the Notification Log app for 1 month
 - *Ongoing* notifications and text disabled

Interview Study

Procedure

- Interview questions:
 - Estimate number of daily notifications
 - How many apps notify you?
 - Which app notifies you the most?
- Afterwards:
 - Showed Notification Dashboard
 - Brief introduction before allowing to explore the dashboard on their own

Interview Study

Results

- Participants underestimated the number of notifications they receive per day and how many apps notify them
- Participants described characteristics of the logs and tried to generalize their notification behavior
- Improvement requested:
 - Detailed information of specific days (explanation for outliers)

Notification Dashboard: Enabling Reflection on Mobile Notifications



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- Visualization tool for notification statistics
- Interview study (N=3)
 - Participants underestimated number of notifications
 - Participants reflected on their mobile notifications
- Future work
 - Improve implementation
 - Make it available publicly



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