

Notification Drawer Sorting

ML final project

12/24

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“Usability is about people and how they understand and use things, not about technology.”

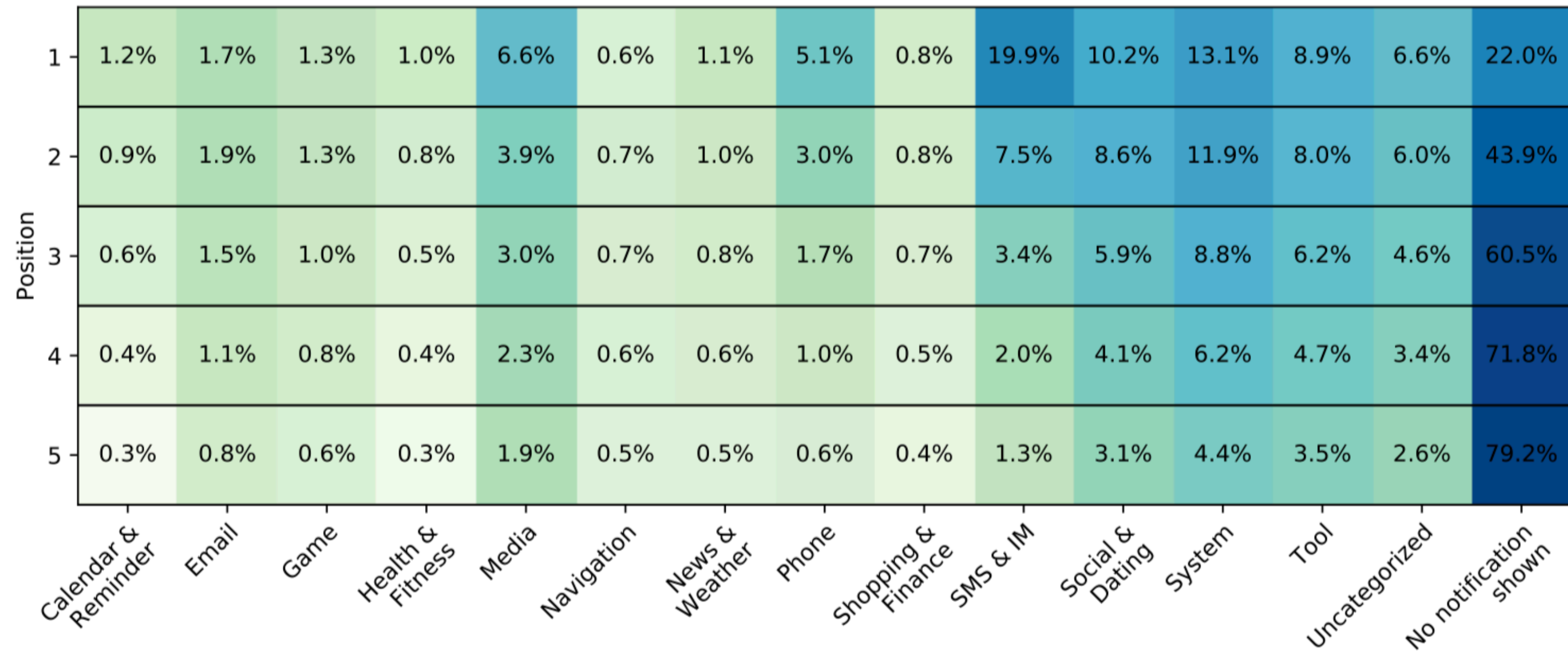
- Steve Krug

Introduction

Notification Drawer

Status quo

- iOS: according to time stamp
- Android: according to each app (developer would decide each notification to be *MIN, LOW, DEFAULT, to MAX*), time stamp
- Different users may have different order by their needs, but most of time system only sort notifications by time stamp
 - **which makes users spend lots of time handling notifications.**
- Major going is always on the top.
- Some user will read from top to bottom, some will read from bottom to top.



Distribution of which kinds of notifications are shown in the first five positions of the notification drawer.

Dominik Weber, Alexandra Voit, and Niels Henze. 2019. Clear All: A Large-Scale Observational Study on Mobile Notification Drawers. In *Proceedings of Mensch und Computer 2019 (MuC'19)*. Association for Computing Machinery, New York, NY, USA, 361–372. DOI:<https://doi-org.ezproxy.lib.nctu.edu.tw/10.1145/3340764.3340765>

Some people preferred to place “reminder” notifications at the top of the drawer, some preferred placing “reminder” notification at the bottom of the drawer.

Different kinds of people will read different order of the drawer.
Some will read from top to bottom, some will read from bottom to top.

Method

Data Preprocessing

- Collect data from questionnaires.

- # of total features: 14

1. gender

2. age

3. department

4. total_usetime

5. social_usetime

6. communication_usetime

7. entertainment_usetime

8. news_usetime

9. system_usetime

10. notification_usetime

11. view_order_top

12. view_order_middle

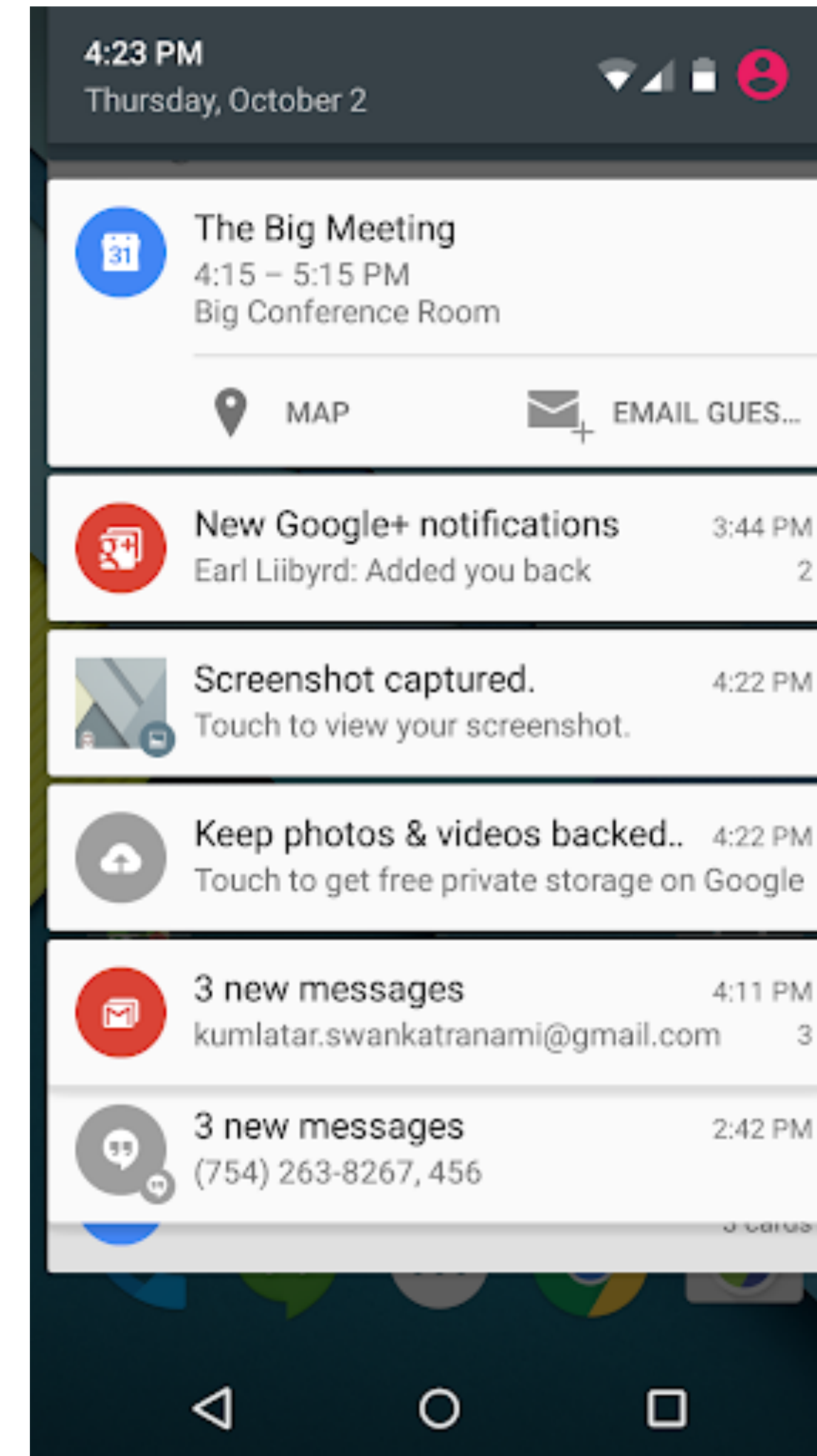
13. view_order_bottom

14. scenario

Data Preprocessing

Target

- tol_111111 ([1], [2], [3], [4], [5], [6])
- tol_1122 ([1], [2], [3, 4], [5, 6])
- tol_123 ([1], [2, 3], [4,5,6])
- tol_222 ([1, 2], [3, 4], [5, 6])



Data preprocessing

Missing Data & Encoding

- Missing Data: delete
- Encoding:
 - Department, usetime: label encoding
 - tol_: sorting for each tolerance to make the specific label.

Models

Results

Limitation & Future Work

Limitation

About Collecting Data

- Use some API (like Notification Listener in Android) that can get some backend data can collect data more completely.
- **Content** of each notification can have different attractive to users.
- Categories in the questionnaire is not enough for users to choose.
- Use **actual notifications** for users to sort is a better way to get order that they really want to see.
- We just collect the data of users' desire display order.
- Major going isn't included in our questionnaire.

Future work

- We wish to use an app that can let users sort their actual notifications to get the order.
- Content needs to be considered.
- **Users' desired display may be different from desired to attend.**
- We wish to design new UI (like use pin to remind, major going, two columns) with the model to let users get notifications more conveniently.