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INFORMATION
TECHNOLOGY

Software Engineering in Society

“COVID-19 Vs Social Media Apps: Does Privacy Really Matter?”

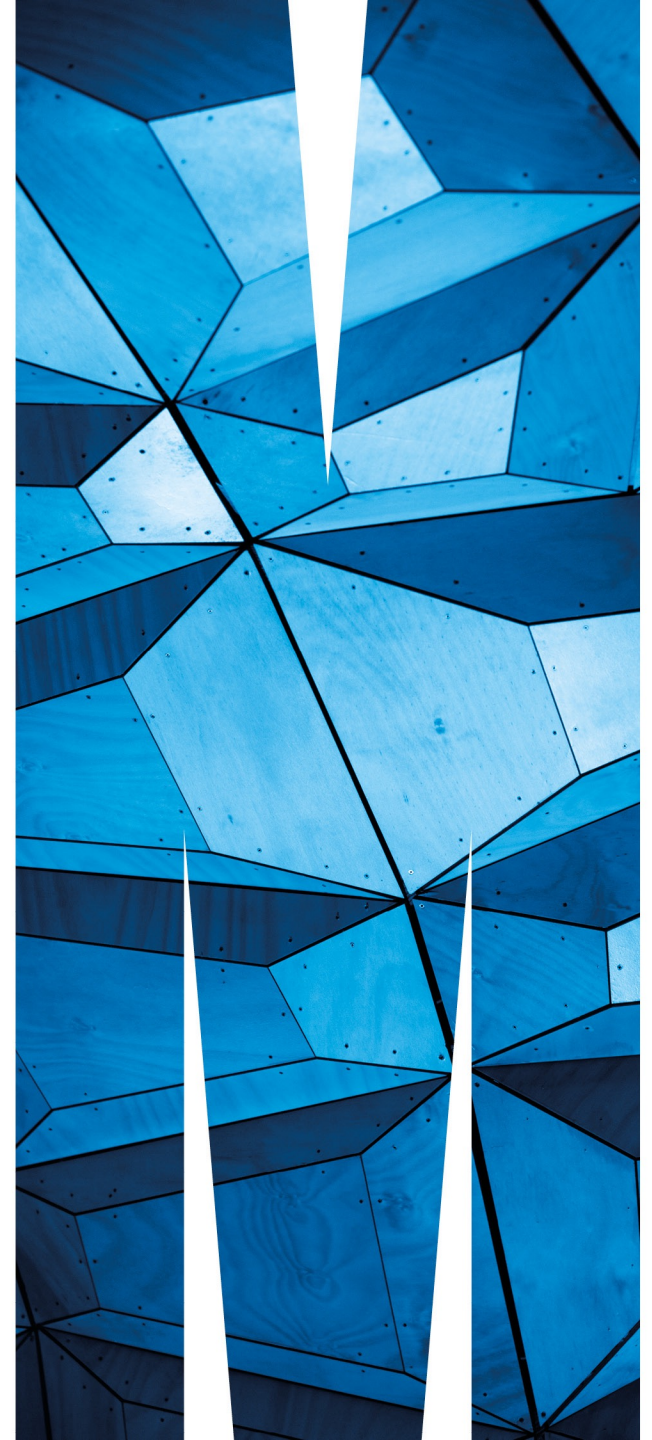
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- ❑ Introduction and Motivation
- ❑ Research Questions
- ❑ Methodology
- ❑ Findings

Introduction and Motivation

Some Interesting Facts...

- COVID- 19 apps play a very important role in stopping the global pandemic if 60% of the public download and start using them.
- Governments are promoting for their residents to download and use COVID-19 apps.
- Some governments are restricting the usage of social media apps.
- People are influenced by Media and think their privacy is extremely violated by COVID-19 apps.

The Reality in the Pandemic?



**Very high download rates and usage
of Social Media Apps**

BUT?!

**Low adoption and download
rates of COVID-19 Apps...**



COVID-19 Apps Development Challenges

COVID-19 apps should be accessible by everyone regardless age, gender, culture, etc since they are saving lives



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BUT...

By looking at the user reviews of COVID-19 apps
Thousands of users are raising and reporting significant problems



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Research Questions

Our 2 Main Research Questions



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- **RQ1:** How is personal data handled by COVID-19 and Social Media mobile apps?
- **RQ2:** What are the key issues raised by the users of COVID-19 and Social Media & Productivity apps as evidenced in their users' reviews?



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Methodology



Manual analysis of the privacy policies, terms & conditions, and data use agreements in COVID-19, Social Media & Productivity apps.

Automated analysis of nearly 2 million user reviews of COVID-19, Social Media & Productivity apps classified **into 5 main aspects** from both Google Play and App Store.



How our automated user reviews analysis tool works?



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Extract user reviews from both App Store and Google Play



Detect the language of the user reviews



Translate non-English user reviews to English



Classify user reviews into several main aspects



Automatically generate various types of statistics

Findings

Privacy Policies Findings

COVID-19 Apps

Transparency



Majority Open Source

Voluntarily



Some users are forced to use

Privacy



Identity of users masked

Data deleted when no longer
needed

Social Media Apps



Not Open Source



Voluntarily to use



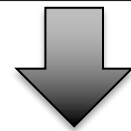
Data used out of app scope

More data collected than needed

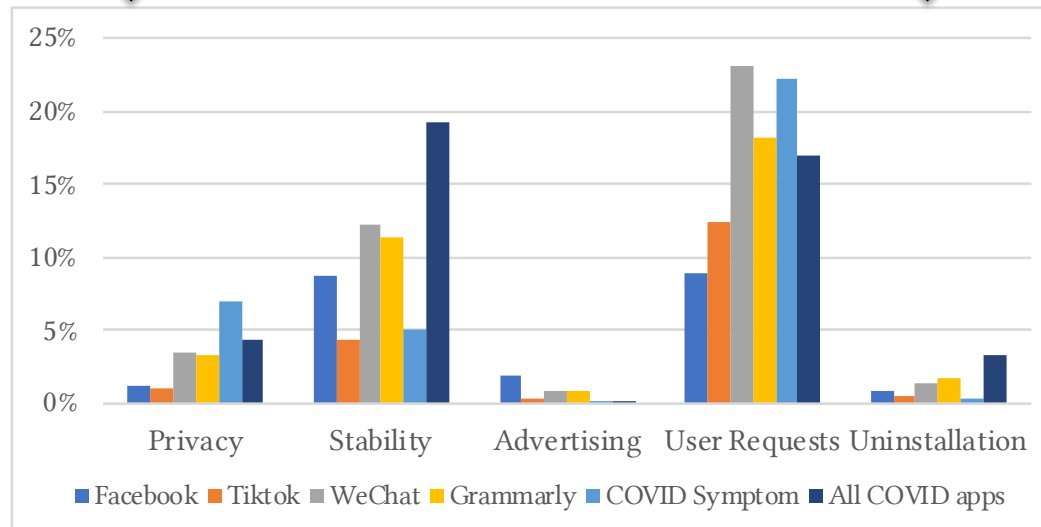
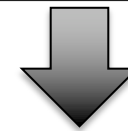
User Reviews Analysis

We downloaded, analysed and classified **1,978,418** user reviews for **Facebook, WeChat, TikTok, Grammarly, COVID Symptom Study**, and **21 different COVID-19**

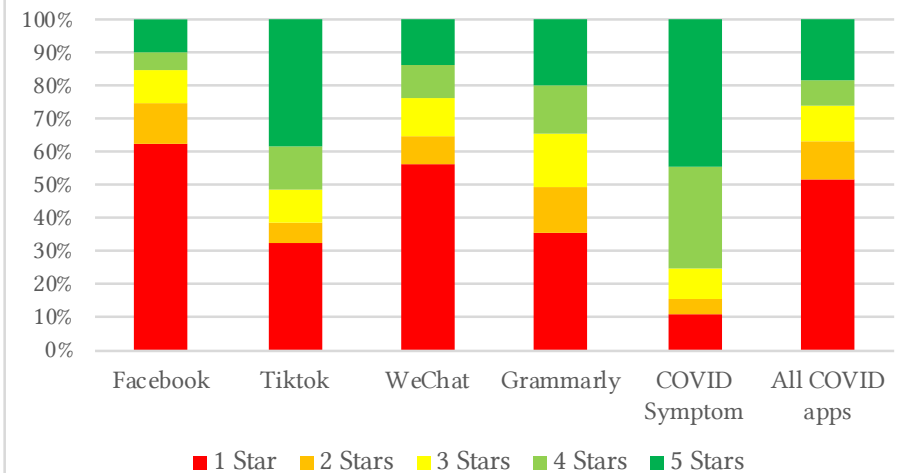
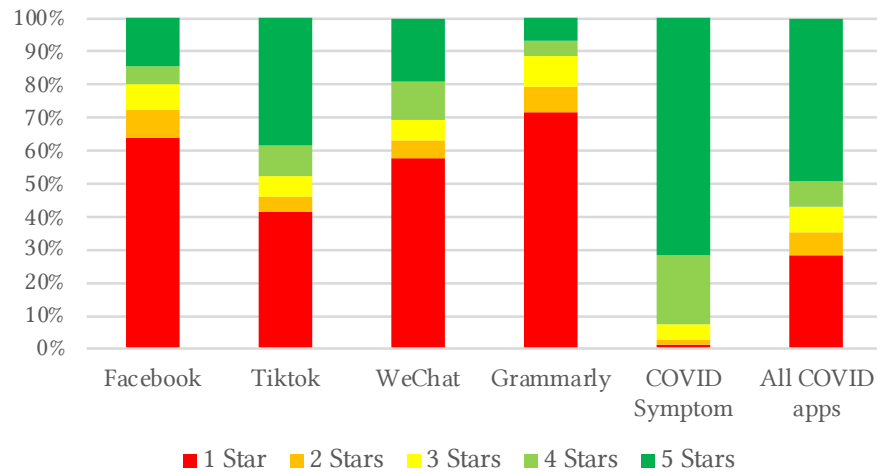
| App | Average Rating | Number of reviews |
|----------------|----------------|-------------------|
| Facebook | 3.49 | 817,980 |
| TikTok | 4.08 | 797,331 |
| WeChat | 2.63 | 84,309 |
| Grammarly | 3.85 | 28,027 |
| COVID Symptom | 4.68 | 28,306 |
| All COVID apps | 3.50 | 222,465 |



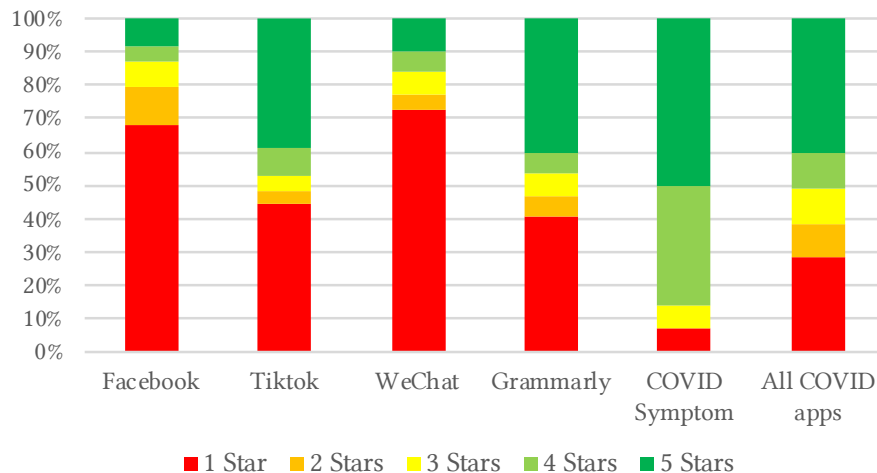
into five main aspects



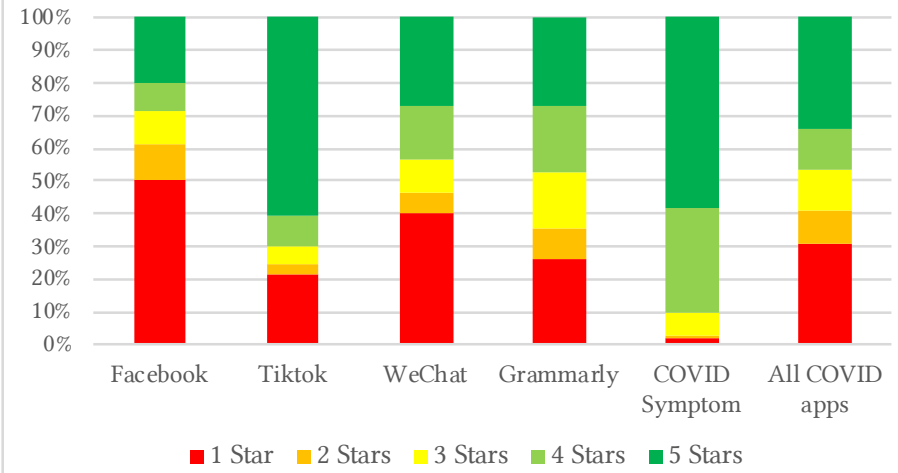
Distribution of Different Aspects Across Star Ratings



Privacy



Stability



Advertising

Users Requests

Major Findings

- COVID-19 apps better support privacy and better limit data usage.
- More COVID-19 app reviews talk about privacy issues.
- COVID-19 apps are much less stable and accessible.
- Health officials and technologists need to better raise awareness among individuals about the behaviour and trustworthiness of COVID-19 apps.
- More research needs to be done on how to design and implement any future public service apps that need to be rolled out quickly.

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Australian Government

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Any Questions?

Thank you

