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保障資料主任聯會
DATA PROTECTION OFFICERS' CLUB

PRIVACY AWARENESS WEEK 關注私隱運動
MAY 4-10 五月 2014

Developing Mobile Apps with Privacy Protection in Mind

Henry Chang, IT Advisor
Office of the Privacy Commissioner for Personal Data, Hong Kong
8 May 2014

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Developing Mobile Apps with Privacy Protection in Mind

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Developing Mobile Apps with Privacy Protection in Mind

- Background
- Data Protection Principles in apps development
- Best Practice on designing and programming privacy-friendly mobile apps
- Brief Introduction to the use of personal data obtained from the public domain

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The way we were…

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Survey on the top 60 mobile apps

Survey of 30 Android and 30 iPhone apps in May 2013

- 40% (24 apps) did not provide privacy policy (not in apps, not in website);

- 60% (36 apps) provided privacy policy in their website (not in apps)
  - 14 of the apps did not provide any link to the developers' site (we had to guess the website addresses)
  - Only policies of 2 to 3 apps were specific to mobile
  - 4 of the apps had readability issues

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Do you want to be featured in the news?

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For this reason?

太陽 | 要聞港聞 | 兩岸國際 | 財經 | 娛樂 | 副刊 | SUN 樂園 | 體育 | 馬經 | 波經

渣打手機軟件套取用戶私隱

【本報訊】智能手提電話愈來愈普遍，有Android用戶下載渣打銀行及旅遊發展局軟件時，被要求授權讀取手提電話內個人資料，包括電話簿和行事曆，甚至可操控相機。渣打銀行回應說相信是軟件設計問題，銀行無讀取用戶個人資料。

渣打銀行一個Android軟件，要求讀取手提電話內個人資料。

有市民下載渣打銀行提供銀行分行和櫃員機位置的Android軟件後發現有問題，「安裝時要求讀取我個人資料，例如電話簿、行事曆，但軟件無需要用這些資料，我覺得奇怪，所以刪除了這個軟件。」該軟件甚至要求授權控制相機功能。

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Or this reason?

CNET › News › Security & Privacy › LinkedIn's app transmits user data without their ...

LinkedIn's app transmits user data without their knowledge

iOS app collects users' calendar data and transmits it to the networking company's servers, without revealing the transmission to members, two mobile security researchers discover.

by Steven Musil | June 5, 2012 7:52 PM PDT

Follow


```
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Or this reason?

LinkedIn's new Intro app is a nightmare for email security and privacy, say researchers

October 26, 2013 10:08 AM
Ricardo Bilton

292 474 0 175 4

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Why are app users in the dark or have no control?

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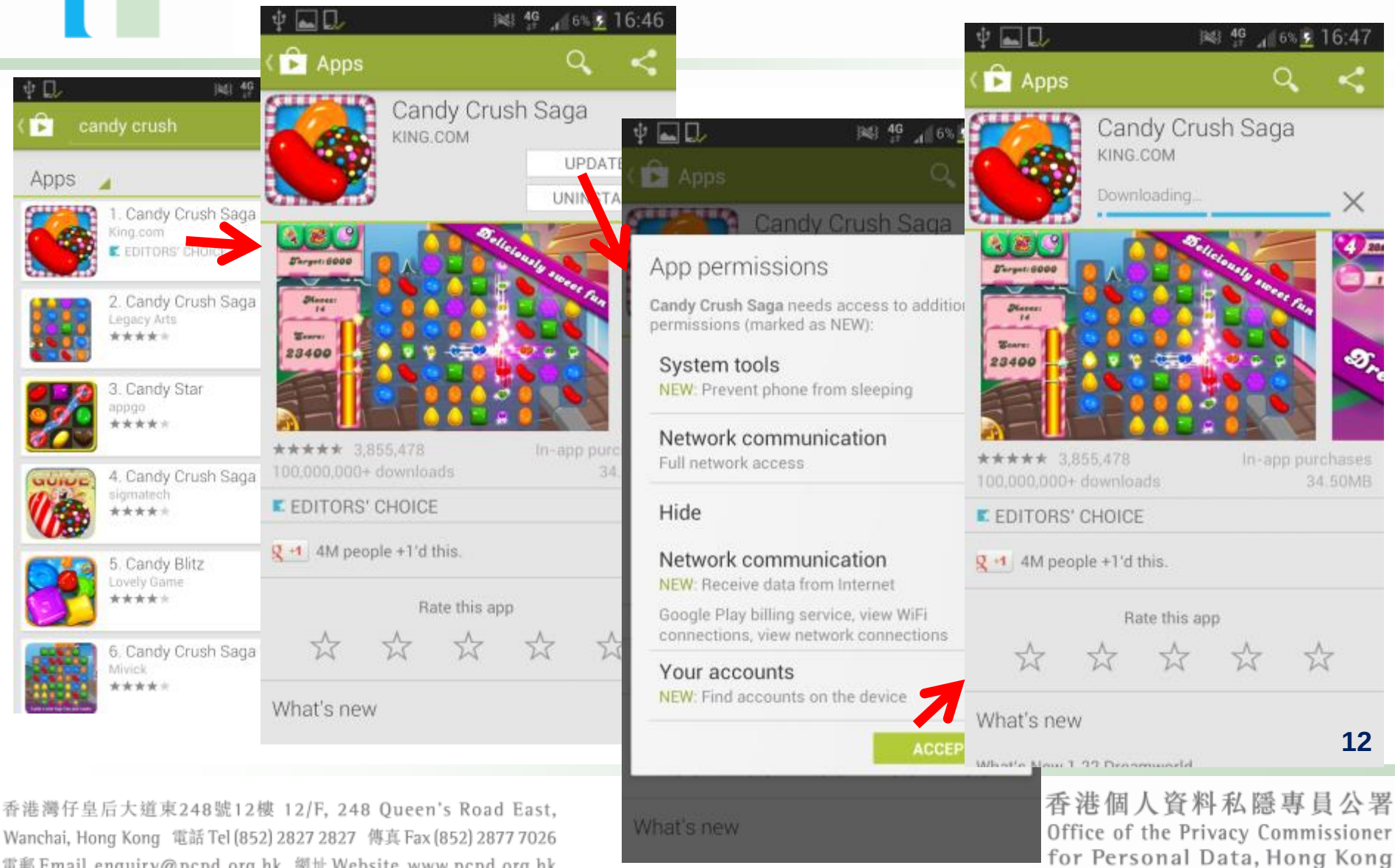
The "all-or-nothing " Android approach



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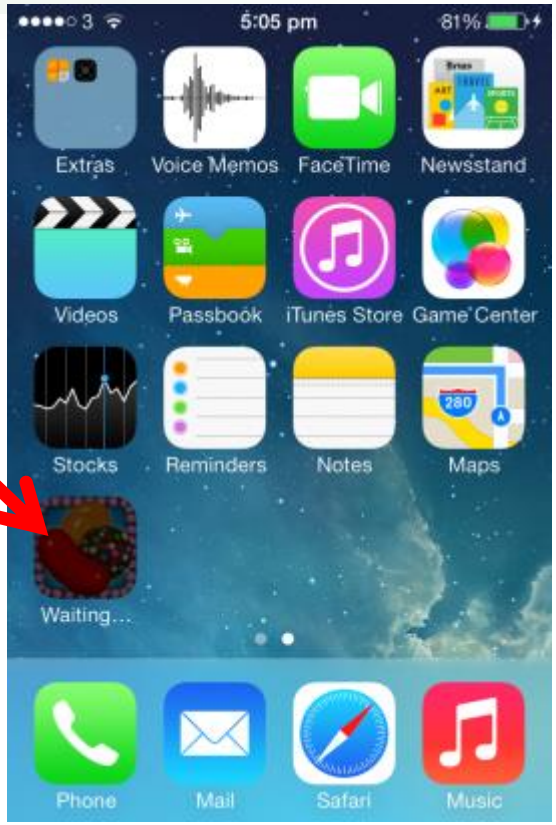
The "selective-control" iOS approach



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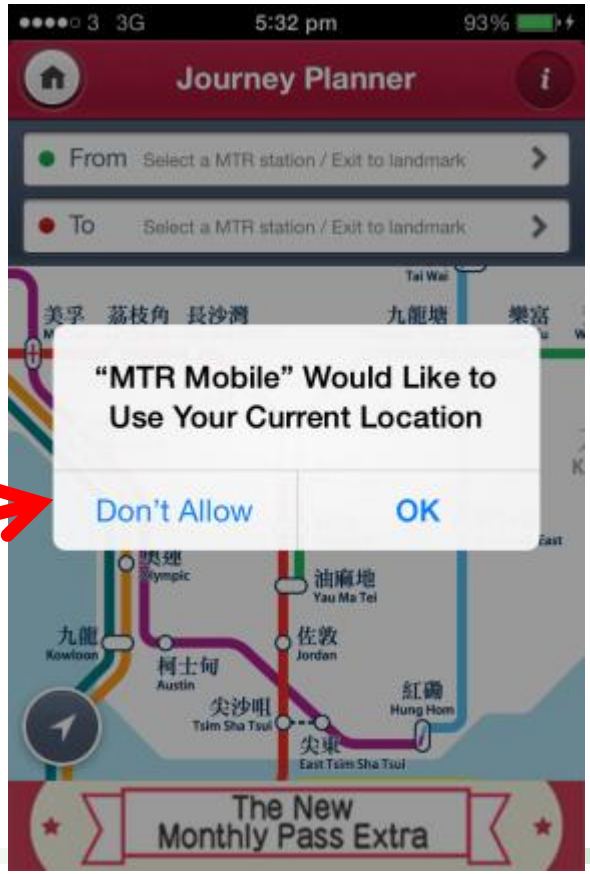

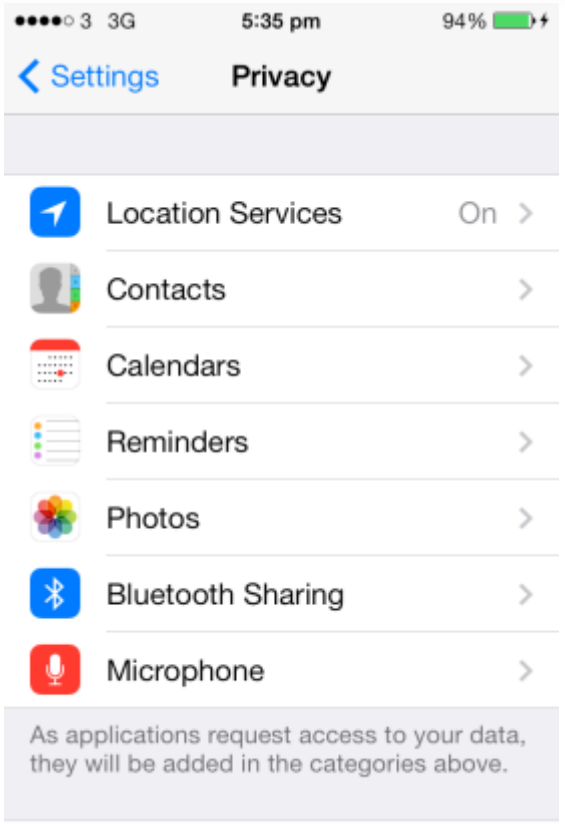

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Would you use these apps?

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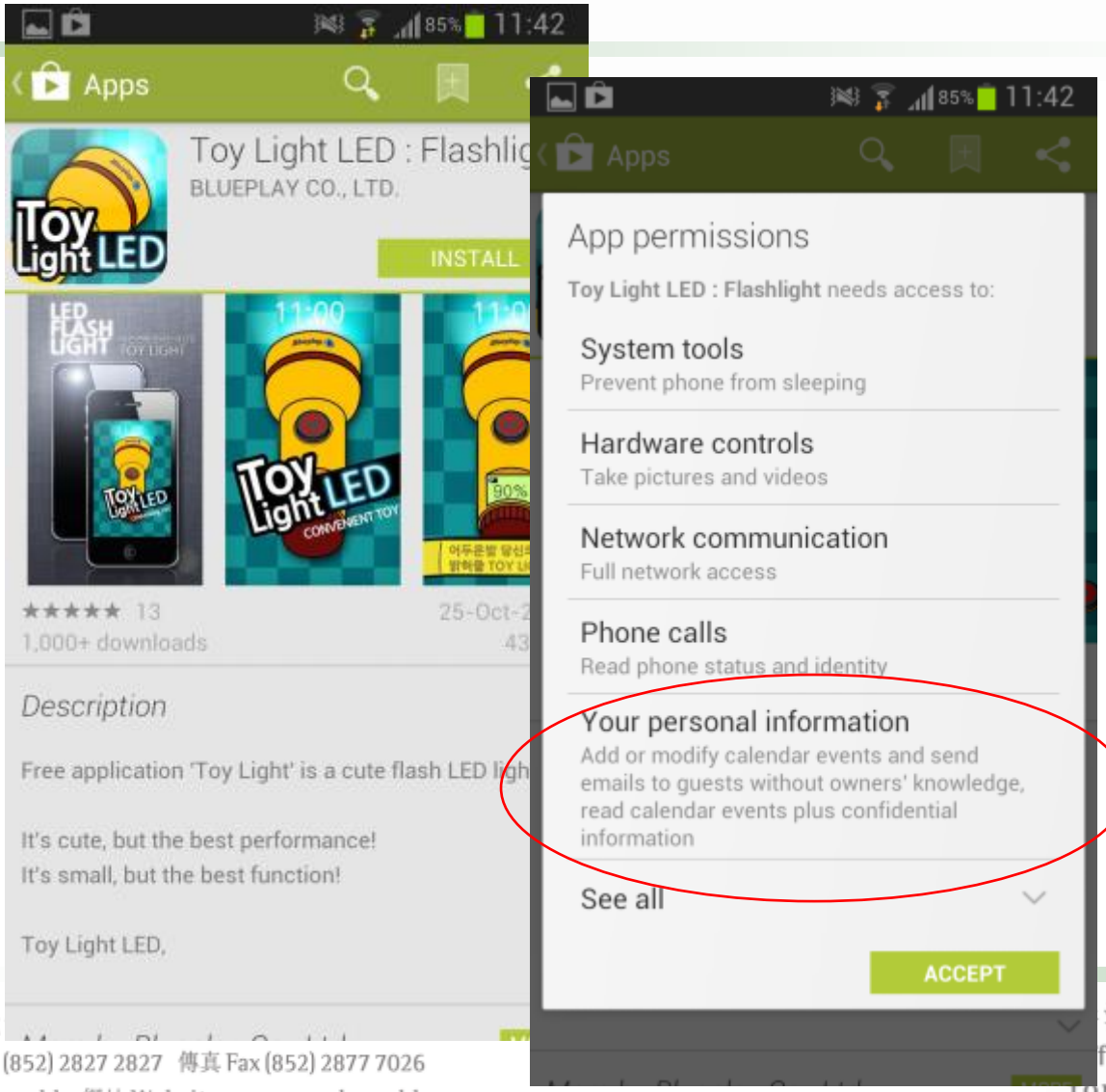
Would you use this app?



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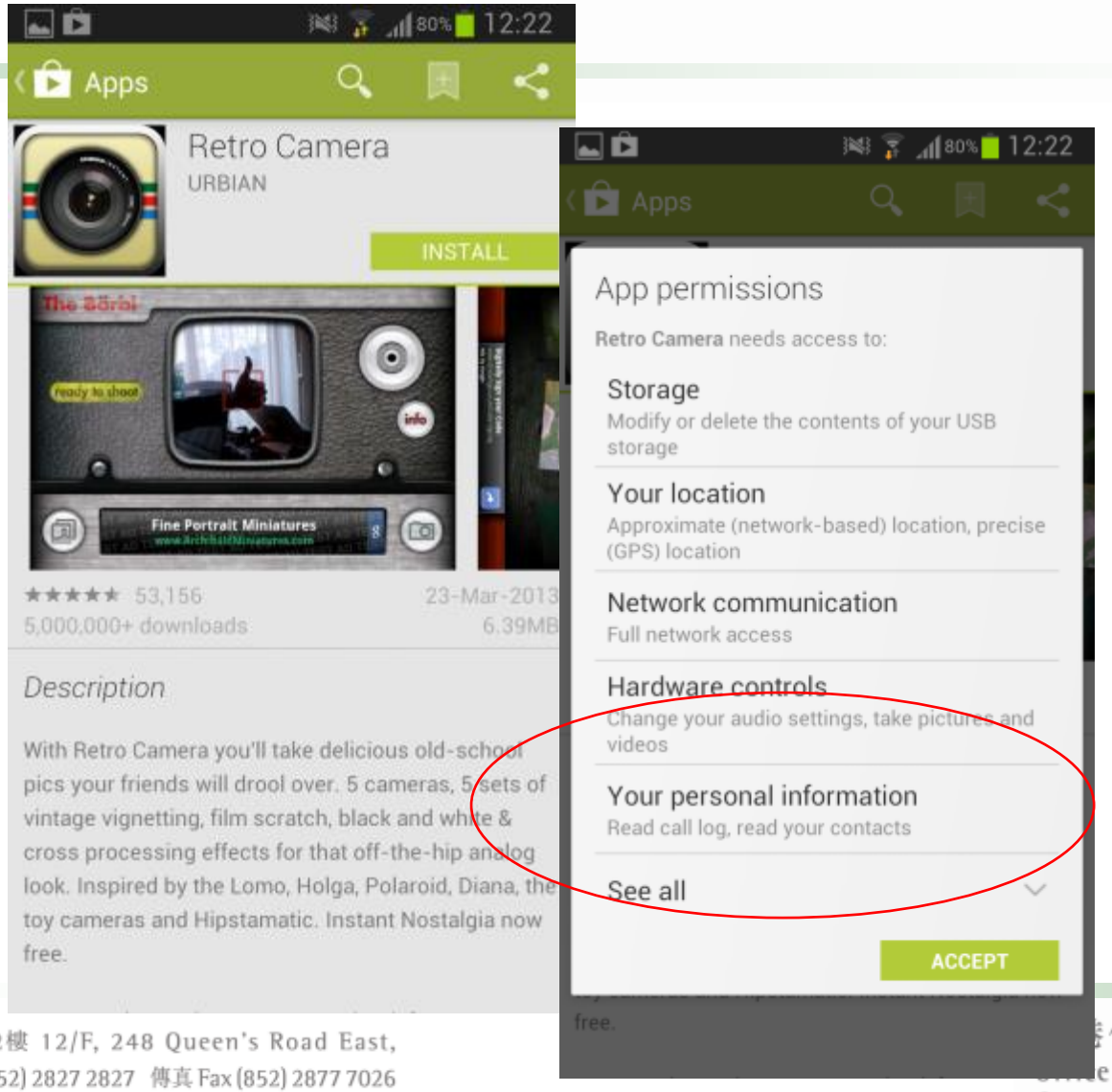
Would you use this app?



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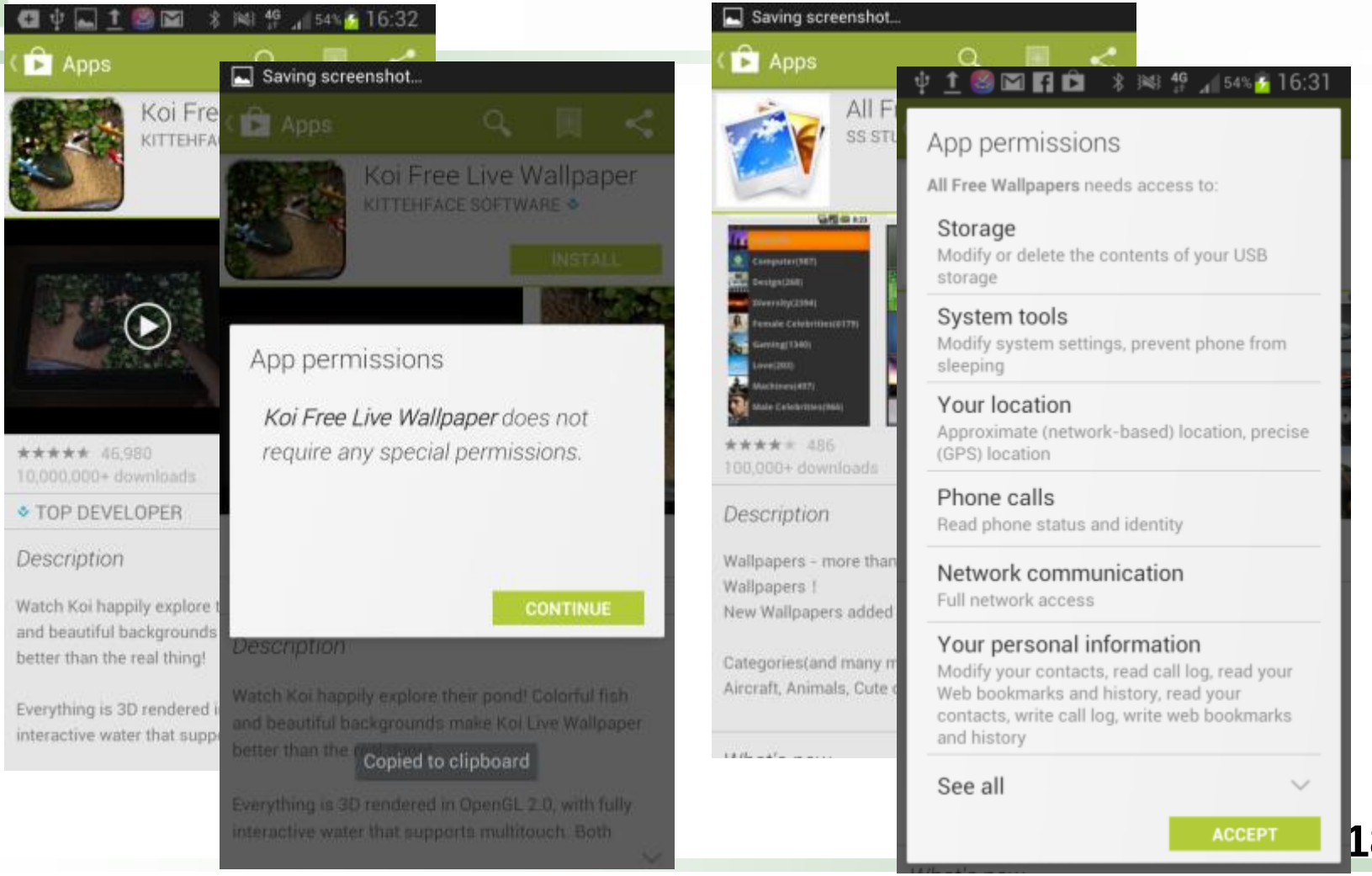
If you are a user, which of these apps would you install?



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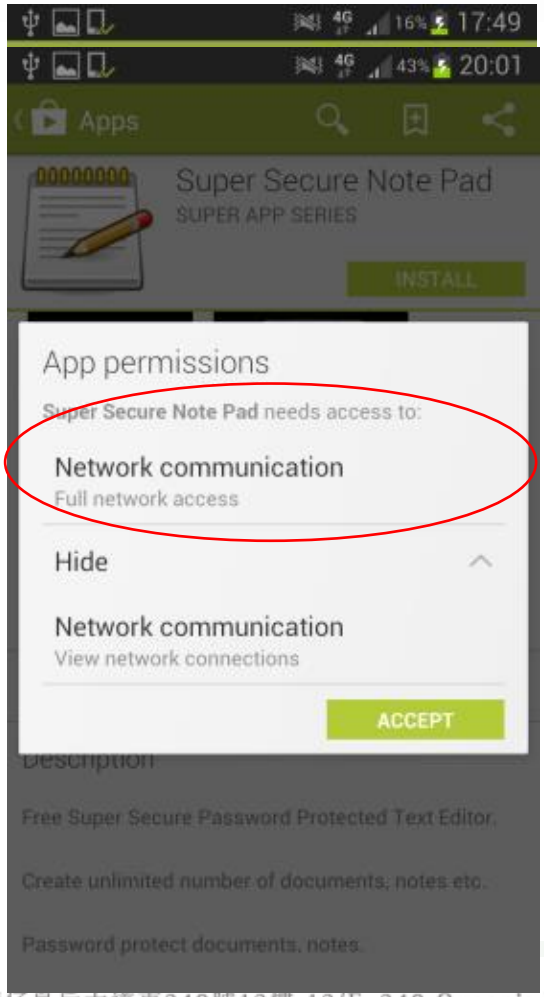

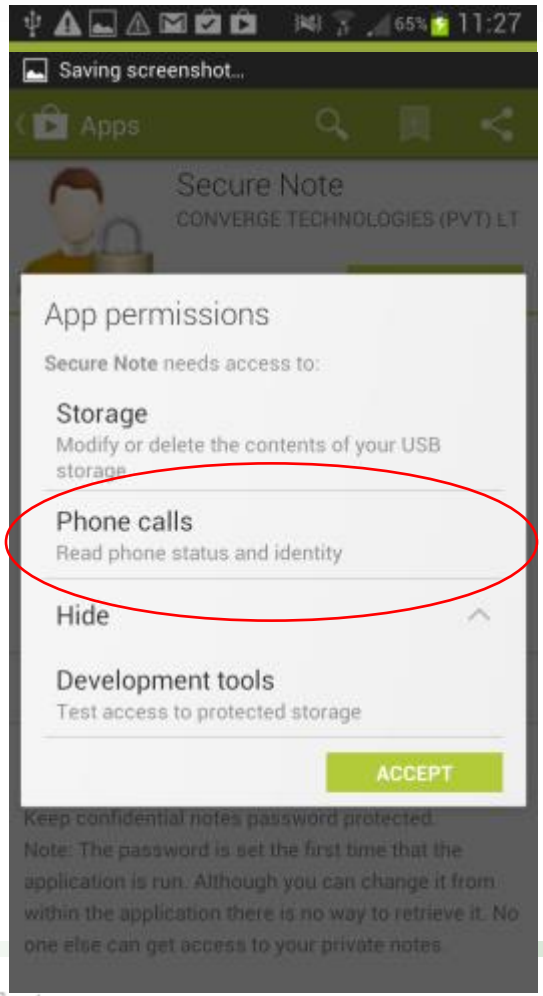

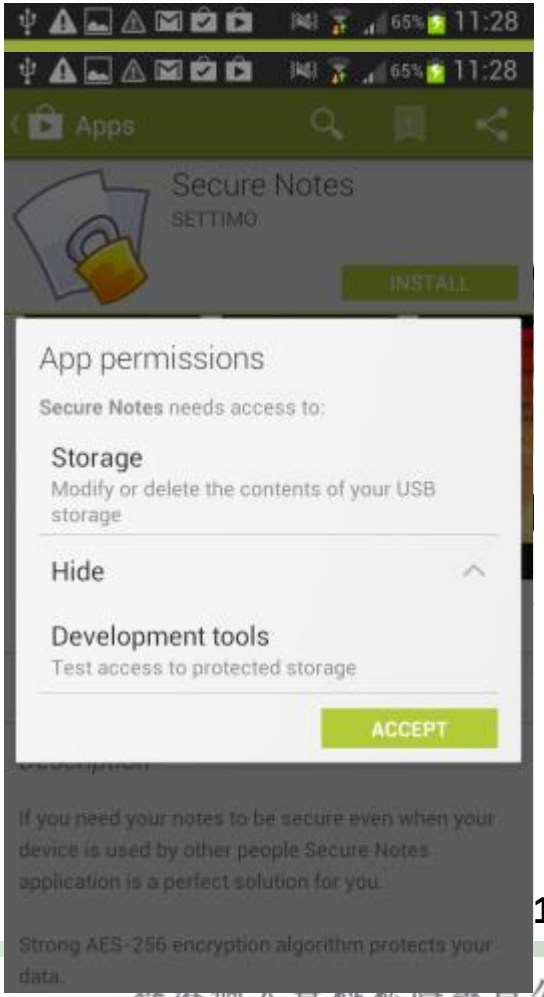

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What are the basic data protection principles?

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Data Protection Principles

1. **Informed Consent**
   - **Purpose Specification and Collection Limitation**
   - **Data Quality and Retention Principle**
   - **Use Limitation Principle**
2. **Protection**
   - **Security Safeguard Principle**
3. **Transparency**
   - **Openness Principle**
   - **Individual Participation Principle**

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Personal Data Definition

Any data:

1. relating directly or indirectly to a living individual;

2. from which it is practicable for the identity of the individual to be directly or indirectly ascertained ; and

3. In a form in which access to or processing of the data is practicable.

Are these personal data?

a) Email address
b) Locations
c) IMEI
d) Account names
e) Call logs
f) Contact lists

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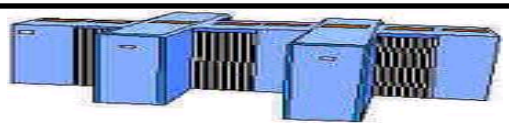
Data Flow and Data Protection Principles (DPPs*)

*http://www.pcpd.org.hk/english/ordinance/ordglance1.html#dataprotect

Personal Data Flow

Collection

Storage, Use or Processing



IT System

Retention/ Erasure

DPP 1 – Collection

DPP 3 – Use

DPP 2 – Accuracy and retention

DPP 4 – Security

DPP 5 – Transparency

DPP 6 – Rights of access and correction

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The Six Data Protection Principles

1. Purpose and Manner of Collection
   - Collection must be directly related to purposes, lawful, fair, necessary and adequate;
   - Inform data subject of purposes, class of transferee, consequence of not providing the data, and rights to access and correction

2. Accuracy and Duration of Retention
   - Data should only be used if it is considered accurate
   - Data should not be kept longer than necessary (including by contractors)

3. Use of Personal Data
   - Data should only be used for the original purpose except consent is obtained

4. Security of Personal Data
   - Appropriate security measures to be applied (including by contractors)

5. Information to be Generally Available
   - Transparency of personal data policies and practices

6. Access to Personal Data
   - Ensure rights of data subjects for access and correction of personal data

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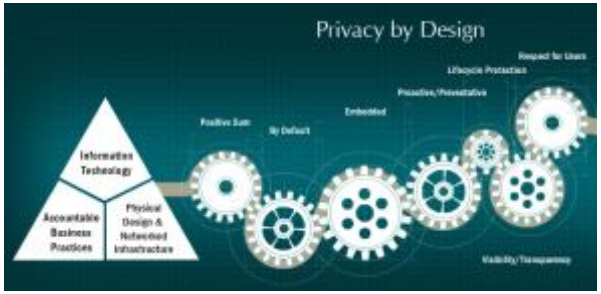
Privacy by Design

Privacy by Design* is the philosophy of embedding privacy from the outset into the design specifications of accountable business processes, physical spaces, infrastructure and information technologies



*http://privacybydesign.ca/

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The essence of Privacy by Design

A clever person solves problem,

a wise person avoids it.

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Privacy by Design – when applying it to app development

- Is the access of the information necessary?
  - If access is necessary, is there a clear/accessible privacy policy/notice?
  - If access is necessary, is the uploading of the information necessary?
    - If uploading is necessary, is the storage necessary?
  - If access is necessary, is the sharing/transferal of the information necessary?
- What other information is being collected/combined/associated?
- What safeguards (such as encryption and access controls) are in place to the information accessed/transmitted/shared/kept?
- Can mobile user opt-out of any of these and erase accounts?

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Points to consider

- Always consider data in its totality:
  - What are the implication (not just use) of the data access/collection to individuals.
  - Do you/can you combine information collected online/offline?

- Permission page is not privacy policy statement/notice.

- Make privacy policy statement/notice relevant (cover the usage beyond the device level) and ‘at the fingertip’.

- Provide clear opt-out options and allow erasure of data collected.

- Privacy protection is not just a compliance issue. It is a business issue.

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Recommendations

- Whether you think you are collecting personal data, you should consider clearly state the following details prior to app installation
  - what, when and why you are accessing the information
  - whether the information would be collected, uploaded, stored and/or shared
  - what use you have (particularly any use beyond the mobile device)
  - whether information will be combined with other information (collected at the same time or by other means) for
    - Tracking/profiling purpose
    - advertising purpose

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Mobile Application Development

Technical considerations

- Use reliable software development tools (SDKs; libraries)
- Understand what access third-party tools (such as those from Flurry) will have to mobile device data
- Use most granular/specific/least privileged calls you can
- Remember Confidentiality, Integrity and *Accountability*
- Be familiar with mobile-specific vulnerabilities/hacking techniques
- Perform code-review and software testing

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Examples

The Good, the not-so-good and the ugly…

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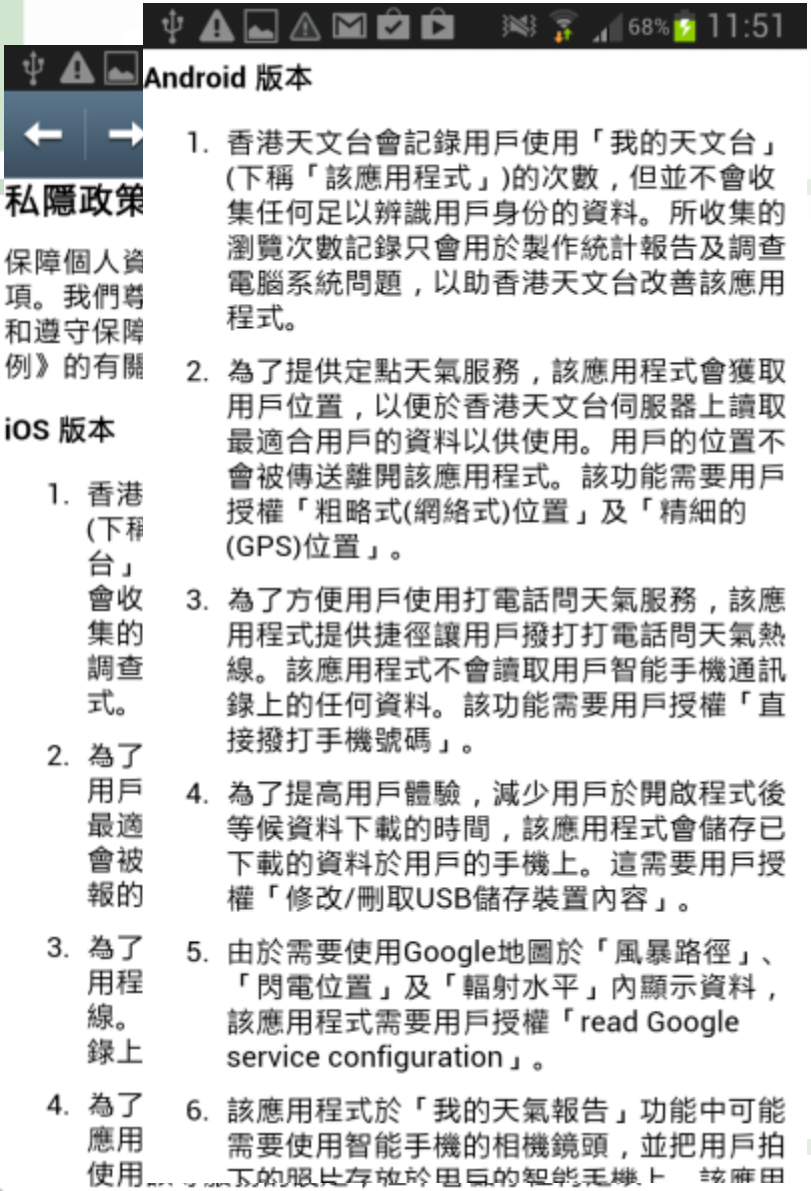
The good



- Available before installation
- (Nearly) single page and simple language
- Specific to the type of data accessed
- Explained use of data ‘beyond the phone’
- But – don’t copy this…

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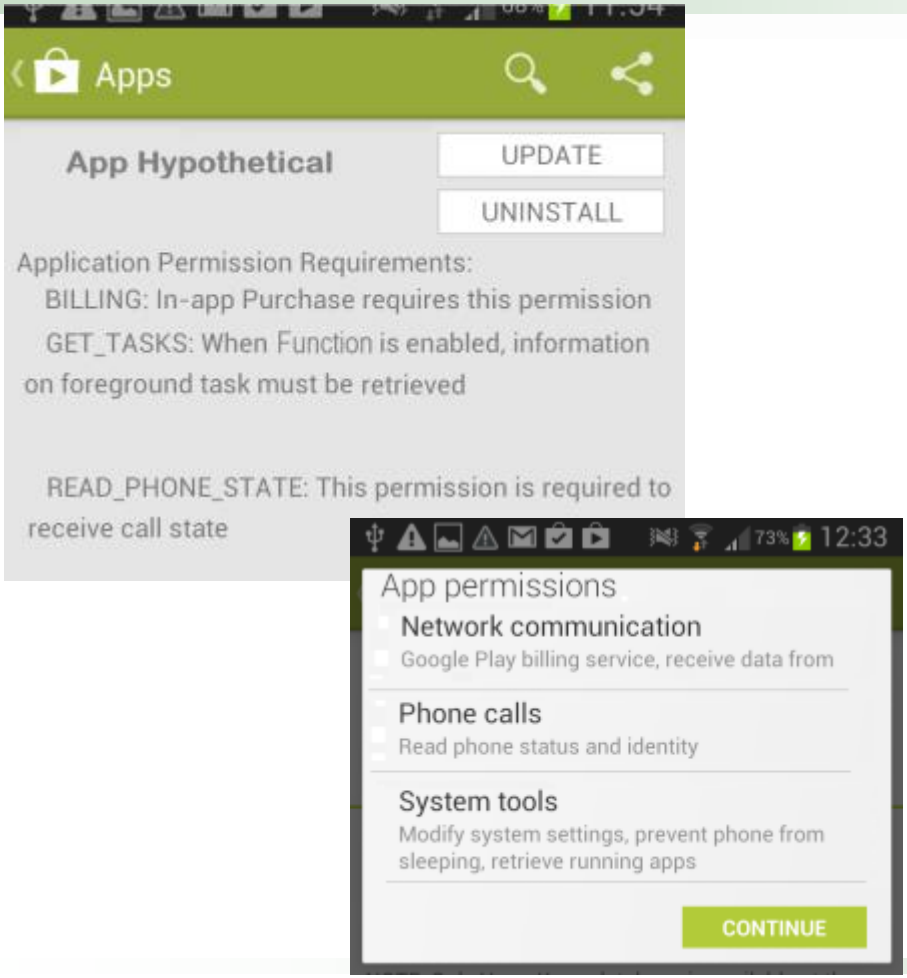
The "room for improvement" – PPS transparency



- **BILLING description matches with permission sought**
- **Difficult for users to match GET_TASKS to the permission**
- **READ_PHONE_STATUS does not explain anything**
- **Concentrate on permission and neglected business purposes**
- **No explanation on advertising arrangement**

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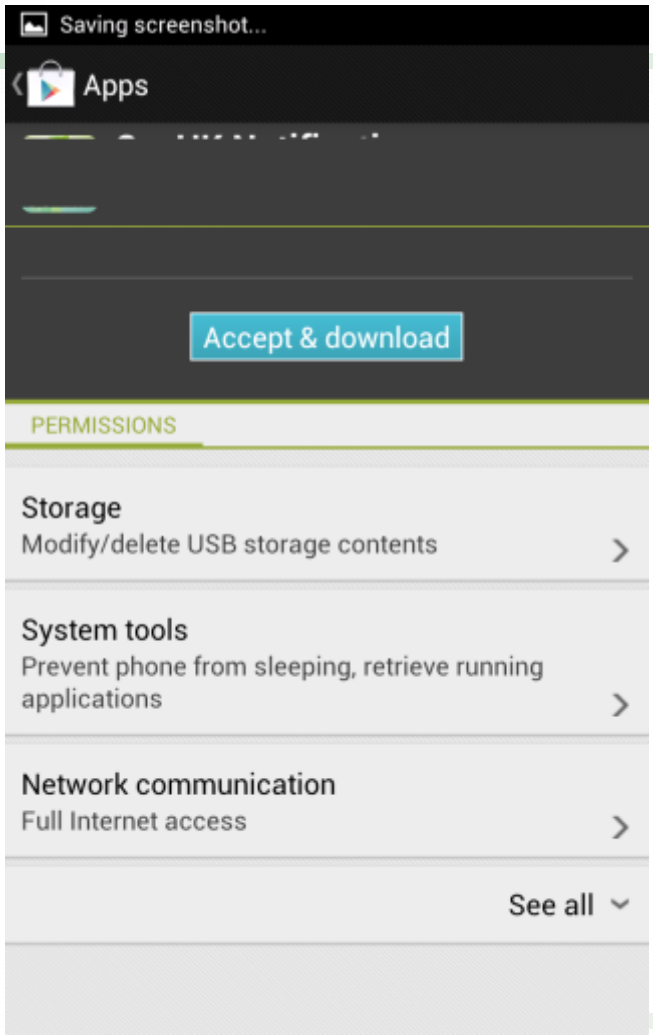
The "room for improvement" – use specific functions



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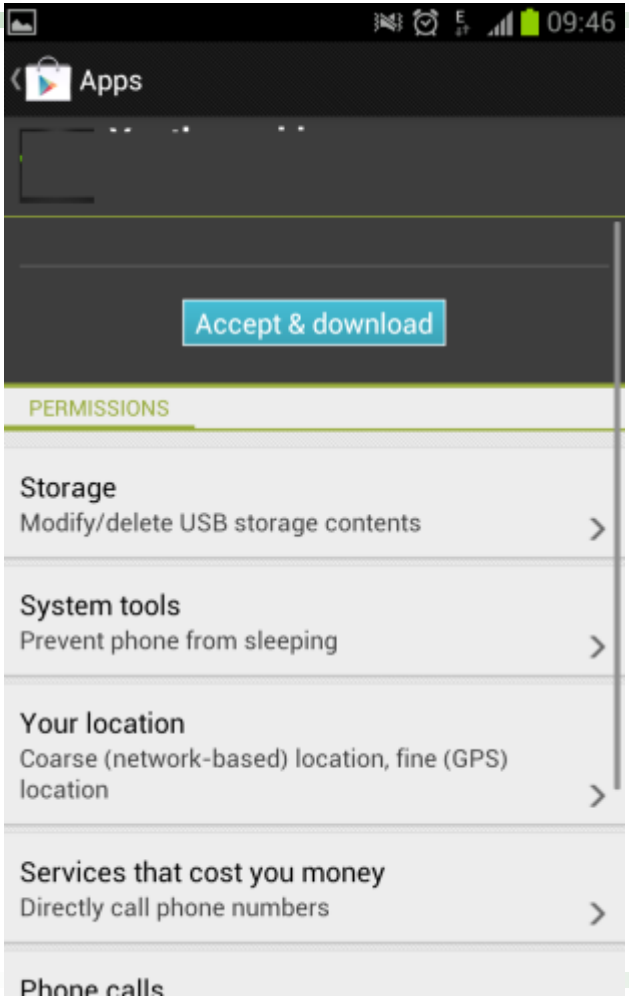
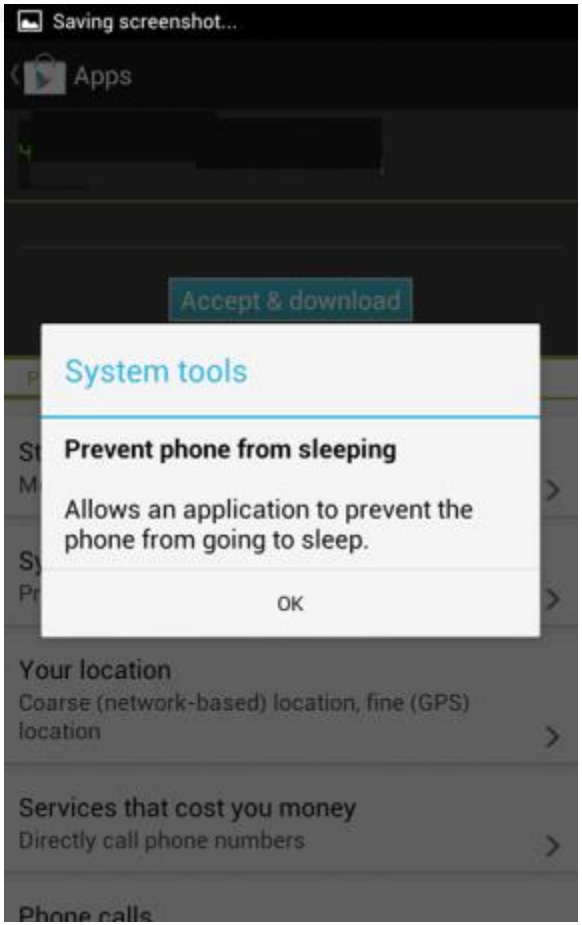
The "room for improvement" – use specific functions





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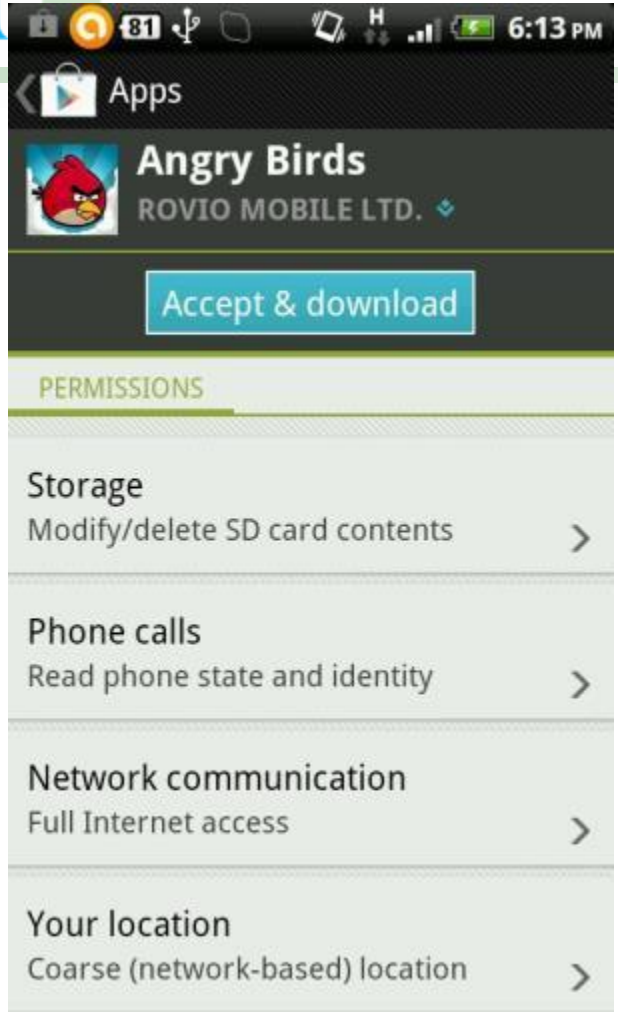
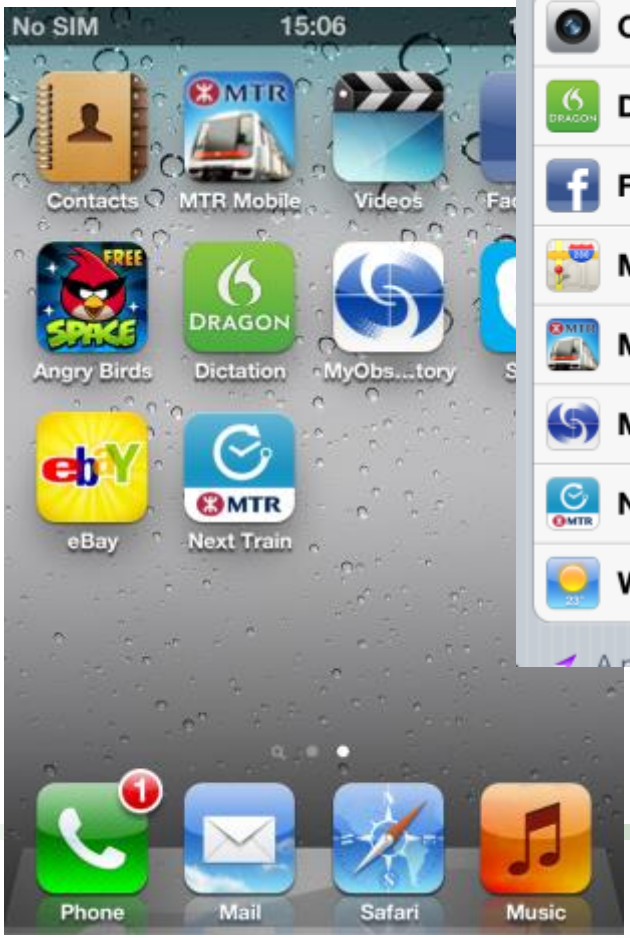
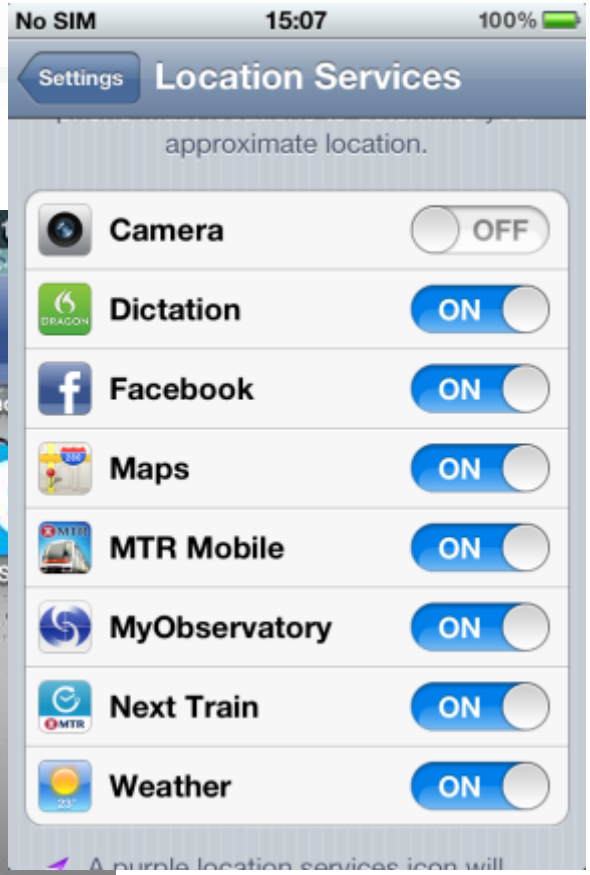
Access Discrepancy – Android vs iOS







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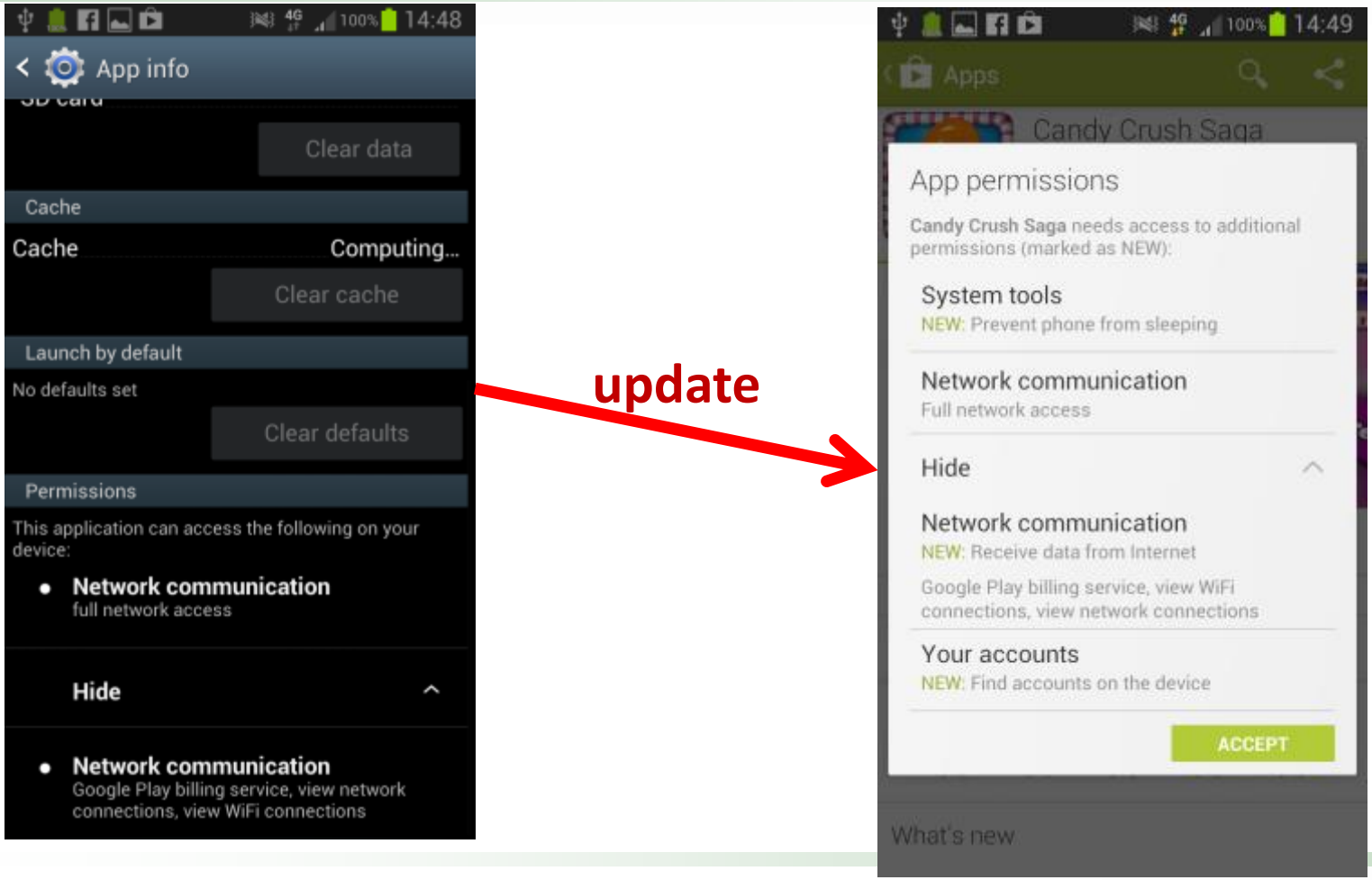
Access creep "by the back door"?



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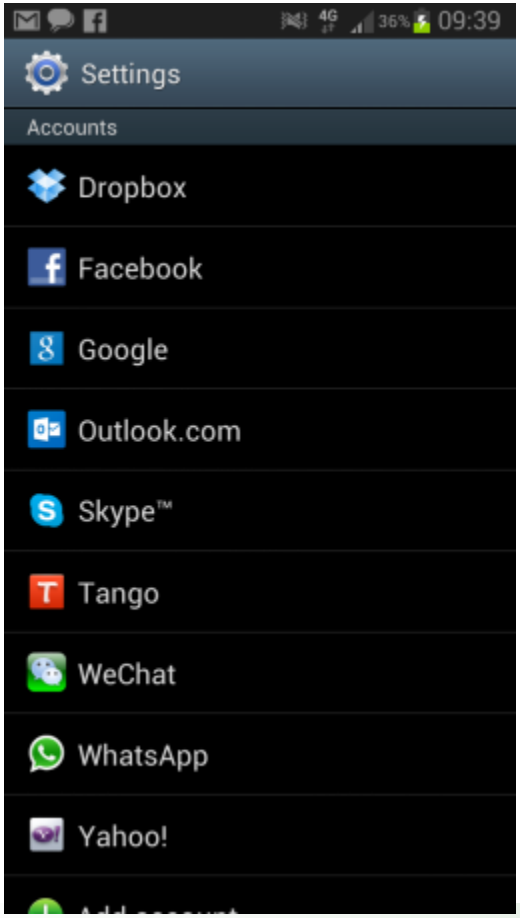
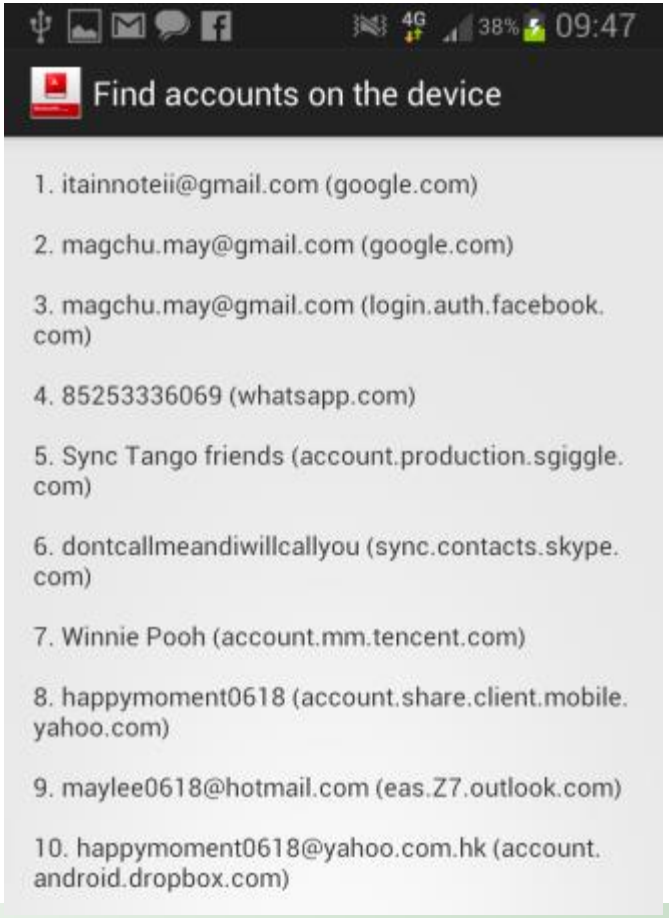
What "Find accounts on device" can do…





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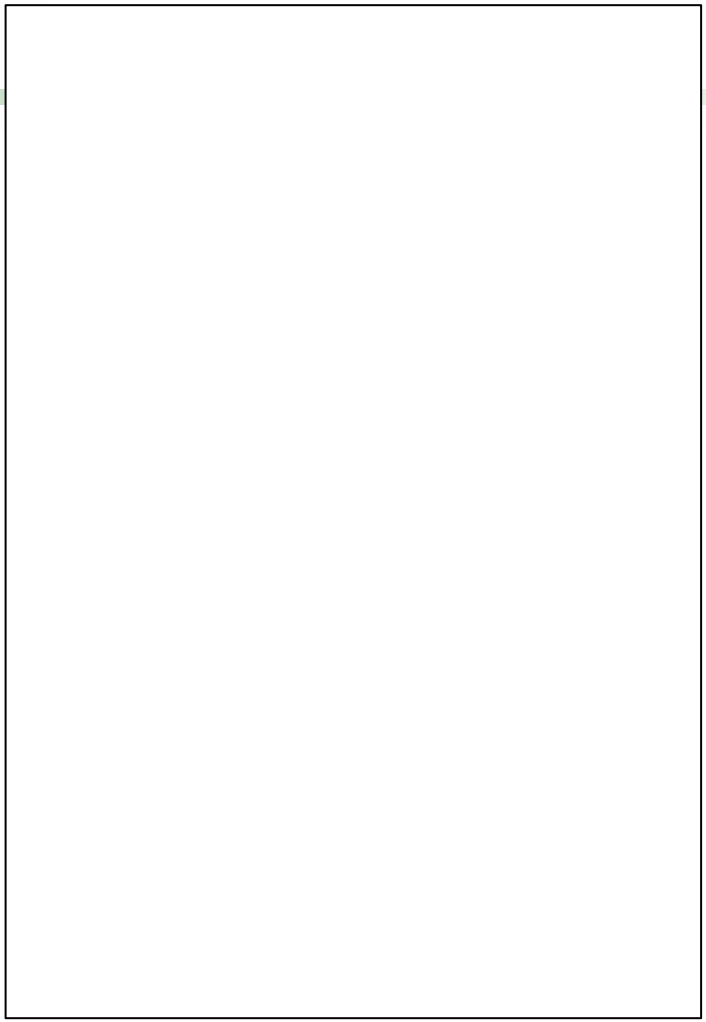
The ugly



- **Nothing…**

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Privacy and Mobile Apps Development

Please check out the "what mobile apps developers and their clients should know" leaflet

http://www.pcpd.org.hk/english/publications/files/apps_delvelopers_e.pdf

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Information Leaflet

Personal data privacy protection: what mobile apps developers and their clients should know

Introduction

This technical information leaflet aims to highlight the privacy implications that mobile applications ("**mobile apps**") developers (including organisations who commission the development of mobile apps) and operators (referred collectively as "**Developers**") should consider in [illegible] developing

information such as locations travelled, photographs taken, text messages sent and received, address book contacts entered, and social network usernames and passwords used.

Normally, Apps Developers will collect personal data by directly asking mobile device users to provide their personal data. Additionally, through mobile apps, Apps Developers may access, transfer, share or [illegible] supplied or device-specific data [illegible] with or without the

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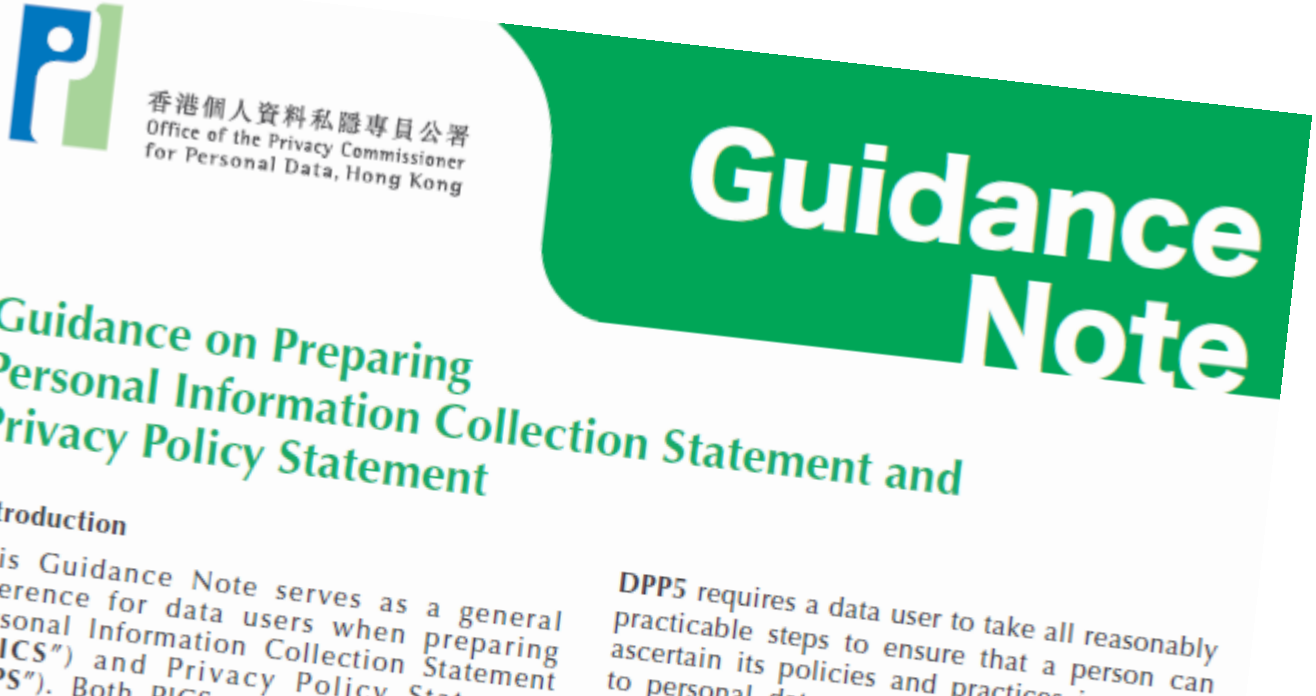
Privacy and Transparency

Please check out the "Guidance on Preparing Personal Information Collection Statement and Privacy Policy Statement"

http://www.pcpd.org.hk/english/publications/files/GN_picspps_e.pdf



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Guidance Note

Guidance on Preparing Personal Information Collection Statement and Privacy Policy Statement

Introduction

This Guidance Note serves as a general reference for data users when preparing Personal Information Collection Statement ("**PICS**") and Privacy Policy Statement ("**PPS**"). Both PICS and PPS are important tools used respectively for complying with the requirements of Data Protection Principle (**"DPP"**)1(3) and **DPP5** under the **Personal Data (Privacy) Ordinance** (the "**Ordinance**").

DPP5 requires a data user to take all reasonably practicable steps to ensure that a person can ascertain its policies and practices in relation to personal data and is informed of the kind of personal data held by the data user and the main purposes for which personal data held by a data user is or is to be used.

What is personal data?

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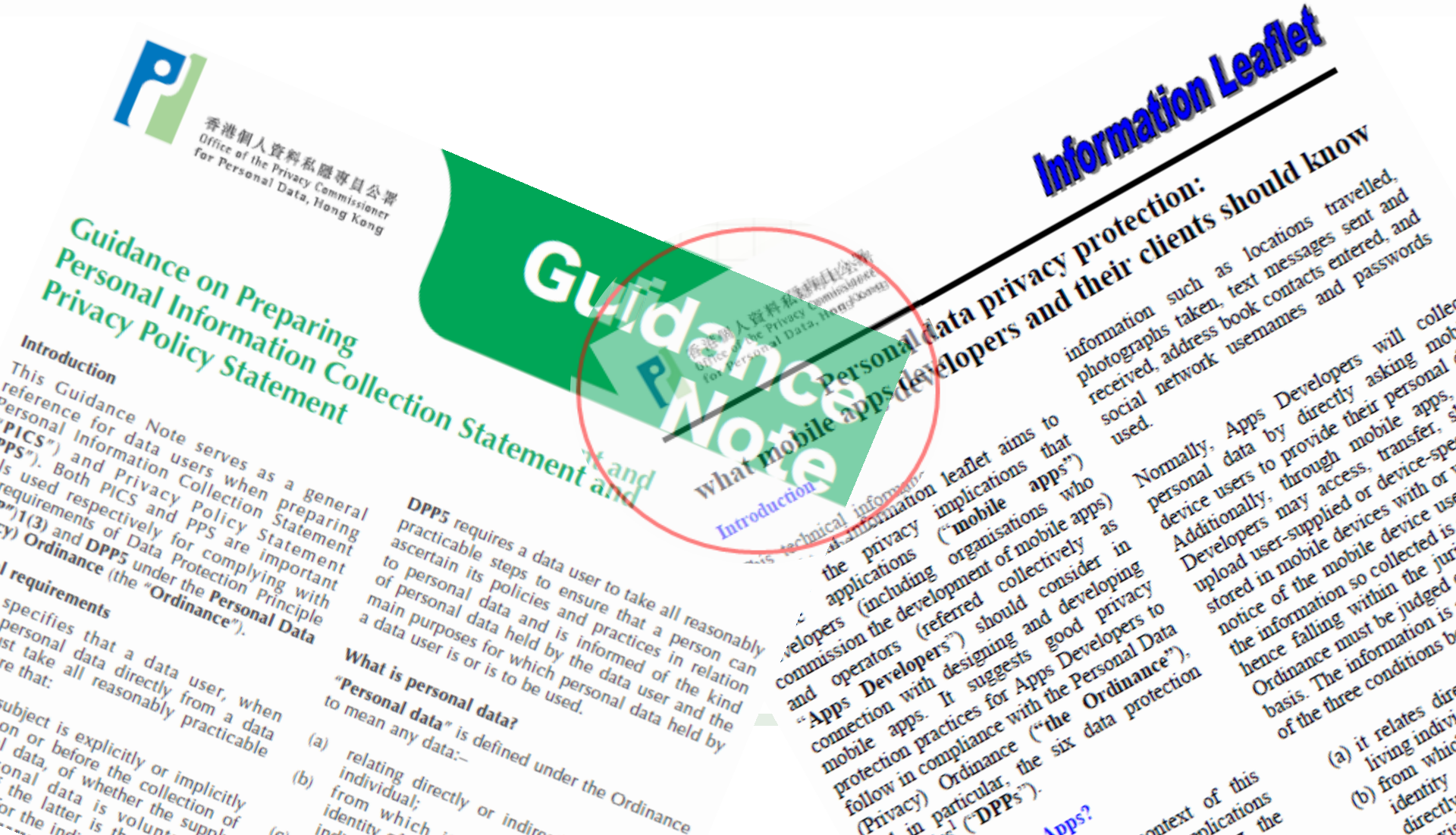
We have only covered a small area



Mobile App Development with Security and Data Privacy in Mind

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