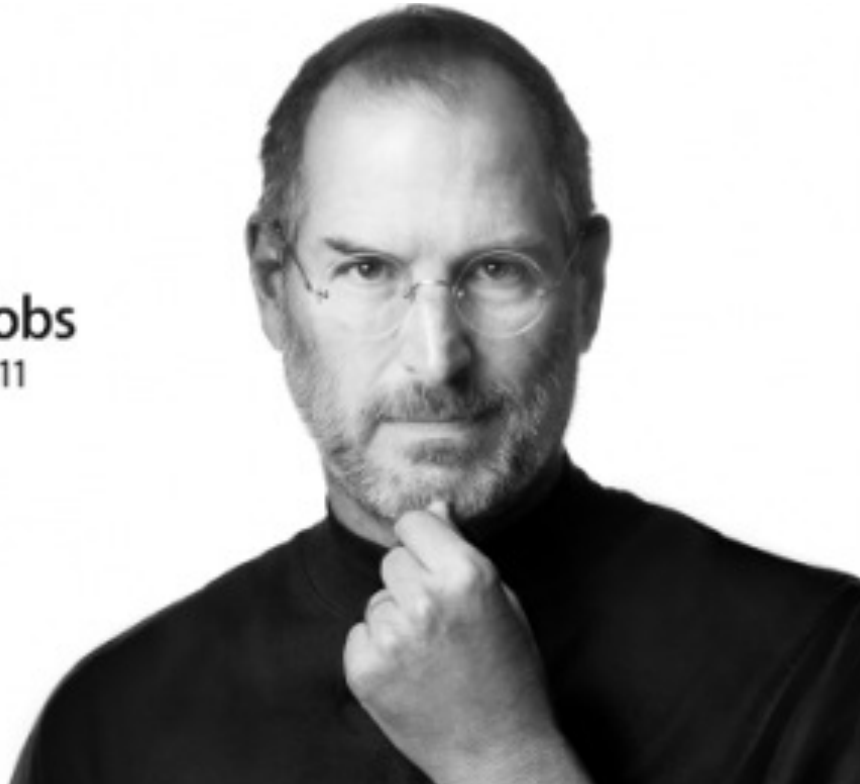


R.I.P

**Steve Jobs**  
1955-2011





# Privacy in Facebook

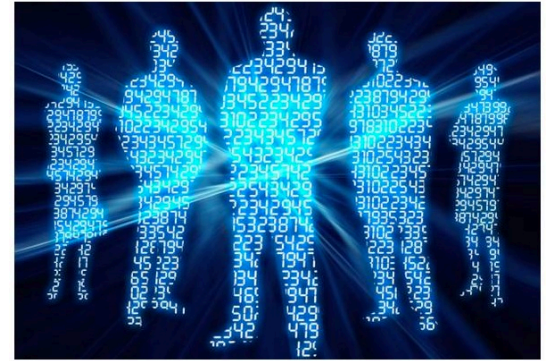
Franklin Song, 10/6/2011

CPSC 457 Sensitive Information in a Wired World  
Taught by Prof. Feigenbaum

# Summary

- Conclusion
  - Users, online social networks and application developers, they all have the obligations to protect user personal data. And online social network should only use the data within their websites.
  - It is only user who can grant permissions to third parties to use their personal data, which also means that users should take responsibility on their own.
  - There are also several ways to protect our data from data tracking and aggregating companies.

# Online Personal Data



- What is “data”?
  - “It is what you put in the computer, that goes to the internet and either gets lost or sold. It’s inevitable and a side effect of doing business on the internet.”<sup>[1]</sup>
  - Data has business value.
- What is “personal” on the internet?
  - “It’s nothing. You may think it is, but it isn’t. That’s not just paranoia talking – someone, somewhere has access to your personal data. From the I.T. guys running the bank servers, to the advertisers buying it from your email client, to Facebook opening it up for the world to see.”<sup>[1]</sup>

# Internet Privacy

- “Internet privacy involves the desire or mandate of personal privacy concerning transactions or transmission of data via the Internet. It also involves the exercise of control over the type and amount of information revealed about a person on the Internet and who may access said information.”<sup>[3]</sup>
  - "Privacy is dead – get over it" – said by a number of experts within the field of Internet security and privacy.
  - “Appeal of online services is to broadcast personal information on purpose.”<sup>[3]</sup>
- "Privacy protects us from abuses by those in power, even if we're doing nothing wrong at the time of surveillance." - by security expert Bruce Schneier<sup>[4]</sup>
  - 87% Americans can be uniquely identified from a birth date, zip code and gender.<sup>[6]</sup>
  - Chinese human flesh search engine
    - Name, ID, employer, home address, cellphone number, and even profiles of family members.



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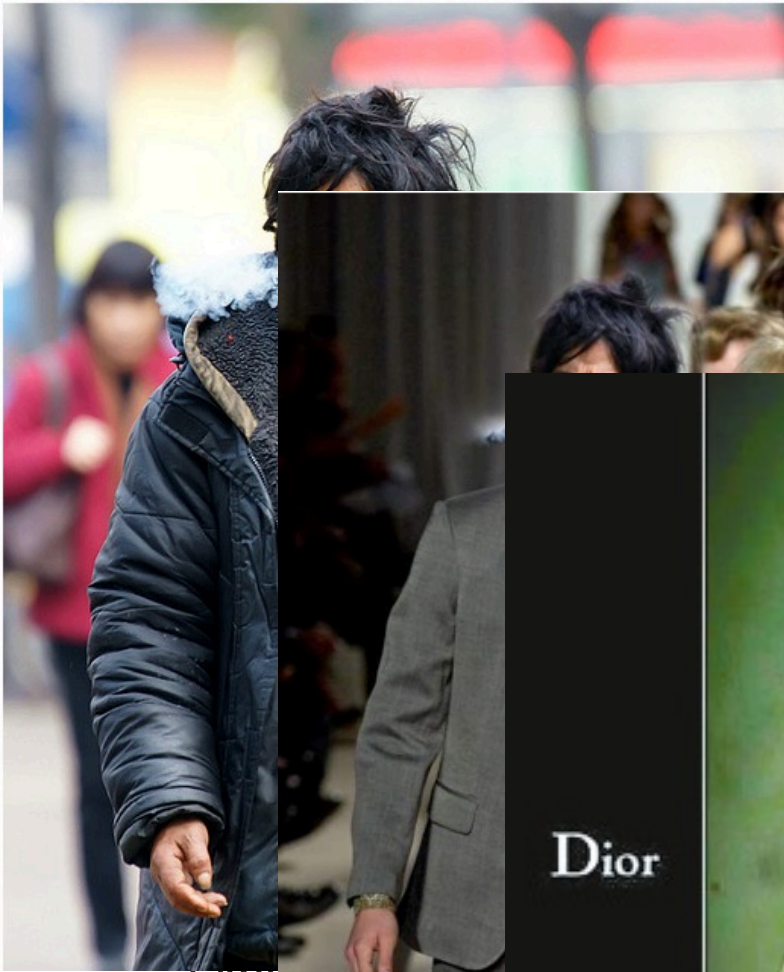
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# Did we pay attention to our internet privacy?

- Facebook for example
  - Did we ever read “Privacy” and “Terms”?

Facebook helps you connect and share with the people in your life.

**Sign Up**  
It's free and always will be.

First Name:

Last Name:

Your Email:

Re-enter Email:

New Password:

I am:

Birthday:

Why do I need to provide my birthday?

Create a Page for a celebrity, band or business.

English (US) Español Português (Brasil) Français (France) Deutsch Italiano العربية हिन्दी 中文(简体) 日本語 ...

Facebook © 2011 - English (US) Mobile · Find Friends · Badges · People · Pages · About · Advertising · Create a Page · Developers · Careers · **Privacy · Terms** · Help

- Did we ever read the terms before click the little check box and hit continue to register on OSN?



# Survey

- Knowledge and use of “My privacy” setting feature<sup>[8]</sup>
  - 289/389 (74%): familiar; 100/389 (26%): not
  - 234/380 (62%): use it; 146/380 (38%): not
- Concerns about Facebook Privacy<sup>[8]</sup>
  - 12/389(3.6%) very concerned; 20/389(6.1%) quite concerned; 104/389 (31.6%) somewhat concerned; 117/329 (35.5%) barely concerned; 76/329 (23%): not

# Personal Data in Facebook terms

- “Sharing Your Content and Information”<sup>[5]</sup>
  - Users own all of the content and information they post on Facebook, and they can control how it is shared through their privacy and application settings.
  - Users grant Facebook to use their content covered by IP rights with permission subject to users’ privacy and application settings.
- “By using or accessing Facebook, you agree to this Statement.”<sup>[5]</sup>

## **Notice of Changes**

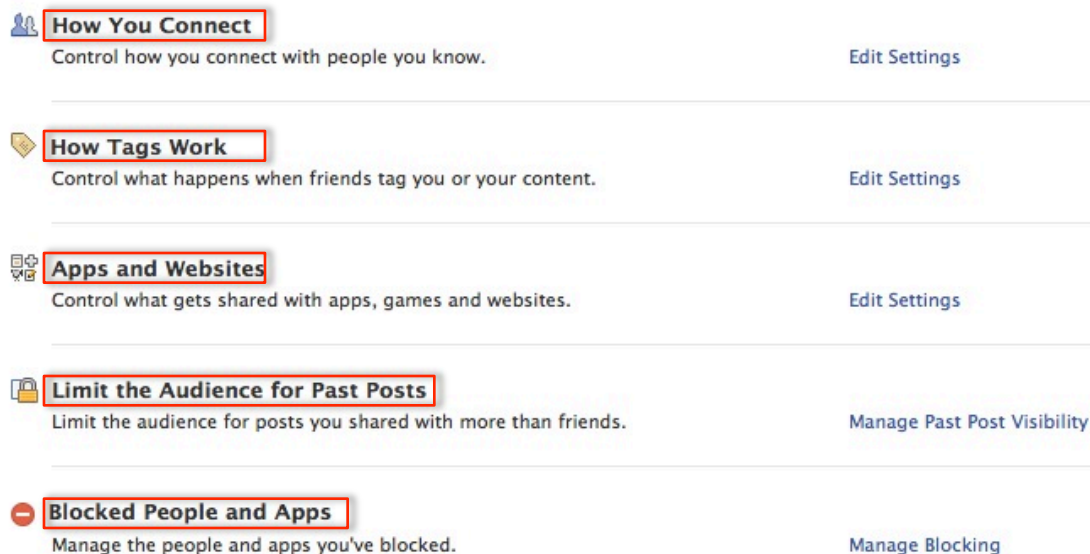
If we make changes to this Privacy Policy we will notify you by publication here and on the [Facebook Site Governance Page](#). If the changes are material, we will provide you additional, prominent notice as appropriate under the circumstances. You can make sure that you receive notice directly by liking the [Facebook Site Governance Page](#).

The Facebook logo, consisting of the word "facebook" in white lowercase letters on a blue rectangular background.

# How Facebook protects user privacy

- Privacy Settings

- Users can manage the privacy of their status updates, photos and information by changing privacy level in the settings.
  - Privacy levels: “everyone”, “friends of friends”, “friends”, “only me”



The screenshot shows the Facebook Privacy Settings page with five sections, each with a red box around the title:

- How You Connect**: Control how you connect with people you know. [Edit Settings](#)
- How Tags Work**: Control what happens when friends tag you or your content. [Edit Settings](#)
- Apps and Websites**: Control what gets shared with apps, games and websites. [Edit Settings](#)
- Limit the Audience for Past Posts**: Limit the audience for posts you shared with more than friends. [Manage Past Post Visibility](#)
- Blocked People and Apps**: Manage the people and apps you've blocked. [Manage Blocking](#)

- If you're under 18

## Privacy Settings

Since you're under 18, we take extra steps to protect your information. [Learn more](#)



facebook

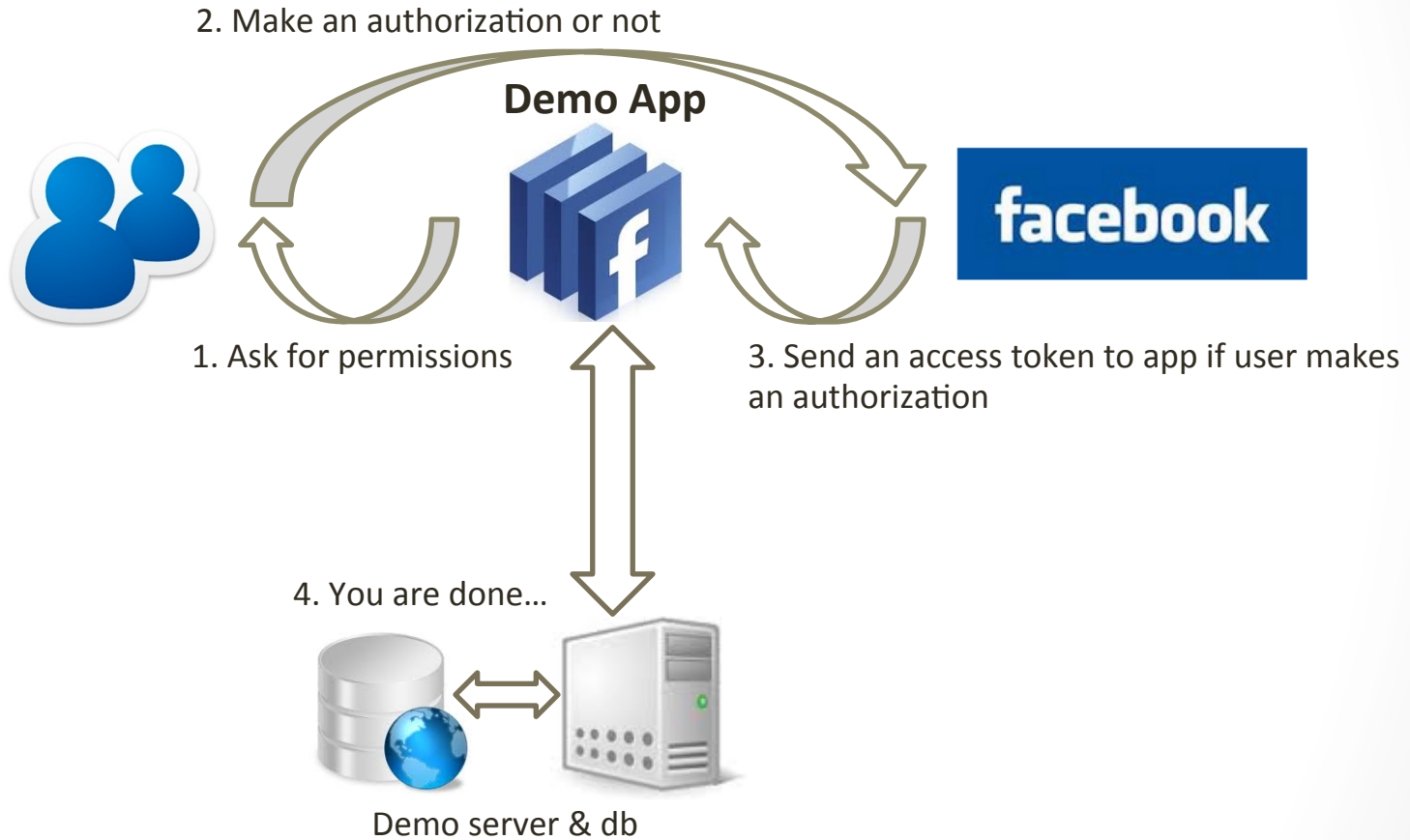
# However, your data is still leaking

- By applications you are using
- By third party data tracking and aggregating companies
- Even by your Facebook friends...

The Facebook logo, consisting of the word "facebook" in white lowercase letters on a blue rectangular background.

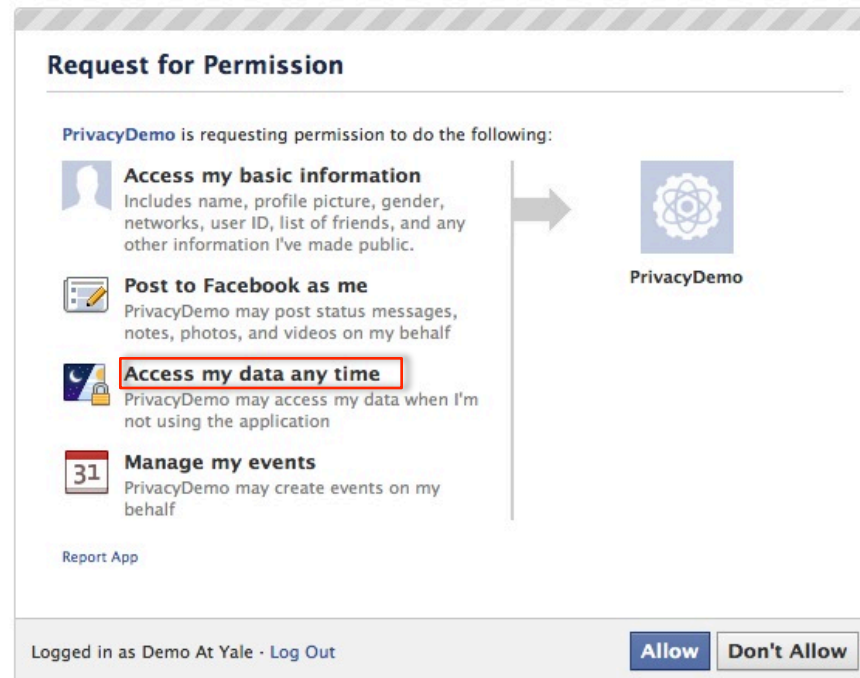
facebook

# Demo



# Facebook App Permissions

- User profile data access
- User News Feed access
- User actions access
- .....



- **Offline access**

- Enables app to perform authorized requests on behalf of the user at **ANY TIME**.

# Who need our data and why

- Online social networks
  - Business purpose, e.g. advertisement
  - Enhance UE (user experience)
- Facebook application developers
  - Business purpose
    - Marketing, e.g. data of users' friends
  - UE
- Third party data tracking and aggregating companies
  - Business purpose, e.g. [www.omniture.com](http://www.omniture.com)



Improve marketing ROI, increase your bottom line

Learn how Adobe® SiteCatalyst will help improve your Marketing ROI, and ultimately increase your bottom line.



# How do they get our data

- Via cookies<sup>[7]</sup>

```
GET ...&g=http%3A//digg.com/users/jdoe&...  
Host: z.digg.com  
Referer: http://digg.com/users/jdoe  
Cookie: s_sq=...http%25253A//digg.com/users/jdoe...
```

- Via referer header<sup>[7]</sup>

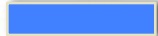
```
GET /clk;203330889;26770264;z;u=ds&sv1=170988623...  
Host: ad.doubleclick.net  
Referer: http://www.facebook.com/profile.php?  
id=123456789&ref=name  
Cookie: id=2015bdfb9ec|t=1234359834|et=730|cs=7aepmsks
```

- Via Get or Post request URL<sup>[7]</sup>

```
GET /__utm.gif?..utmhn=twitter.com&utmp=/profile/jdoe  
Host: www.google-analytics.com  
Referer: http://twitter.com/jdoe
```

# Advantages of utilizing user data

- Better UE
  - e.g. better recommendations, collaborative filtering



I don't understand how facebook chooses the top stories. If you choose for me, please make sure you know me well! Otherwise it's just annoying  
=.=

Like · Comment · September 22 at 2:49pm ·

- Better advertisement service
  - e.g. ad in Gmail

# Trade-off

- Users might leave if
  - Users consider their privacy to be violated
  - UE drops
- OSN companies will break down if
  - They don't have enough money
  - No active users
- Online social network companies have rights to use user personal data only within the websites.
- Only users have rights to give permissions to the third-parties, not OSNs.

# How to protect our data

- Users
  - Being aware, being sensitive, being careful
- Online social networks
  - Taking responsibility for using users data
  - Launching effective features to protect users' privacy
- Application developers
  - Do not cheat users
- Third party data tracking and aggregating companies
  - ...

# How to protect our data cont.

- Blocking Referer headers
  - e.g. Firefox
- Inserting a “#” character before the id field in its Request-URL
  - e.g. Facebook
- Mapping an OSN identifier to a session-specific value

# Reference

- [1]. “The Facebook Privacy War: What is Personal Data?”
- [2]. “Don't Worry about Who's Watching”
- [3]. “Wiki: Internet Privacy”
- [4]. “The Value of Privacy”
- [5]. “Facebook terms”
- [6]. “Betrayed by my shadow: Learning data identify via trail matching”
- [7]. “On the leakage of personally identifiable information via online social networks”
- [8]. “Facebook: Threats to privacy”