Solutions to Homework 5

Question 1

(a)   Correct answers include but are not limited to:

- VeriSign might be able to sell website-security services (even more successfully than it already does) and online identity.
- HP and IBM might be able to sell authentication and authorization devices, particularly those that serve the purposes of enterprises needing to authorize employee actions without exposing the employees to privacy violations and identity theft.
- Yahoo! could sell personalization services that allow users to segregate their multiple online roles and minimize the chances of identity theft.
- Microsoft, IBM and other vendors of database software could sell products that respect data-subject privacy, minimize collection of personally identifying information, and provide proofs of compliance with security policies. (Oracle is a leading database-system vendor that was not covered in CPSC 155b this semester.)

(b)   The main arguments in favor of this statement are given in Pato's lecture notes and in the Executive Summaries of "IDs – Not that Easy: Questions about Nationwide Identity Systems" and "Who Goes There?: Authentication Through the Lens of Privacy." Essentially, security technologies and procedures are faulty, and the more important an identifier is the more tempting a target it is for hackers, thieves and terrorists.

The main argument against this statement was also mentioned in Pato's lecture. Essentially, the statement rests on the false premise that the US does not now have a national ID system. In practice, both drivers' licenses and Social Security numbers function as *de facto* national IDs. Since the country is relying on these identifiers, it would make more sense to do so officially and to put some serious effort into developing adequate security and privacy technologies to support them as ID systems.

Question 2

(a)
1.   Users have the freedom to run the program, for any purpose.
2.   Users have the freedom to study how the program works and adapt it to their needs.
3.   Users have the freedom to redistribute copies.
4.   Users have the freedom to improve the program and release improvements to the public.

(b)   "Free software" can be sold, provided it is sold with a license that respects the four freedoms. In fact, Red Hat is a business devoted entirely to selling, supporting and providing training and documentation for "free software." Having the third freedom, *i.e.*, the freedom to redistribute copies, does not require the redistributors not to charge money for those copies; it just requires the redistributor to give his users the four freedoms.

As the Free Software Foundation says, "'Free software' is a matter of liberty, not price. … 'free' as in 'free speech,' not as in 'free beer.'"

(b)   Correct answers include but are not limited to:

- "Give away the product, and sell the service contract." This might work if the product is a complex piece of open-source software.
- "Give away the basic version, and sell the premium version." Applicability to open-source software is obvious.
- "Allow free distribution of the product but request payment." This is the definition of "shareware," and it's compatible with the principles of open-source software.
- "Give away the product and sell complementary products and services," including documentation and training. Again, this is particularly appropriate for complex open-source code.
- "Extreme Customization." Give away the basic product but charge an enterprise for integrating this product into the enterprise's existing code base.

Question 3

(a)   Correct answers include but are not limited to:

- Rights-management languages such as XrML
- Licenses that are both user-friendly and protective of owner's most valuable rights.
- Innovative business models
- Law enforcement (*e.g.*, enforcement of DMCA and of traditional copyright law)

(b)   The classes of users cited most often by people who believe in this marketing strategy are enterprises (who will want to create and enforce policies for document flow within, out of, and into their information systems) and end users (who will want to prevent their email from being forwarded or their transaction data from being sold). People who do not believe in this marketing strategy point to the fact that, despite complaints about information leakage, both enterprises and end users have been making more and more use of Windows and Office as time goes on—distributors of entertainment content have been the ones who have refused to use the Internet without "trusted" platforms.

Question 4

(a)   Matching queries to documents.

(b)   Retrieving documents, creating abstracts, and caching copies.

(c)   Dishonest page owners may plant meta-tags and other elements that have little or nothing to do with the content of the page but that attract search engines.

(d)   It is completely unclear whether Yahoo! will succeed with this strategy. Switching to a
        display style more like Google's is probably a good idea, because users complain about
        screen clutter and really like Google. Switching to Inktomi's technology from Google's
        is a gamble, but it might be necessary if Yahoo! wants to compete with Google. The
        success of the overall strategy will probably depend on whether Yahoo! can deliver
        useful content that does not appear near the top of Google's ranked list of links.