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Faculty of Engineering

School of Information
Technology and Engineering

CSI 2911 Professional Practice in Computing
Winter 2008
Final Examination
Instructor: Prof. Stan Matwin

Name:

Student number:

April 23, 2008
Time: 2.5 hrs

Student exam mark:

INSTRUCTIONS:

- Please write all your answers in the space provided in this exam handout.

- Si vous le désirez, vous pouvez répondre en français.

- Try to **write legibly.**

- Question 1 is worth the total of 16 pts. Question 2 is worth 13 points. Questions 3-5 are worth the total of 8 pts. Questions 6-47 (multiple-choice) are worth 1.5 pts each, and have one correct answer. The exam accounts for 30% of your course grade.

- I suggest you allocate 2 min to a multiple choice question (total 84 min), 15 min to questions 3-5, 25 min to question 1 and 20 min to question 2. These times include answer review.

- Do not spend more than 1 hour on Question 1. Allocate an average of 2 minutes to each of the questions 2-30, plus one minute per question to verify your answer. Multiple choice questions have a single correct answer.

- Good luck, and have a nice summer!

1.	For the following scenario, identify at least 3 stakeholders. List at least 2 possible actions. How would each possible action affect each of the 3 stakeholders (give at least one possible consequence for each stakeholder and each possible actions - 6 total)? Which action would you take? Why?

You are the lead programmer on a new software product. You work for a small, privately owned software company that has had only limited success in the past. There is nothing else on the market similar to the new software you are developing. The software is just entering alpha-testing stage, which is estimated to take approximately 3 months and only involves company employees. After that the product will enter beta-testing stage and will involve potential customers and users of the software. This stage is estimated to take 7-9 months. The scheduled release date is 14 months from now. You and the other developers have been working long hours, 60 hours a week, and earning a relatively low salary. The entire development team will be sharing in the profits once the new software is launched. The owner has just returned from an industry tradeshow, and has learned about a consumer tradeshow that would be perfect for launching the new product. The project manager meets with you and the other developers on the team and tells you that the owner is very excited and determined to release the product at the consumer show, which is only 4 months away. It will take at least 2 months to prepare the marketing and packaging for the product. You are told you have 2 months to test and fix any problems.

Stakeholders (3 pts):

FOR INSTANCE:

Actions (3 pts):

Stakeholder/action (6 pts):

1.

2.

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3.

4.

5.

6.

What action would you take – why (4 pts)?

2.[NOTE: this is a ficticious story that I have made up for the exam. It does, however, describe a situation which, with some variations, has a high probability of happening in the future. All the names of people and organizations are also made up.].

Social Assistance Ottawa (SAO) is a large agency in charge of social assistance in Ottawa. SAO has a policy stating that all the client data is confidential and in its identifiable form should not leave, electronically or otherwise, the agency's offices. SAO IT manager requested that have all files are encrypted on the agency's servers and only decrypted on a SOA workstations, and that file writing/copying to external device by the users (SOA case workers) be disabled. IT manager's request

has been turned down as the system overhaul it requires would slow down work. IT manager accepted this decision.

Case officer John Smith, who has fallen behind on his workload because of playing games on his workstation, takes his cases home on a memory stick. He copies the database as an unencoded MS Access file on a USB memory key. However, on his way home he loses his USB key at a gas station..

Next day "The Capital", Ottawa's main daily newspaper, reports that an anonymous caller left a message that the SOA client list, including personal information: names, addresses, SIN numbers, income etc. – of all social assistance clients in Ottawa is in her possession.

Please perform elements of Bynum analysis of this case. In particular, discuss:

a. participants and their roles (4 pts)

b. objectors (3 pts)

c. professional standards analysis. Refer to specific sections of the attached CIPS Code of Ethics. (3 pts)

d. lessons for the future (3 pts)

3. [3 pts] In the story presented in Question 2, how is the relationship between security and privacy illustrated? (one – two sentences!)

4. [3 pts] Give the definition of the Use Limitation Principle, one the OECD principles for data privacy. (1 sentence, max 2 lines)

5. [2 pts] What is Linus's law as expressed by Raymond?

6. A cookie is:

☐ a) a feature of a Web site designed to attract children
☐ b) an illegal use of information about a customer
☐ c) a file that a Web site stores on each visitor's computer
☐ d) a small reward that can be redeemed on a Web site

7. If a business follows an "opt-in" policy for handling personal data, information about a customer

(a) may not be released under any conditions

(b) may not be released unless the customer gives permission

(c) may be released unless the customer requests that the information be kept private

(d) may be released for any legitimate business purpose

8. The **Second** Law of Robot Ethics by Isaac Asimov is:

☐ a) a robot may not injure a human being or, through inaction, allow a human being to come to harm.
☐ b) a robot must protect its own existence as long as such protection does not conflict with the First Law
☐ c) a robot must obey orders given it by human beings except where such orders would conflict with the First Law.
☐ d) a robot may not injure or harm another robot except when not doing so would conflict with the First Law

9. A search engine involves, among others, a crawler. The task of the crawler is to

☐ a) find new and modified webpages on the web
☐ b) build the cache of existing webpages
☐ c) sort the list of URLs found in answer to a query
☐ d) count the number of words on a webpage

10. The Stanley autonomous vehicle that won the 2005 DARPA race had an average speed of approximately:

☐ a) 15 mph
☐ b) 20 mph
☐ c) 25 mph
☐ d) 30 mph

11. Which of the following is not an exclusive right (subject to some exceptions) granted by copyright law?

    (a) Copy the work

    (b) Distribute the work

    (c) Profit from the work

    (d) Create "derivative works"

12. What operating system is used in the Stanley autonomous vehicle?

    ☐ a) Windows NT
    ☐ b) Vista
    ☐ c) Linux
    ☐ d) None of the above

13.   CIPS has four core values: Professionalism, Innovation and Creativity, X, and Knowledge Development. X =

    ☐ a) Integrity
    ☐ b) Privacy
    ☐ c) Accountability
    ☐ d) Reliability

14. Software that monitors incoming communications and filters out those that are from untrusted sites, or fit a profile of suspicious activity, is called:

    (a) A backdoor

    (b) A registry

    (c) An anonymizer

    (d) A firewall

15. A search engine performs three basic functions. They are:

    ☐ a) crawling, searching, storing
    ☐ b) indexing, searching, ranking

☐ c) querying, searching, ranking
☐ d) indexing, sorting, storing

16. Which of the following is NOT collected by Google:

☐ a) what links are clicked from the search results page
☐ b) how long a user reads the search results page
☐ c) time and date of the search
☐ d) what is the user's browser

17. The Psiphon solution to the internet censorship problem is based on

☐ a) encoding the traffic so that the ISP cannot read it
☐ b) using a volunteer proxy outside the censored jurisdiction
☐ c) bypassing the local ISP and connecting directly to the censored site
☐

18. In the early days of computing (1960's to the early 1970's), a "hacker" was:

(a) An incompetent programmer who wrote programs that did not work properly

(b) A busy programmer who reused code to save time

(c) A creative programmer who wrote very elegant or clever programs

(d) A new programmer who wrote simple programs

19. Which among the following is NOT a form of liability applicable to faulty software products:

☐ a) negligent design
☐ b) negligent testing
☐ c) negligent manufacturing
☐ d) failure to warn of risks of use

20. Annual sales of amazon.com in 2004 were

a. $85 million
b. $850 million
c. $8.5 billion
d. $85 billion

21. The number of mobile phone users in the world in 2008 reaches

a.   1 billion

b.   2 billion
c.   3 billion
d.   4 billion

22.   Can data mining reveal private information, such as salary:

☐   a) independent of the size of the data set
☐   b) dependent of the size of the data set
☐   c) only when data is not anonymized
☐   d) only when data is anonymized

23. Web sites that look attractive to hackers, but are closely monitored so that everything the hacker does at the site is recorded and studied are known as:

(a) Honey pots

(b) Digital surveillance

(c) Computer Entrapment

(d) Hacker crackdown

24.   One of the key principles of the Open Source Software is to

☐   a) treating users as clients
☐   b) treating users as co-developers
☐   c) treating users as malicious agents

25.   Napster fell due to a legal challenge, because of

☐   a) its P2P design
☐   b) its centralized design
☐   c) non-encryption of the downloaded music

26.   How many years after the author's death the copyright cease in Canada:

☐   a) 30
☐   b) 50
☐   c) 70
☐   d) 100

27.   New algorithms

☐   a) can be patented (US patent)

□ b) can be patented only as programmed software (US patent)

□ c) cannot be patented (US patent)

28. Collecting evidence from computer files and disks is called:

(a) Digital investigation

(b) Computer forensics

(c) Technology forensics

(d) Electronic investigation

29. The "bazaar" style of open source software development is not appropriate for

□ a) testing
□ b) debugging
□ c) documenting
□ d) developing from scratch

30. In the One Laptop Per Child project the focus is on

□ a) low power hard disk
□ b) low power display
□ c) low power Internet connection
□ d) low power colour printing

31. Is there sociological evidence of dystopia due to Internet use?

□ a) yes
□ b) no
□ c) yes in some ethnic groups

32. Moor's concept of "greased data" means data that

□ a) is not private
□ b) is publicly displayed on the Internet
□ c) is accumulated, and available to many
□ d) is encrypted with weak security

33. Bill Joy is concerned about GNR technologies in the 21st century because:

□ a) robots, genetically-engineered organisms, nanobots replicate
□ b) biological, intelligent robots will be built based on nanotechnology
□ c) nanotechnology and biotechnology will make Moore's law obsolete
□ d) people will be able to download their conscience into eternal robots

34. Which of the following is **NOT** a malicious program used by hackers to gain access to your computer:

(a) Key loggers

(b) Remote Access Trojans

(c) Bots

(d) Honey pots

35. The Hong Kong and Kuala Lumpur airports suffered from computer system failures on their opening days. What was blamed for these failures?

(a) Buffer overflows

(b) Miscalculations during the design of the baggage system

(c) People typing in incorrect information

(d) Reused software code

36. If a claim is made that a search engine does not cover enough of the pages on the WWW, what measure would you sue to verify this claim:

a.   precision

b.   F-measure

c.   recall

d.   page rank

37. Page rank reflects

a.   that a page is important when it is referred to a lot, or referred to from an important page
b.   that a page refers to many pages which themselves have high rank
c.   that a page contains a high number of keywords contained in a query

38. How is information from gmail linked to information from browsing:

a.   through the machine's MAP
b.   through a cookie on the user's machine

c.　　　　through the IP address
d.　　　　through all three of the above info. Items

39. PIPEDA stands for

a. Principles for Information Privacy in Electronic Domain Act
b. Personal Information Protection and Electronic Documents Act
c. Protecting Information Personalization and Electronic Data Act
d. Private Information Protection in Electronic Data Act

40. Software freedom 3 is:

a) The freedom to redistribute copies so you can help your neighbor

b) The freedom to study how the program works, and adapt it to your needs

c) Access to the source code

d) None of the above.

41. Apache web server software has an Open Source (FLOSS) licence. Can IBM distribute it on its servers?

a. yes

b. yes, but only if the buyers pay a fee to the Open Source Foundation

c. yes, but only if the user obtains a linux licence

d. no because it's open source

42. Which of these trends is true:

a. the longer people use the internet (in terms of years of access), the fewer hours per week they are connected
b. the longer people use the internet (in terms of years of access), the more hours per week they are connected
c. the longer people use the internet (in terms of more hours per week) the more newspapers they read

43. Digital divide is currently understood as

a. on-line access in rich vs poor societies

b. on-line access difference between the richer and poorer within one society

c. difference between people who do and who don't use WWW and email on a regular basis

d. on-line access difference between the young and the old[er] in any given society

44. Logical malleability as understood by Moor is

a. the fact that logic is the underlying computer mechanism
b. the fact that computers can be easily embedded in other devices
c. the fact that computers can do any activity characterized by input and output
d. the fact that computers can implement logical thinking and present it to the user

45. Three areas that CIPS members need to be particularly respectful of in their work are

e. public health, public safety, environment
f. public safety, environment, law
g. public health, public safety, professional integrity
h. public safety, public health, national interest

46. Raymond's Open Source work started with

a. Apache server
b. linux kernel patch
c. fetchmail
d. emacs

47. The main reason for having computer ethics is

☐ a) as a base for the Code of Ethics
☐ b) to fill policy gaps
☐ c) to address logical malleability
☐ d) to keep your prof employed