CSIT 104 – HW 5 – 102pts

Submit a single document through Canvas. Label each answer.

Part A.
A.1. (14 pts)
a. What is the distinction between a formal language and a natural language?
b. Give an example of each.

A2. (14 pts)
a. What is operator precedence?
b. Depending on operator precedence, what values could be associated with the expression 6 + 2 * 3?

A3. (14 pts)
A notable difference in the human-computer interface of a smartphone from that of a desktop computer are the techniques used to scroll a portion of the display. On a desktop, scroll is typically achieved by dragging the mouse on scrollbars displayed on the right and bottom sides of the scrolling region, or by using scroll wheels built into the mouse. On the other hand, scroll bars are often not used on a smartphone. (If used, they appear as thin lines to indicate what portion of the underlying display is currently visible.) Scrolling is thus achieved by the gesture of a sliding touch across the display screen.
a. Based on ergonomics, what arguments can be made in support of this difference?
b. Based on cognetics, what arguments can be made in support of this difference?

A4. (20 pts)
a. Suppose you must sort a list of five names, and you have already designed an algorithm that sorts a list of four names. Design an algorithm to sort the list of five names by taking advantage of the previously designed algorithm.
 b. Design a recursive algorithm to sort arbitrary lists of names based on the technique used in (a).

Part E. 40 pts. Ethics - Pick one of the following topics and provide a one page (400 words) answer.

E1. Cybersquatting: Is it Entrepreneurship or Intellectual Theft?
Just before the 2000 New York senatorial campaign, Chris Hayden paid $70 each for the exclusive two-year rights to the following Internet addresses: www.hillary2000.com, www.hillaryclinton2000.com and www.clinton2000.com. A few weeks later, Mrs. Clinton, then the U.S. first lady, declared her candidacy for the state of New York senatorial race. The Clinton campaign team wanted her presence on the web, but they could not use any of the three URLs, though they rightly belonged to Mrs. Clinton. Deciding not to challenge Mr. Hayden in the middle of an election campaign, the team opted to buy the rights for www.hillary2000.com from Mr. Hayden. Mr. Hayden, however, decided to engage a broker to demand $15,000 for the use of the name.
        Cybersquatting, a practice of grabbing someone's name and registering it with an Internet registration company in anticipation of reaping huge rewards, is becoming widespread.
Discussion Questions
Respond to each discussion question based on each of the 6 theories of ethics and the ACM Code of Ethics and Professional Conduct.
1.   Is Mr. Hayden violating Mrs. Clinton's intellectual rights?
2.   Can Mr. Hayden claim free speech protection for the use of the names?

E2. Electronic Surveillance and the Bodyguards

Jon Kiggwe is a young aggressive entrepreneur. With several businesses doing well and a few start-ups with promising financial status, Jon is on his way to make a $1,000,000 before his 25th birthday. Jon's business meetings take him to rough neighborhoods so he uses a team of professional security bodyguards to be with him 24 hours a day.

In his big $10,000,000 home, Jon receives many business associates and friends. His bodyguards keep an orderly track of arrival and departing guests. So they have a permanent office and sleeping quarters in Jon's home.

Without informing them, Jon installed video recording and listening systems in the guards' office and quarters to record their every conversation and movement. Jon feels safe this way.

Discussion Questions

Respond to each discussion question based on each of the 6 theories of ethics and the ACM Code of Ethics and Professional Conduct.
1. Do the bodyguards have any right to privacy at Jon's home?
2. Does Jon have a right to know what the bodyguards are doing in his home?

E3. Freedom of Expression

In 1994, Jake Baker, a University of Michigan sophomore posted three sexual fantasies on an Internet newsgroup, "alt.sex.stories", an electronic bulletin board with publicly available content. In "Pamela's Ordeal," on the site, Baker gave his fictional victim the name of a real student in one of his classes. The story describes graphically the torture, rape, and murder of Pamela concluding with her dousing with gasoline and set afire while tied to a chair. Baker also exchanged email with another man, Arthur Gonda, in Ontario discussing the sexual acts. In one of these email, Baker said "just thinking about it anymore doesn't do the trick … I need *to do it*." Arthur Gonda whereabouts and true identity are unknown. The emails were private and publicly not accessible on the Internet.

An alumnus in Moscow found Baker's stories while browsing the web and told university officials. The campus police and the FBI then investigated the case. In February 1995, Baker was arrested and held in custody for 29 days. A month later, he was charged in a superseding indictment with five counts of transmitting interstate communication of a threat to injure another. The story on which the initial complaint was partially based was not mentioned in the superseding indictment. The initial complaint referred only to the email exchanges between Baker and Gonda. The charges were dropped in June 1995 on grounds that Baker expressed no true threat of carrying out the acts.

Discussion Questions

Respond to each discussion question based on each of the 6 theories of ethics and the ACM Code of Ethics and Professional Conduct.
1. Did Jake Baker do anything wrong?
2. Did the alumnus act in an appropriate way?

E4. Who Will Pay the Price for Flawed Software?

Peter Efon works as a programmer for Cybersoft, a major software company. Cybersoft is launching itself as a major Internet-based platform developer through a new web initiative. Peter is involved with the development of a crucial component of it. Cybersoft trusts Peter who has worked for them since he left college 15 years ago. Peter has also pioneered several major software projects.

Peter is familiar with the losses suffered by other companies because of defective software. He knows that in 2000, U.S. businesses suffered $100,000,000,000 in loses because of bad software. Peter and Cybersoft have determined to high light quality as a major component of the new web initiative.

Peter dreams of success of the web initiative and the recognition both he and Cybersoft will receive. A few days before the launch, however, Peter makes his final quality check and discovers a flaw in the core component of the web initiative. He is not able to determine its magnitude. To do so would require several weeks delay in deployment at best. Cybersoft has already mounted a major advertising campaign about the web initiative to major media outlets. A few weeks delay would be a large financial blow to Cybersoft and a loss of public confidence in Cybersoft. Peter decides to see the web initiative through.

Discussion Questions

Respond to each discussion question based on each of the 6 theories of ethics and the ACM Code of Ethics and Professional Conduct.
1. Is Peter wrong in his action to see it through?

2. What would have been the right course of action for Peter and Cybersoft?

E5. Obtaining pirated software abroad

Carol works as an IT consultant for a large consulting company. She loves her job because it allows her to continuously learn about new IT applications. She uses many of these applications to do her work. While Carol and her husband are on a 2-week vacation in Southeast Asia, they check out computer stores to see what software and hardware are available. Carol finds an office suite package that is identical to one from a well-known American company. The price in the U.S. for the American company suite is over $1,200 but here it is equivalent to $50. Although the written document does not look like it was professionally printed, she buys the software. As she prepares to come home, she wonders where to put it.

Discussion Questions

Respond to each discussion question based on each of the 6 theories of ethics and the ACM Code of Ethics and Professional Conduct.

1. Has Carol done anything wrong?
2. Would it be wrong if a U.S. customs official found and confiscated the software?