CIS 450 - Exam 1 Review Suggestions

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- You are responsible for material covered in class sessions, homeworks, and assigned course reading; but, here's a quick overview of especially important material.

- You are permitted to bring into the exam a single piece of paper (8.5" by 11") on which you have **handwritten** whatever you wish on one or both sides. This paper must include your name, it must be handwritten by you, and it will **not** be returned.

  – Other than this piece of paper, the exam is closed-note, closed-book, and closed-computer.

Business Information Systems: An Overview

- See the Week 1, Lecture 2 slides posted on the course Moodle site

- What evidence does the Hackett Group study use to conclude that Information Technology (IT) matters?

- What are some of the advantages of digital systems for information management?

- What is a problem? What is a decision? How do these relate to information management?

  – You should be able to give an example of a problem within an organization and discuss how a computer-based information system might be used to help to deal with that problem.

- What are some of the activities that information systems are intended to support?

- Knowledge hierarchy, part 1: What is data? What is information? How do these levels of the knowledge hierarchy differ? Which is more useful within an organization, typically?

  – knowledge is "added" to this hierarchy in the projected Week 3, Lecture 1 notes;

- In the context of Information Management, what is a process? How does a process relate to data and information?

- What are some of the factors that make information useful?

- What are some of the benefits of human-computer synergy?

- What are some of the pieces of an information system?

- What are some of the trends that have made information systems important in business?

- What are the 4 stages of processing?

- What are some of the types of information systems? What does each of these types of systems do?

- What are some of the careers related to Information Systems? What are some of the typical activities/responsibilities of people in these careers?

Intro to UML

- See the mandatory readings on UML from the public course web site;

    - also see the brief projected notes from Week 2, Lecture 2, and

    - the posted examples and descriptions related to your in-class presentations

- What is UML? Why was it created? What does it hope to allow?

- Remember: "... UML is a 'language' for specifying and not a method or procedure" (http://www.sparxsystems.com/uml-tutorial.html)

- What aspects of systems can be described using UML? What are some of the levels of abstraction that a system can be modeled at, using UML?

- Be familiar with the following kinds of UML diagrams (an * indicates a type of diagram you are expected to know about in more detail):

    - Structure diagrams (represent static application structure):

        - *Class diagram

        - *Object diagram

        - *Component diagram

        - Composite structure diagram

        - *Package diagram

        - *Deployment diagram

    - Behavior diagrams:

        - *Use Case Diagram

        - *Activity Diagram

        - *State Diagram

    - Interaction diagrams (all derived from the more-general behavioral diagrams):

        - *Sequence diagram

        - Communication diagram

        - Timing diagram

        - Interaction overview diagram

        - *Collaboration diagram

- I will not ask you to draw a UML diagram; I may ask you to identify the type of a UML diagram, or to describe what it is depicting; I may also ask about the purposes of different types of UML diagrams.

- What are two examples of free, Java-based UML editors? What are some of the diagram types they support?

Building a Knowledge Management Infrastructure

- See the Week 4, Lecture 1 slides posted on the course Moodle site

- adding Wisdom and Insight to the knowledge hierarchy; how do these "fit" in this hierarchy?

    - be able to discuss some of the potential distinctions between the now-5 levels discussed as being part of the knowledge hierarchy;

    - of the 5 levels in the knowledge hierarchy that we discussed, which are more data-oriented? which are more people-oriented?

- What is a Knowledge Management System (KMS) (basic definitions)?

- Note that a KMS isn't limited to simply disseminating knowledge – it may also attempt to better manage it, enhance it;

- A KMS isn't just a web site, nor just a database+application; it may include a variety of components to meet the above-discussed goals; (so, it may include web sites and/or database + applications and/or data warehouses/data marts and/or expert systems and/or machine learning systems and/or groupware and/or wikis and/or intranets and/or etc.!)

    - (we also discussed a slightly-alternate view, that a KMS is one application used for knowledge management in a setting...that it is a part of a larger overall knowledge management strategy...)

        - in this paper ("Knowledge Management: An Evolutionary View"), what were the 4 types of KMS's discussed?

        - what is the major purpose of each of these 4 types?

- Be able to distinguish between:

    - Tacit knowledge

    - Explicit knowledge

    - be able to discuss/characterize tacit and explicit knowledge, as well; be able to give examples of each within a given scenario;

- Note that KM can apply in a wide range of scenarios (not just "a business");

- The users of a KMS would depend on the setting for that KMS; and the views of the KMS may vary based on the category of user;

- What are some of the intangible knowledge assets of a setting?

- What are some knowledge management support systems?

- Note that knowledge does have a life cycle within a scenario – perhaps:

    - Knowledge created/acquired -> stored/organized -> distributed -> applied -> created/acquired -> etc…

    - ...and in the context of socio-cultural issues and technology;

    - another depiction: created/acquired -> stored/organized -> researched/retrieved -> revised/distributed -> created/acquired -> etc...

- – ...and the the context of communication and collaboration;
- – What knowledge components might be useful in these different life-cycle stages?
- What are some of the dimensions of knowledge? (based on the idea that knowledge is multi-dimensional)
- What is the SECI model? Be able to discuss it, what it proposes;
  - – what are the 4 modes of knowledge conversion in this model?
  - – what are some of ther benefits, disadvantages of this model?
- What is the Australia KM Framework? What is it? What is its purpose?
- What are the 4 phases of A. Tiwana's Knowledge Management Road Map?
  - – What are the 5 parts discussed for the 2nd phase of this KM Road Map?

Knowledge Management Infrastructure Evaluation

- See the Week 4, Lecture 2 slides posted on the course Moodle site
- Considering, again, the 4 phases of A. Tiwana's KM Road Map:
  - – what are the basic parts discussed for each of these 4 phases?
- With regard to analyzing the existing knowledge infrastructure,
  - – what might be some of the typical existing knowledge in a setting?
  - – what (at least potentially) does the Internet/Web provide?
  - – with regard to current components already being used in a setting, how might these contribute to knowledge management in that setting?
- What are some ideas for how one might begin trying to align business and knowledge management strategy?
- What is meant by codification? by personalization? Why should these be balanced? For what kinds of settings is each more valuable?
- What are some of the requirements for knowledge transfer? What does knowledge integration promote?
- In the context of knowledge maps, what are 3 high-level classifications of knowledge that we discussed?
  - – For a given setting, you should be able to give examples of knowledge at each of those levels;
- What are the 3 steps we discussed for creating a knowledge map?
- How might one "sell" the idea of knowledge management?
- What are some ideas for how one might assess one's KM strategy's focus?
- What are some critical success factors for a KM strategy?

Knowledge Management Platform

- See the Week 5, Lecture 1 and Week 5, Lecture 2 slides posted on the course Moodle site

- What are some aspects/possibilities for KM Architectures?

- What are some of the layers that we discussed as possible/potential layers for the building blocks of a KM Architecture?

- What is the major goal of the User Interface layer? What is typically used nowadays for this? (within what application is it often built?)

    - What are some of the desired attributes/requirements for this layer?

- What are some of the major goals of the Authorized Access Control layer?

- What kinds of components might be included in the Collaborative Filtering and Intelligence layer?

    - what are the purposes/goals of the different kinds of components that might be included in this layer?

- What kinds of components might be included in the Knowledge-Enabling Application layer? What is this layer's ultimate goal?

- What kinds of components might be included in the Transport layer? What does this layer seek to ensure?

- What is the focus and purpose of the components in the Middleware layer?

- What kinds of components might be included in the Physical Repositories layer? What does this layer represent?

- Consider the Interface Layer again;

    - what do we mean by packaging knowledge? what are some of the options?

    - what are some of the options and considerations in delivering knowledge?

- What is meant by knowledge object granularity? What might be the result if this is too "large"? too "small"?

- Consider searching, indexing, and retrieving: what are the 4 kinds of searching we discussed?

    - What is meant by metasearching? What does it assist in?

    - What is meant by hierarchical searching? How does the user proceed here?

    - What is meant by attribute searching? How does the user proceed here?

    - What is meant by content searching?

    - Which of these is least efficient?

- What are some of the attribute types we discussed with regard to attribute searching?

    - be familiar with the meaning of each attribute