Computing in Context: Intelligence and Security Informatics

Module: Cybercrime Investigation Database – Concepts and Development

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1. Module name

Cybercrime Investigation Database: Concepts and Development

2. Scope

Students will acquire concepts and skills in developing a cybercrime database to support investigation and data retrieval.

3. Learning objectives

- Eliciting the needs of cybercrime investigators for data management and
- Understanding the concepts of 2-dimensional data representation and database design for cybercrime investigation and data retrieval.
- Designing and Developing a 2-dimensional data storage file using a spreadsheet program for cybercrime data storage
- Designing and Developing a relational database for cybercrime investigation support
- Presenting the design and development of a cybercrime investigation database in a professional manner

4. Computing concepts and skills involved

- Social context, algorithms and problem solving
- Data structure, database and data modeling
- Knowledge representation and information retrieval

5. Level of effort required (in-class and out-of-class time required for students)

- In-class activities: Four regular classes, each 75-minute long
- Out-of-class exercise: Course projects on spreadsheet development, database and presentation developments

6. Relationships with other modules (flow between modules)

- The several modules build from elementary concepts of data structure, cybcercrime investigation user needs to more advanced concepts of database design and implementation, and help develop students' professional communication / computational thinking skills.

7. Prerequisite knowledge/skills required (what the students need to know prior to beginning the module; completion optional; complete only if prerequisite knowledge/skills are *not* included in other modules)

- Use of personal computers and basic office software (e.g., Microsoft Word)
- Basic knowledge in data representation and computation (e.g., arithmetics)

8. Introductory remedial instruction (the body of knowledge to be taught for the prerequisite knowledge/skills required; completion optional)

- None

9. Body of knowledge (theory + practice; an outline that could be used as the basis for class lectures)

- User needs: understanding and modeling user requirements
- Data structure: 2D representation of data
- Database concepts: table, field, tuple, key, ER diagram

10. Resources (required readings for students; additional suggested readings for instructor and students)

- Software in Microsoft Excel, Access, PowerPoint
- Textbook chapters on Excel, Access, PowerPoint

11. Exercises / Learning activities

- Textbook exercises and in-class group exercises (see attached sheets)

12. Evaluation of learning objective achievement (graded exercises or assignments)

13. Glossary

- Database, Spreadsheet, Presentation Slides
- Microsoft Excel, Access, PowerPoint

14. Additional useful links

15. Contributors (authors of module, reviewers of module)

- Wingyan Chung