Final Examination

Date: 16/06/2023; Duration: 2 hours

Open-book

Approval	Lecturer:
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Signature	Signature
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STUDENT INFO	

INSTRUCTIONS: the total point is 100 (equivalent to 40% of the course)

1. Purpose:

- Test your knowledge of data science and data visualization in the following topics:
 - o visualization: storytelling, design and evaluate a visualization.

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- Examine your skill in
 - o Analyzing and designing visualization

2. Requirement:

Write the answers and draw models CLEAN and TIDY.

(30pts) Describe and explain the nested model for evaluating a visualization artifact.

threat: wrong problem

validate: observe and interview target users

threat: bad data/operation abstraction

threat: ineffective encoding/interaction technique

validate: justify encoding/interaction design

threat: slow algorithm

validate: analyze computational complexity

implement system

validate: measure system time/memory

validate: qualitative/quantitative result image analysis

[test on any users, informal usability study]

validate: lab study, measure human time/errors for operation

validate: test on target users, collect anecdotal evidence of utility validate: field study, document human usage of deployed system

validate: observe adoption rates

(40pts) Evaluate an interactive visualization.

Consider the following article,

https://vnexpress.net/dong-tien-hoi-lo-chuyen-bay-giai-cuu-4594645.html

- Which storytelling genre is used in the article? (5 marks)
- What are the goals of the use of charts and interactive charts? What could be the problem if there are no charts in the article. (10 marks)
- Analyze the chart "Đường dây nhận hối lộ từ các doanh nghiệp đến 21 bị can ở 5 Bộ, VPCP và 2 địa phuong"

Đường dây nhận hối lộ từ các doanh nghiệp đến 21 bị can ở 5 Bộ, VPCP và 2 địa phương

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- What is input data? (5 marks)
- Which marks and channels are used to visualize the data? (10 marks)
- What is the goal of the chart in terms of task abstraction in visualization? (10 marks)

3. (30pts) Design a visualization

In a university, the curriculum of a program is updated each year such as

- Add new courses
- Remove existing courses
- Move a course from one semester to another
- Add a new connection between two courses
- Remove an existing connection between two courses

The update is to adopt new knowledge and technology, but people need to track the differences between versions.

Design a visualization to compare two versions of a curriculum.

	A Management of the state of th		
Introduction to	C Programming.	Discrete Mathematics	Object-oriented
PT001 (3,0) Physical Training 1	PT002 (0,3) Physical Training 2	Theoretical Models in Computing	analysis & design IT089 (3.1) Computer Architecture
PH014 (2.0) Physics 2 (Fluid Mechanics and Thermal Physics)	PH016 (0,1) Physics 3 Laboratory PH015 (3.0) Physics 3	Digital Logic Design Lab	IT079 (3,1) Principles of
PH013 (2.0) Physics 1 (general mechanics	(Electricity & Magnetism) PE008 (3.0) Critical Thinking	Object-Oriented Programming TT067 (3.0)	Database Management
MA001 (4.0) Calculus 1	MA003 (4.0)	Digital Logic Design	Algorithms and
EN008 (2.0) Listening AE1	Calculus 2	PH012 (2.0) Physics 4 (Wave & Modern Physics)	Data Smucture
EN007 (2.0) Writing AE1	EN012 (2.0) Speaking AE2	PE015 (3.0) Philosophy Marx - Lenin	
CH012 (0,1) Chemistry Laboratory		Philosophy Mark - Lemis	PE016 (2,0) Marxist – Leminist
CH011 (3,0)	EN011 (2.0)	MA (4.0) Calculus (elective)	Political Economy
Chemistry for Engineer Semester 1	Writing AE2 Semester 2	Semester 3	Semester 4

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