



Daffodil International University
Department of Computer Science and Engineering

Faculty of Science & Information Technology

Final Examination, Summer 2020 @ DIU Blended Learning Center

Course Code: CSE321 (Day), Course Title: System Analysis and Design

Level: 3, Term: 2, Section: O2, O5, O6, PC-A

Instructor: AS, Modality: Open Book Exam

Date: Thursday, 20 August, 2020 Time: 09:00am-01:00pm

Four hours (4:00) to support online open/case study based assessment Marks: 40

Directions:

- **Students need to go through the CASE STUDY shown in this exam paper.**
- **Analyze and answer specific section based on your own thinking and work.**
- **Do not share as this will be treated as plagiarism by Blended Learning Center.**

Answer all the following questions

You must answer parts of a question sequentially. The figure in square brace at the right side of a question indicates the marks allocated to the questions.

1. Daffodil group owns a medicine company called MediCare. They sell vitamins and other relatively nonperishable products for those who want choices regarding alternative medicine. MediCare is developing a new system that would require their staff to be retrained. Given the information in figure:

| Activity | Dependency | Time Estimate(in weeks) | | |
|--------------------------------------|------------|-------------------------|----------|----------|
| | | o | r | p |
| A. Data Flow diagram design | - | 2 | 4 | 7 |
| B. Decision Tree design | A | 3 | 4 | 3 |
| C. Draw the revised decision tree | B | 4 | 5 | 8 |
| D. Project description writing | C, I | 4 | 5 | 7 |
| E. Data Dictionary organized | A | 4 | 5 | 8 |
| F. Draw the output prototype | - | 2 | 3 | 5 |
| G. Revised the output design | F | 3 | 4 | 7 |
| H. Use case and Use case description | - | 5 | 6 | 8 |
| I. Finalized the database design | H, E, G | 6 | 7 | 9 |

- a) Construct a Gantt Chart for each activity [3]
- b) Construct a network diagram for the project. [3]
- c) Determine the critical path and Critical value [2]

2. a) Point of Sale (POS) machine, such as those used in ATMs, Gas station, and in stores, have become extremely common due to their convenience and versatility. But in terms of human interface design, their input methods sometimes leave something to be desired. [4]

What are the areas where you think improvement is needed? Draw the input interface from your idea.

- b) Following is a log sheet for a patient information system used by nurses at a convalescent home to record patient visitors and activities during their shifts. Design a printed report using form design software that provides a summary for the charge nurse of each shift and a report for the activities coordinator at the end of a week. Be sure to use proper conventions to indicate constant data, variable data, and so on. These reports will be used to determine staffing patterns and future activities offerings. [4]

| <i>Date</i> | <i>Patient</i> | <i>Visitors</i> | <i>Relationship</i> | <i>Activities</i> |
|-------------|----------------|-----------------|---------------------|---|
| 2/14 | Clarke | 2 | Mother, father | Walked about halls, attended chapel, meals in cafeteria |
| | Coffey | 6 | Coworkers | Played games, party in room |
| | Martine | 0 | — | Meals in room |
| | Laury | 4 | Husband and friends | Games in sunroom, watched TV |
| | Finney | 2 | Parents | Conversation, meals in cafeteria |
| | Cartwright | 1 | Sister | Conversation, crafts room |
| | Goldstein | 2 | Sister, brother | Conversation, games out of room, whirlpool |

3. A hacker group has broken into at least 570 e-commerce stores in 55 countries, including in India, in the last three years, leaking information on more than 184,000 stolen credit cards and generated over \$7 million (over Rs 52 crore) from selling compromised payment cards. Known as “Keeper, the group has been stealing information from these online stores which includes Mumbai-based online jeweler store ejohri.com that was allegedly compromised in February this year, according to the threat intelligence firm Gemini Advisory. “Over 85% of the victim sites operated on the Magento CMS, which is known to be the top target for Magecart attacks and boasts over 250,000 users worldwide,” said the Gemini report. The country hosting the largest selection of these victim e-commerce sites was the US, followed by the United Kingdom and the Netherlands. In mid-2020, Magecart attacks have become a daily occurrence for small to medium-sized e-commerce businesses. Operating on an outdated content management system (CMS), utilizing unpatched add-ons, or having administrators’ credentials compromised through SQL injections leaves e-commerce merchants vulnerable to a variety of different attack vectors. Over the past six months, the Gemini team has uncovered thousands of Magecart attacks ranging from simple dynamic injection of malicious code using a criminally hosted domain, to leveraging Google Cloud or GitHub storage services and using steganography to embed malicious payment card-stealing code into an active domain’s logos and images.

“The criminals behind this threat constantly evolve and improve their techniques to prey on unsuspecting victims who do not emphasize domain security,” the security researchers noted.

- a) Do you think that in this world each and every ecommerce website like Daraz, Food panda, Pathao, Uber ensure their 100% security to their users? Please justify your answers [4]

- b) In the above scenario you can see that SQL injection is a big threat for the user’s payment gateway system. What types of hacking techniques do you think are more dangerous in a payment gateway system for the ecommerce user except SQL Injection? Explain with an example. [4]

4. a) Write test cases design based on the proposed GUI of POS Machine (Input Interface from 2(a)) and Patient visitors and activities (from 2(b)). [4]
- b) Web and Mobile Applications' testing using Black and White Box approaches. As a software developer you need to choose the right testing approach and methodology to use web/mobile application testing. Justify your points. [4]
5. **Digital Marketing** This is not exactly a product; you are selling a service. Digital marketing is in incredible demand and more and more people are looking for services in this sector. If you have skills related to SEO or anything that lies within the digital marketing domain, you can start using them right away. It's a fantastic way to make more money on the side, and you can also eventually gain some long-term clients. Now more than ever, businesses need digital marketing experts for promoting their sites, and you can always profit from it!
- a) How can you deploy digital marketing in an ecommerce site? [3]
- b) If you want to sell digital content to your clients then how can you attract your client through the help of an ecommerce site? [3]
- c) Please Mention and explain which type of electronic commerce is that? [2]