Two hours

UNIVERSITY OF MANCHESTER
SCHOOL OF COMPUTER SCIENCE

Patterns for E-Business Applications

Date: Thursday 22\textsuperscript{nd} May 2008
Time: 09:45 – 11:45

Please answer Question ONE and THREE other questions in from the remaining SIX Questions provided

Note: Do not answer more than the required number of questions. Clearly cross out anything you do not wish to be marked.

This is a CLOSED book examination

The use of electronic calculators is NOT permitted

[PTO]
1. **Compulsory**

A retail company has an online shopping system which enables customers to search for products, select products, and purchase products. Customers can perform these functions using a computer or mobile phone. For purchasing products, customers need to enter their credit card details and shipping address into the system through a secured server. The system verifies this information, places the purchasing order, and confirms the order to the customers. Customers can contact the company’s customer support via email for questions or comments. Customers can also telephone the company to return the products within 28 days of purchasing, but the return service is not part of the online shopping system. Figure 1 illustrates this shopping system, where boxes represent high-level business functions and arrows denote message flows.

![Figure 1. An Online Shopping System.](image)

a) Identify and list appropriate business patterns needed for this online shopping system. Some patterns may be used more than once. Critically and concisely justify your choice of patterns and explain what problem each chosen pattern solves. (20 marks)

b) Identify and list appropriate integration patterns for the chosen business patterns. Some patterns may be used more than once. Critically and concisely justify your choice of patterns and explain what problem each chosen pattern solves. (10 marks)
2. What are the five main challenges in developing e-business application systems? Critically and concisely describe each one. (10 marks)

3. Concisely describe different categories of IBM’s Patterns for e-business. The description should include the purpose of each pattern category and its role in e-business architectural design. (10 marks)

4. What are the seven major steps in applying IBM’s Patterns for e-business? Concisely describe each step. How do you determine which pattern should be selected? What is the major problem concerning pattern selection? (10 marks)

5. Proxy is an important communication pattern. Critically explain how Proxy can support the Collaboration business pattern and what benefit it provides. You may use a diagram to illustrate your explanation. (10 marks)

6. Directly Integrated Single Channel and Router are two alternative application patterns for the Self-Service business pattern. Critically compare and contrast these two application patterns according to the situations in which they are applied. (10 marks)

7. The Information Aggregation business pattern shares some similarity with the Self-Service business pattern. Critically compare and contrast these two business patterns according to the situations in which they are applied. (10 marks)

END OF EXAMINATION