

1. What are the advantages of separating the analysis and design activities of a project?

Analysis emphasizes an investigation of the problem and requirements. In this phase, we can derive requirements for the system and analyze objects and their relationships in the domain. Analysis helps developers find what is necessary to create a proper working solution for the problem. After analysis, design activities can start. It is important that analysis comes before design because the investigation done in the analysis phase heavily influences the design in the design phase. Design activities take the information produced in the analysis phase and describe how the system will implement the solutions.

2. What are the essential parts of a message label

(i) in a sequence diagram?

The message label is the name of the operation being invoked. It goes above the filled arrow line.

(ii) in a communication diagram?

Messages are shown as a line with an arrow and sequence expression above it. The sequence expression includes the sequence term and message name.

3. For the "Add Book" use case, a fully-dressed description was produced in Assignment 1 and a system sequence diagram was produced in Assignment 2. They provide useful information to produce a sequence diagram for the "Add Book" use case.

3.a Assume that object interaction takes place among instances of four classes "MainWindow", "OrderItemDialog", "OrderItem", and "BookOrder", where the last two are used for the selected book and for a list of previously selected books respectively. Use Visual Studio to produce a sequence diagram named "AddButtonClick" for the fully-dressed "Add Book" use case, except that the value of quantity is not checked at this time.

3.b For the purpose of exercise, produce a separate sequence diagram named "UpdateBookOrder" for the message to update book order, and refer it back in the "AddButtonClick" sequence diagram.

3.c Now, modify the "UpdateBookOrder" sequence diagram to add the action so that quantity value will be checked. (hint: BookID of the OrderItem instance should be used to check if the selected book is already in the book list. If yes, add the new quantity to the original. Otherwise, add the book in the book list.)

4. Provide your answers to the first two questions in the online submission box, and attach three screenshots for the three sequence diagrams required by the third question.