1. Defects (i.e., bugs) are bound to affect any software development.
   
   - Explain why it is important to find these defects as early as possible in the development cycle.
   - Take a software lifecycle model of your choice. Describe how this lifecycle model works, and explain how it tries to find defects early.

2. You are working on a software project that will sell tickets for the UW Symphony Orchestra. In particular, the application will have the following features:

   (a) Administrators will be able to add an event, for example a performance of Beethoven’s 9th Symphony on Friday, April 23, at 7pm.
   (b) The administrator will be able to specify where the performance will be held, e.g., UW’s Fine Arts Auditorium.
   (c) Users will be able to view upcoming performances.
   (d) Users will be able to view details of each performance, such as the pieces to be played and the performers playing them.
   (e) Users will be able to check for available seats to a performance.
   (f) Users will be able to purchase tickets to a performance.
   (g) Users can buy more than one ticket at a time, in which case they will be given seats that are together. So if a user asks for two tickets, they will not be given one seat in the front and another in the back.

   Provide an E-R diagram that describes how this data will be stored by your application.

3. Using the same application for the UW Symphony Orchestra as in the previous question, design a solution to the fifth use case, repeated below:

   (e) Users will be able to check for available seats to a performance.

   Describe your design using an UML class diagram and a collaboration diagram.