Objectives
In this practical you will be implementing design patterns in Java, and analysing the costs and benefits of applying the design pattern.

Task

This practical is to be undertaken by students working in pairs in Lab 2.01. If possible at least one student in each pair should be competent in java programming. The main readings and other downloads are available from the SED materials page.

1. Read the descriptions of the Bridge and Abstract Factory patterns provided on the two copies of web page readings: Abstract Factory (by Grand) and Bridge (by Huston) (20 mins)
2. Copy the sample Java implementations of these patterns from the materials page and browse the implementation. The originals are from http://www.fluffycat.com/java/patterns.html (5 minutes)
3. Select either the Bridge or the Abstract Factory example, and implement it in the lab. Run the suggested tests. (25 mins)
4. Discuss with your partner how the pattern is implemented, whether any other patterns are used, and why it is useful to use the pattern in this situation. Consider how the pattern may be applied in the real world. (10 minutes)
5. Modify the code to include new cases, scenarios etc. How easy is it to modify? Would it be as easy to modify if it did not use the design pattern? (30 minutes)

Further Reading

David Grand, Patterns in Java Volume 1, Wiley 1998

Gamma, Helm, Johnson, Vlissides, Design Patterns: Elements of Reusable Object-Oriented Software, Addison-Wesley, Reading, MA, 1994

http://www.fluffycat.com/java/patterns.html is a reference and example site for Design Patterns in Java. It contains links to Amazon.com books on design patterns too.