

Return your answers in Tuubi before deadline!

In Object-Oriented Programming course 2015 one subject is different Design Patterns. In address <http://users.metropolia.fi/~pasitr/2016-2017/TI00AA50-3010/tt/09/tt09-java.pdf> and <http://users.metropolia.fi/~pasitr/2016-2017/TI00AA50-3010/kt/09/kt09-java.pdf> are exercises. You have to program tasks in C++ if possible.

## Tasks

1. **Builder pattern.** Implement this pattern example with C++ if possible. Codes in Java is in address [https://www.tutorialspoint.com/design\\_pattern/builder\\_pattern.htm](https://www.tutorialspoint.com/design_pattern/builder_pattern.htm) .

Example 1: [https://sourcemaking.com/design\\_patterns/builder/cpp/1](https://sourcemaking.com/design_patterns/builder/cpp/1)

2. **Prototype pattern.** Implement this pattern example with C++ if possible. Codes in Java is in address [https://www.tutorialspoint.com/design\\_pattern/prototype\\_pattern.htm](https://www.tutorialspoint.com/design_pattern/prototype_pattern.htm) .

Example 2: [https://sourcemaking.com/design\\_patterns/prototype/cpp/1](https://sourcemaking.com/design_patterns/prototype/cpp/1)

3. **Adapter pattern.** Implement this pattern example with C++ if possible. Codes in Java is in address [https://www.tutorialspoint.com/design\\_pattern/adapter\\_pattern.htm](https://www.tutorialspoint.com/design_pattern/adapter_pattern.htm) .

Example 3: [https://sourcemaking.com/design\\_patterns/adapter/cpp/1](https://sourcemaking.com/design_patterns/adapter/cpp/1)

4. **Bridge pattern.** Implement this pattern example with C++ if possible. Codes in Java is in address [https://www.tutorialspoint.com/design\\_pattern/bridge\\_pattern.htm](https://www.tutorialspoint.com/design_pattern/bridge_pattern.htm) .

Example 4: [https://sourcemaking.com/design\\_patterns/bridge/cpp/1](https://sourcemaking.com/design_patterns/bridge/cpp/1)