

## LABORATORY 5 – ARCHITECTURAL STYLES

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### I. Theoretical Background

Architectural styles classification

- Traditional, language-influenced styles
  - o Main program and subroutines
  - o Object-oriented
- Layered
  - o Virtual machines
  - o Client-server
- Data flow
  - o Batch sequential
  - o Pipe-and-filter
- Shared memory
  - o Blackboard
  - o Rule-based
- Interpreter
  - o Interpreter
  - o Mobile code
- Implicit invocation
  - o Publish-subscribe
  - o Event-based

For more details see lectures 3 and 4: <http://users.utcluj.ro/~dinso/PS2012/Lectures/>.

### II. Problems

Choose an architectural style suitable for the system specifications below and motivate your choices:

- a) ArhiSys is a system for knowledge acquisition from historical documents. The system receives as input a historical document containing a set of technical data and the summary of the original historical document. First, the technical data is extracted from the document and then the summary is lexically annotated. The aim of lexical annotation is to identify relevant information patterns from text using specialized pattern-matching rules. The result of lexical annotation consists of an XML file containing the identified lexical elements. The XML file is submitted to a knowledge extraction process which (i) semantically annotates the lexical elements with ontological concepts using a set of mapping rules, (ii) creates an RDF file with annotations and (iii) populates a domain ontology with the newly extracted information.

- b) YMessenger is a chat application which allows logged users to communicate with other logged users. The application enables the registration of new users and allows existent users to choose to whom to talk. Messages passed between users are stored in a database.
- c) “ApartmentRenting” is a Web based application that allows its users to rent apartments. The application should also allow (i) users to check for available apartments which can be rented and (ii) administrators to add new apartments for renting. When a new apartment is available for renting, the application should automatically send an email to all registered users.
- d) SalesPlus is a software system used to record orders, handle payments and manage the employees’ activity in a restaurant. The system allows (i) automatic tables distribution to waiters, (ii) waiters to take orders and record them in the system by using a desktop computer or a PDA, (iii) handle payments by considering discounts, (iv) a manager to check online the activity of its employees from the mobile phone, (v) clients to access the restaurant’s site to reserve a table for a specified date or to make an order to be delivered at home. The SalesPlus system increasingly must support multiple and varied client-side terminals and interfaces. The system is a commercial one, therefore it must be flexible and customizable enough to address the needs of various clients. The system must also be secure.