MESTRADO INTEGRADO EM ENGENHARIA INFORMÁTICA

Arquitectura de Sistemas de SOftware

27th March 2012 • Personal notes allowed • Duration: 60+15 minutes

> Please carefully read the description of the software system below and answer the questions **always justifying them succinctly and clearly**, mentioning the bibliography or references that fundament them. When required, you should make explicit all the assumptions you did to answer the questions.

Social software has been gaining a lot of momentum in the past years being today used by almost everybody, for personal, professional, and organizational purposes. In concrete, social networks are probably the kind of social software used today with more impact in the individual and society, which although seeming to be simple and intuitive to use, is in fact very hard to design, implement, and scale, especially when using traditional architecture and design principles.

SOCIALWARE is a framework aimed at helping on the development of social software using typical features of social networks. After a detailed requirements analysis, we found several design issues that we want to solve.

Considering the design patterns you studied (mainly GoF), suggest a **partial class diagram** for each issue below (specific for the issue) and **justify** which patterns (if any) you think are appropriate to solve it.

a. A social network is a system that must support the notion of person and relations between them. It must support the idea of groups of persons (social circles), which may contain or be part of other groups, in a nested way. Persons may be part of different groups.

b. Persons relate to other persons through relationships of different types. Different kinds of relationships should be configurable at runtime and may have different properties and behaviour (dates, reasons, etc). However, there are some commonalities between them all (name, start date, end date, status).

c. Persons may share different things (photos, comments, url's, etc.) with others, providing specific access-right settings at the level of group/subgroup, and person.

d. Persons do activities, which all are usually listed as an activity stream, that can be subscribed by others, to keep in touch with the activity of a certain group or person.

e. To simplify the usage of the system, busy people may delegate some actions to helpers, so that these later may perform some actions, based on specific rules, and with or without moderation, a priori, or a posteriori.

f. For visualization purposes, the system should accept different plugins/scripts to render the whole social graph of one person.

Note: each question has a value of 15% and the global evaluation values 10%.

The End.