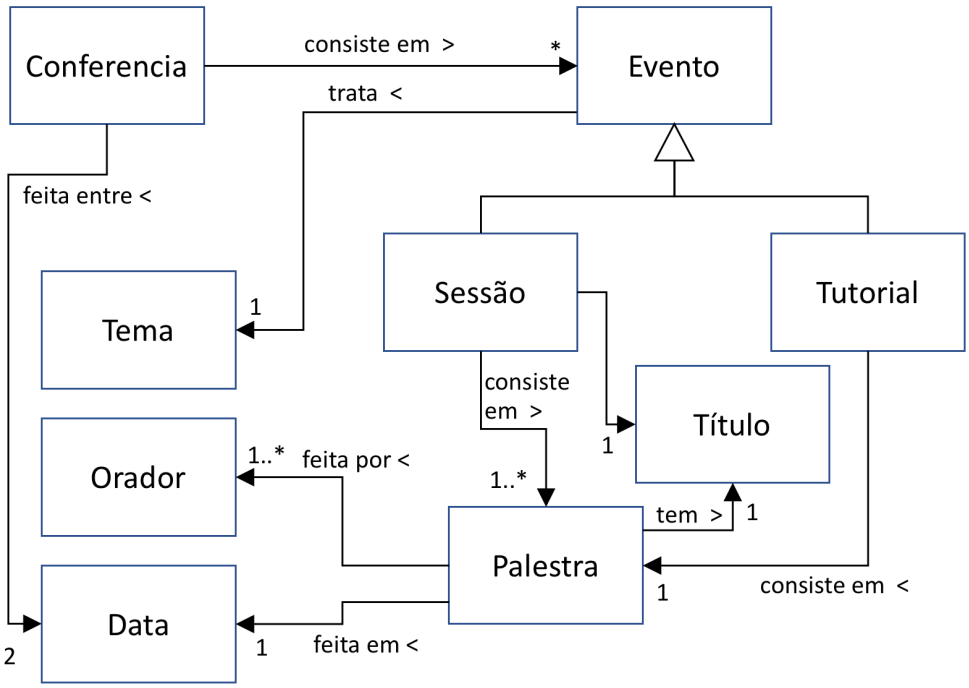
Teste de Sistemas Interactivos

Mestrado integrado em Engenharia Informática
2016/17

Duração prevista: 1h30
Leia o teste com atenção.

Parte I

Considere que se pretende desenvolver um sistema de informação para gestão de Conferências. Uma Conferência consiste em eventos que podem ser Sessões ou Tutoriais. As sessões são constituídas por apresentações. Um tutorial consiste numa única apresentação. Veja o modelo da figura abaixo.



Considere, ainda, que se pretende desenvolver uma interface para o registo de participantes. Os participantes utilizam o sistema para se registarem nas Conferências. Podem optar por se registarem numa conferência como um todo, ou seleccionar eventos específicos. O preço a pagar variará em função da selecção feita. No final devem pagar para que o registo seja efectivo. De momento são suportados dois tipos de pagamento: via PayPal e via pagamento de serviços no MultiBanco.

Responda agora às seguintes questões.

1. Desenvolva um protótipo para a interface de inscrição em conferências, tendo em consideração os padrões em anexo, e sabendo que se trata de uma aplicação Web em que o mais

importante é poder ser utilizada por utilizadores sem qualquer treino. Explique, de forma sucinta, de que modo este requisito foi tido em conta no desenho da interface (incluindo a eventual selecção de algum padrão).[4 valores]

2. Escreva um modelo de tarefas hierárquico para a tarefa de inscrição numa conferência, relativo à interface que desenhou na questão anterior.[3 valores]

3. Seleccione uma tecnologia que lhe pareça adequada e esboce a implementação do protótipo acima.[4 valores]

Parte II

Considere agora as duas alternativas de interfaces propostas para a apresentação do programa de uma conferência.

Technical Sessions

Tuesday, 27

09h15-10h15	Keynote
	"Engineering Is Worth It, But Only When Rational Ideals Accept Reflective Realities" Gilbert Cockton - Northumbria University
10h45 - 12h30	Technical Session 1 - Opening the box: natural interaction in context (1)
	"Supporting Responsive Cohabitation Between Virtual Interfaces and Physical Objects on Everyday Surfaces" Robert Xiao: Carnegie Mellon University; Scott Hudson: Carnegie Mellon University; Chris Harrison: Carnegie Mellon University
	"CCBL: a language for better supporting context centered programming in the Smart Home" Alexandre Demeure: Université Grenoble Alpes; Lénaïc Terrier: Laboratoire d'Informatique de Grenoble; Sybille Caffiau: Université Grenoble Alpes
	"Continuous Tilting Interaction Techniques on Mobile Devices for Controlling Public Displays" Linda Di Geronimo: ETH Zurich; Andrea Canonica: ETH Zurich; Maria Husmann: ETH Zurich; Moira Norrie: ETH Zurich
	"End-User Web Development Tool for Tilting Interactions" Linda Di Geronimo: ETH Zurich; Sandro Kalbermatter: ETH Zurich; Moira Norrie: ETH Zurich
14h00-14h30	Doctoral Consortium Students Present
	"Supporting Interactive System Testing with Interaction Sequences" Jessica Turner: University of Waikato
	"Model-Based Analysis of Driver Distraction by Infotainment Systems in Automotive Domain" Giovanna Broccia: Università di Pisa
	"Modelling Safety-Critical Devices: Coloured Petri Nets and Z" Sapna Jaidka: University of Waikato
	"Aesthetics in Interaction Design" Mati Mõttus: Tallinn University
	"Adapting Modeling Environments to Domain Specific Interactions" Vasco Sousa: Université de Montréal
	"Language and System Support for Interaction" Thibault Raffaillac: Inria Lille Nord Europe
	"Enabling the Development of Pervasive Multi-Device Applications" Pedro Albuquerque Santos: Universidade NOVA de Lisboa
14h30-16h00	Technical Session 2 - Supporting collaboration: multi-users interaction
	"COPSE: Rapidly Instantiating Problem Solving Activities based on Tangible Tabletop Interfaces" Valérie Maquil: LIST; Eric Tobias: LIST; Dimitra Anastasiou: LIST; Hélène Mayer: LIST; Thibaud Latour: LIST
	"Extended Features of Task Models for Specifying Cooperative Activities" Gregor Buchholz: University of Rostock; Peter Forbrig: University of Rostock
	"TUIOFX - A JavaFX Toolkit for Shared Interactive Surfaces" Mirko Fetter: University of Bamberg; David Bimamisa: University of Bamberg; Tom Gross: University of Bamberg
16h30-18h00	Tutorial 1
	"Djnn: A Process Oriented Programming Language for Interactive Systems" Mathieu Magnaudet and Stéphanie Rey: Université de Toulouse - ENAC The most popular programming languages (Java, C++, Objective-C, Python, etc.) and toolkit (Qt, JavaFX, etc.), commonly used for building interactive systems, are still based on the paradigm of sequential programming originally built for computation. In this tutorial we present djnn, a new way of programming interactive systems that takes as its primary concept coupling between processes. We will take as an example the building of a well-known component of an aircraft cockpit, the primary flight display. The first part of this tutorial will be dedicated to the presentation of the basic principles of djnn, its main concepts and how to build a simple program. Then we will introduce the various control structures and provide an overview of the existing libraries of djnn components. We will pursue by showing how to import graphical components from a SVG file, and how to connect various input modalities. Finally, we will demonstrate a rapid prototyping process through the integration of increasingly realist graphical components.

Wednesday, 28

09h00-10h30	Technical Session 3 - Mastering data: interactive data analysis (1)
	"Input Controls for Entering Uncertain Data: Probability Distribution Sliders" Miriam Greis: University of Stuttgart; Hendrik Schuff:University of Stuttgart; Marius Kleiner: University of Stuttgart; Niels Henze: University of Stuttgart; Albrecht Schmidt: University of Stuttgart
	"HistoryViewer: Instrumenting a Visual Analytics Application to Support Revisiting a Session of Interactive Data Analysis" Vinicius Segura: IBM Research; Simone DJ Barbosa: PUC-Rio
	"Polymodal Menus: A Model-based Approach for Designing Multimodal Adaptive Menus for Small Screens" Sara Bouzit: Orange Labs; Gaelle Calvary: Grenoble Institute of Technology; Jean Vanderdonckt: Université catholique de Louvain
11h00-12h30	Tutorial 2
	"High-level Interaction Design for Automated GUI Generation and Customization" Hermann Kaindl: ICT, TU Wien

(lista continua)

Tuesday, 27 | Wednesday, 28 | Thursday, 29

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(tabbed panes)

1. Dada a definição de usabilidade discutida nas aulas:

Usability: Extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use. (ISO DIS 9241-11).

efficiency Resources expended in relation to the accuracy and completeness with which users achieve goals (time, learning effort, etc.)

effectiveness Accuracy and completeness with which users achieve specified goals

satisfaction Freedom from discomfort, and positive attitudes towards the use of the product

e sabendo que os dois principais objectivos dos utilizadores relativamente à página do programa são: *saber qual o programa da conferência para um dado dia* e *procurar artigos de um dado autor*; discuta a usabilidade relativa das duas propostas.[3 valores]

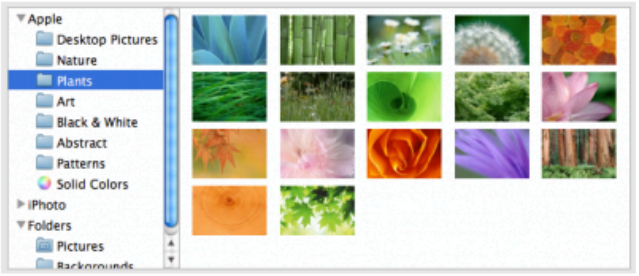
2. Que tecnologias utilizaria para permitir à interface implementada alternar entre as duas versões propostas, em função do tamanho do écran (cf. *Responsive Web Design*). Justifique a sua escolha (esboce a solução se considerar que isso lhe facilita a exposição).[3 valores]

3. Está a ser ponderada a implementação da solução *tabbed panes* recorrendo a tecnologia *server side* (em concreto, JSP) vs. tecnologia *client side* (Angular e Bootstrap). Discuta as vantagens/desvantagens de cada uma das soluções, considerando as seguintes perspectivas:

   - Disponibilidade.
   - Rapidez de acesso/resposta.
   - Custo/facilidade de implementação e manutenção.[3 valores]

Two-Panel Selector

What



Put two side-by-side panels on the interface. In the first one, show a list of items that the user can select at will; in the second one, show the content of the selected item.

Use when

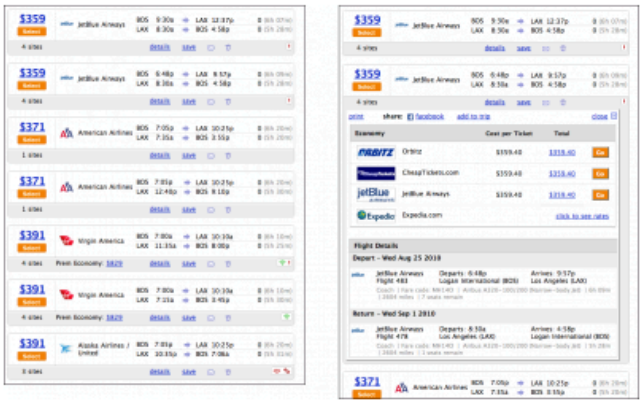
You have a list of items to show. Each item has interesting content associated with it, such as the text of an email message, a long article, a full-sized image, contained items (if the list is a set of categories or folders), or details about a file's size or date.

You want the user to see the overall structure of the list and keep that list in view all the time, but you also want him to be able to browse through the items easily and quickly. People won't need to see the details or content of more than one item at a time.

Physically, the display you're working with is large enough to show two separate panels at once. Very small cell phone displays cannot cope with this pattern, but many larger mobile devices can.

List Inlay

What



Show a list of items as rows in a column. When the user selects an item, open that item's details in place, within the list itself. Allow items to be opened and closed independently of each other.

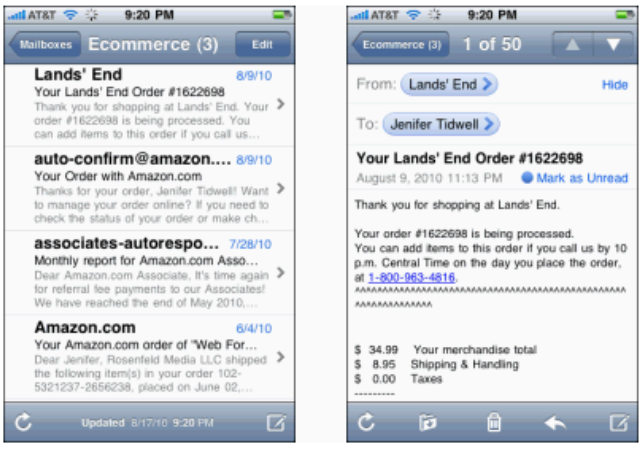
Use when

You have a list of items to show. Each item has interesting content associated with it, such as the text of an email message, a long article, a full-size image, or details about a file's size or date. The item details don't take up a large amount of space, but they're not so small that you can fit them all in the list itself.

You want the user to see the overall structure of the list and keep that list in view all the time, but you also want her to browse through the items easily and quickly. Users may want to see two or more item contents at a time, for comparison.

One-Window Drilldown

What



Show a list or menu of items in a single window. When the user selects an item from the list, show the details or contents of that item in the window, replacing the list.

Use when

You have a list of items to show. Each item has interesting content associated with it, such as the text of an email message, a long article, a full-size image, or details about a file's size or date.

You have very little space to work with—not enough for a Two-Panel Selector or a List Inlay. For instance, the design might be intended for a very small mobile screen, or for a self-contained web page sidebar or widget.