Crafting the Compelling User Experience

Design II - Realization

Didier Bardon
Introduction

- Realization phase overview

- Design activities
  - Object representation
  - Visual design and interactions realization
  - Verification of the user experience fidelity and clarity

- Recording and managing the results of the realization phase
  - The Presentation View Model

- Exercise
The Realization Phase

Discovery

User Classes
User Goals
Current Tasks
Use Cases
User Objects
Task Overview

Deployment

Presentation Views
Visual Design
Interactions Behaviors

Design 2 - Realization

Object States
Interactions
Abstract Views

Design 1 Abstract
The Realization Phase

- **Goals**
  - Orchestrate all concerns
  - Insure fidelity and clarity with respect to the abstract design
  - Record the results in the *Presentation View Model*
OVID Diagrams As Input To Presentation View Design
Fidelity and Clarity

- **Fidelity to the Abstract Design**
  - All the elements defined, and the decisions made in the Abstract Design must be reflected in the Presentation views
  - No extension to the design should be made, or element added that do not have roots into the Abstract Design

- **Clarity of objects representation**
  - The objects, discovered during the Abstract Design phase, should be perceivable by users as they interact with the system
  - User objects should be recognizable along the flow of the user experience
  - The states changes of objects as user interact with them should be perceivable

- **Fidelity to the Abstract Design and Clarity of object representation are the contribution of visual design to the usability of the product**
Presentation Views are compositions of Object Views.

Through each different presentation view, users gaze at the same object model.
Three Levels of Concern

**Individual objects**
Objects visual identities
*Object model, Environment*

**Presentation Views**
Layout, interactions
*Abstract views, Sequence, States, Platform, Environment*

**Entire user experience**
Verify fidelity and clarity.
Address transitions.
*Prototyping, team reviews*
Object Representation: Visual Identity

Reservation
Date:
Duration:

Hotel du MontBlanc

Ms. Jane Doe

Room # 3

Guest Record
Ms. Jane Doe
Attribute: Value

Guest
Visual Identity Across the User Experience

- Each object appears in several views, in different capacities.
- Each object’s visual identity must stay perceivable in all views.

Presentation view for task A

Presentation view for task B

Presentation view for task C

Views of Object 2 out of their context
Two Occurrences of the Same Objects

Making a reservation

Checking in

Reservation:
Date: June 18th  Duration: 5 nights

Mr.  Mrs.  Miss. Jane Doe

Address:

Home Tel:
Business Tel:
Cell Tel:
e-mail:

<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
<th>Nights</th>
<th>Valid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jane Doe</td>
<td>June 18th</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Bob Faragut</td>
<td>June 23rd</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Joe Henry</td>
<td>July 4th</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Cindy Harry</td>
<td>June 8th</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Johnny Go</td>
<td>July 14th</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Peter Wolf</td>
<td>July 2nd</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>
Two Occurrences of the Same Objects (cont.)

Reservation:
Date: June 18th  Duration: 5 nights

<table>
<thead>
<tr>
<th>Mr.</th>
<th>Mrs.</th>
<th>Miss.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Jane Doe</td>
</tr>
</tbody>
</table>

Address:

Home Tel:

Business Tel:

Cell Tel:

e-mail:

<table>
<thead>
<tr>
<th>Guest Record</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ms. Jane Doe</td>
</tr>
</tbody>
</table>

Attribute: Value

Jane Doe: June 18th  5 nights
Bob Faragut: June 23th  2 nights
Joe Henry: July 4th  6 nights
Cindy Harry: June 8th  3 nights
Johnny Go: July 14th  11 nights
Peter Wolf: July 2nd  7 nights

June 6, 2002

Crafting the Compelling User Experience: Realization Phase

Slide number 12
Presentation View Design
Input From The Abstract View Diagrams

Making a reservation, finding availabilities

- View specifications indicate which objects are involved, and which subsets of object attributes will be presented.

- View specification titles indicate the object’s role in accomplishing the task.

- The actors indicate which subset of the audience will interact with the presentation view.
Presentation View Design
Input From Interaction Sequences Diagrams

Sequence of steps for finding availabilities.

- The state diagrams clarify the interaction information that was left to interpretation in the Abstract View.
- Knowing which steps are supported by an object completes the information needed to plan its view in the composition.
Internal sketch

“Hotel” for finding availabilities (1)
Internal sketch

“Hotel” for finding availabilities (2)

<table>
<thead>
<tr>
<th>Date</th>
<th>Duration</th>
<th>Party of</th>
<th>Price</th>
<th>Reserve</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-2-02</td>
<td>30 Days</td>
<td>3</td>
<td>$150.00</td>
<td>Reserve</td>
</tr>
<tr>
<td>7-2-02</td>
<td>35 Days</td>
<td>2</td>
<td>$129.00</td>
<td>Reserve</td>
</tr>
<tr>
<td>7-3-02</td>
<td>27 Days</td>
<td>2</td>
<td>$85.00</td>
<td>Reserve</td>
</tr>
<tr>
<td>7-2-02</td>
<td>26 Days</td>
<td>3</td>
<td>$150.00</td>
<td>Reserve</td>
</tr>
<tr>
<td>7-1-02</td>
<td>30 Days</td>
<td>3</td>
<td>$160.00</td>
<td>Reserve</td>
</tr>
</tbody>
</table>
Presentation view design
Input from abstract view diagrams (continued)

Task: creating a reservation

- This task requires access to several objects. “Include” arrows between sub-views define layout nesting.

- Attributes and operations denote the role of each object in the accomplishment of the task.
Presentation View Design
Input From Interaction Sequences Diagrams (continued)

Sequence of steps for creating a reservation.

- The open actions are initiated by the system. The locations in the diagram indicate whether sub-views are nested or accessed through navigation.
**Internal sketch**

Creating a reservation (1)
Internal sketch
Creating a reservation (2)
Each state and state transition of the object is examined to determine where and when visual cues will be needed.
### Presentation View Design

**Input From State Tables**

<table>
<thead>
<tr>
<th>State</th>
<th>Open</th>
<th>Inputs</th>
<th>Process [valid data]</th>
<th>Process [invalid data]</th>
<th>Reenter input</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Initial]</td>
<td></td>
<td>To receiving input</td>
<td>Not available to users</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receiving input</td>
<td>Internal action. Not available</td>
<td>To receiving input</td>
<td>To confirmed</td>
<td>To invalid</td>
<td>Must be valid</td>
</tr>
<tr>
<td>Confirmed</td>
<td></td>
<td>No changes allowed once reservation is confirmed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Invalid</td>
<td></td>
<td>Not available to users</td>
<td>To receiving input</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- The state table allows to plan for visual cues needed to help users avoid errors.

June 6, 2002

Crafting the Compelling User Experience: Realization Phase

Slide number 22
Internal sketch
Creating a reservation (3)
High resolution sketch
Task: finding vacancies (1)

Vacancies Finder

<table>
<thead>
<tr>
<th>Date</th>
<th>Duration</th>
<th>Party of..</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-2-02</td>
<td>26 Days</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

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### High resolution sketch

**Task:** finding vacancies (2)

#### Vacancies Finder

<table>
<thead>
<tr>
<th>Date</th>
<th>Duration</th>
<th>Party of..</th>
<th>Price</th>
<th>Facilities</th>
<th>Availability</th>
<th>Reserve</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-2-02</td>
<td>26 Days</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7-2-02</td>
<td>30 Days</td>
<td>3</td>
<td>$150.00</td>
<td></td>
<td></td>
<td>Reserve</td>
</tr>
<tr>
<td>7-2-02</td>
<td>35 Days</td>
<td>2</td>
<td>$129.00</td>
<td></td>
<td></td>
<td>Reserve</td>
</tr>
<tr>
<td>7-2-02</td>
<td>27 Days</td>
<td>2</td>
<td>$95.00</td>
<td></td>
<td></td>
<td>Reserve</td>
</tr>
<tr>
<td>7-2-02</td>
<td>26 Days</td>
<td>3</td>
<td>$150.00</td>
<td></td>
<td></td>
<td>Reserve</td>
</tr>
<tr>
<td>7-2-02</td>
<td>30 Days</td>
<td>3</td>
<td>$160.00</td>
<td></td>
<td></td>
<td>Reserve</td>
</tr>
</tbody>
</table>
High resolution sketch
Task: creating a reservation (1)

Reservation

<table>
<thead>
<tr>
<th>Date</th>
<th>Duration</th>
<th>Party of..</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-2-02</td>
<td>30 Days</td>
<td>3</td>
<td>$150.00</td>
</tr>
</tbody>
</table>

Mr  ○  Mrs  ○  Miss  ○

Jane Doe

Credit Card:

7824 AA04 60X2 2207

Address:
4812 Bull Creek Drive
Victoria, Texas 78854

Home Telephone: 512 208 4232
Business Telephone: 512 727 3256
email: jdoe@mindfall.com

Process reservation

Initiated by: Joe Clerkman  Issue date: 6-4-02
High resolution sketch
Task: creating a reservation (2)
High resolution sketch
Task: creating a reservation (3)
Complete sequence

Task: “make a reservation”  User: Clerk
Complete sequence
Task: “make a reservation”  User: Guest

Hotel du Mont Blanc
- Vacancies Finder
  - Day: 12
  - Month: June
  - Duration: 1 night
  - Vacancies:
    - Available

Reservation
- Date: June 6, 2002
- Duration: 8 nights
- Confirm reservation

Miss Jane Doe
4812 Bull Creek Drive
Victoria, TX 78185
Realization & Environmental Concerns

- Environmental concerns
  - Audience characteristics
  - Visual trends
  - Task domain
  - Brand

- How are the environmental concerns addressed in the model-driven presentation view design
  - Audience characteristics influence decisions about cognitive load and interaction mechanisms
  - All the environmental influences define the “palette” that will be used by the presentation designers
Realization & Technology Concerns

- **Hardware concerns**
  - Typical information capacity of the display device
  - Input devices
  - Processing speed

- **Software concerns**
  - Flexibility of the underlying operating software
  - Typical information capacity of client areas

- **Influence of technology platform on presentation view design**
  - Low information capacity may force extraneous navigation, a challenge to the user experience’s clarity
  - Input devices may dictate particular interaction mechanisms
  - The level of flexibility of the software platform defines how far visual design can go to boost the clarity of the user experience
Summary of Realization Phase

- Three categories of influence on the design that have to be addressed and orchestrated
  - OVID’s Abstract Definition of the user experience: it drives the realization design activities
  - Environmental concerns: they help define the graphic palette that will be used and the tone of the final presentation
  - Technical concerns: they help define the graphic palette further, and may cause the partition of views that were defined as single entities in the abstract view model

- Three important points
  - The object, abstract view, interaction, and state diagrams contain the information that drive layout and interaction design
  - The quality of objects visual identities design is key the clarity of the user experience
  - The user experience structure defined by the abstract design can always be brought to the user intact
Recording the Decisions of the Realization Phase

- **Environment**
  - Audience
  - Visual Trends
  - Task Domain
  - Brand

- **Technology**
  - Hardware Platform
  - Software Platform

**Abstract Design** → **Visual Design** → **Interaction Design** → **Record the design for implementation**
Why a Presentation View Model

- Even a simple project generates a multitude of design specifications that need to be managed
  - The presentation design specifications become integrated into the greater OVID model. Developers have access to all the design in a single location
  - The presentation view design specifications are organized around the structure of the design itself
  - The specifications can be organized for automated rendering
  - The Presentation View model facilitates the maintenance of the delivered product

- Several sets of presentations may have to be created
  - Market segmentation, (e.g. cultural differences, levels of familiarity with technology)
  - Multiple delivery platforms
Presentation View Model, example
Task: “make a reservation” User: Guest
Presentation View Model Example (cont.)

Diagram showing the relationships between user roles (Guest, Hotel, Reservation, and Hotel) and their interactions, including make a reservation, find vacancies, and provide details. The diagram illustrates how visual specifications, interaction mechanisms, and comments are involved in the user experience.
Presentation View Model Example (cont.)
Exercise 5: Presentation View for “Check in”

You will find in your packet the abstract view diagram and the interaction sequence diagram for the task of “checking in the hotel, with a reservation”.

With the help of the information contained in this diagrams, draw a quick sketch of the presentation view for the task.
Exercise 5: Abstract View Model

Check in

- Guest
- Clerk
- Room 'details'
- Smoking
- Reservations
- Available Rooms
- Date
- Duration
- Smoking
- RESERV.
- GUEST
- HOTEL
- ROOM
Exercise 3: check-in abstract view

- Vacationer
- Reservation clerk

- Hotel for check-in
  - Hotel identity
  - U: Find reservation()
  - U: Find room()

- Reservation

- Guest history for check-in
  - Guest name
  - Contact info
  - Payment details
  - Preferences
  - U: Complete registration()

- Room
  - Smoking
  - View of the sea
  - Bed type
  - U: Assign to guest()
  - U: View room details()

- Folio

- Stay

- Plan to stay

- 0..n

- 0..n
Exercise 5: Interaction Diagram

Check in

Guest

Clerk

HOTEL

RESERV.

GUEST

ROOM

Provide name

Look for guest reserv

Open view

Look for free room

Open view

Propose room

Accept room

Open view

Mark room occupied for the duration

Assign room to guest

Request form of payment

Provide form of payment

Transfer guest details from reservation

Destroy

Transfer payment information to guest record
Hotel du Mont Blanc

Reservation Finder

Guest name: 
Confirmation #: 

Find reservation

Reservation

Date: June 12, 2002  Duration: 8 nights

Miss: Jane Doe

Address: 
Home tel: 
Business tel: 
Cell tel: 
e-mail: 
Credit card: 

Complete registration

Room Finder

Find room

Suggested rooms for this reservation:

3  
23  
26  

Details

Details

Details