INTRODUCTION TO DESIGN

• Scenarios and conceptual design
  * Interaction objects, properties, relationships
  * Different views
  * Access and operations

• Screen layout sketches
  * Screen pictures
  * Labels and notes
  * Iteration
USAGE SCENARIOS

• Usage scenarios are a good connection between systems analysis and design

• Scenarios are stories about people and their work activities

• Scenarios are work-oriented: focus on needs and concerns of users

• Scenarios highlight two kinds of goals:
  * Work-oriented goals
  * Goals suggested by appearance and behavior of system and its objects

• Scenarios make use the object of design
  * Scenarios are envisioned design solutions
  * Working design representation tied directly to situation of use
  * Scenarios evoke thought and discussion about design
USAGE SCENARIOS

• Characteristic elements:
  * Narrative style
  * Setting
  * Agents or actors
  * Goals and objectives (of each actor)
  * Plot – sequences of actions and events (events can change the goals)

• Relationship to design specifications
  * Design situations are fluid; written specifications are rigid
  * Scenario-based design is bottom-up; needs to be mixed with some top-down structuring
USAGE SCENARIOS

• Where do scenarios come from?

  * Brainstorming

  * Ethnographic field studies

  * Participatory design

  * Reuse of similar designs
USAGE SCENARIOS

• Scenarios should capture and make obvious in your design:

  * Tasks and task threads
    - Common, representative
    - Mission critical
    - Error and recovery situations
  * User interface objects/artifacts
  * User actions on objects
  * User planning, thoughts, and reactions to system
  * Environmental and work context
USAGE SCENARIOS

• Scenarios reveal requirements
  * Scenarios reveal how tasks will be carried out and how system will enable functionality for tasks

• Scenarios go hand-in-hand with screen sketches
  * Scenarios plus screen sketches constitute an early design product

• How many scenarios should we expect?
  * Number of scenarios can be large, if product is large, complex
  * Need a different set of scenarios for each user group
EXAMPLE: SCENARIO CREATION AND ANALYSIS

• Goal:
  * To gain understanding of tasks, user roles, actions, objects, and the beginnings of screen design

• Activities:
  * Select one good representative task for each user class.
  * Construct a usage scenario. Make it up as you go! Get detailed and refer to actions and objects. Try to capture deep design issues, such as:
  * Application objects, their properties, and relationships among them
  * How objects will be viewed conceptually (not necessarily details of appearance) in interaction design
  * How user will access those objects
  * Operations to be performed on the objects as a result of user tasks
* How users will invoke and carry out those operations, including navigation
EXAMPLE:
SCENARIO CREATION AND ANALYSIS

• Activities (continued):

  * For each scenario, go through and highlight all references to user roles, actions, objects, object attributes, object relationships, and indications of work context/environment

  * For each scenario, sketch corresponding screen layouts. Cover all actions and objects in scenario

  * Also, make screen layout sketches for other *tasks that are implied in the scenarios*

  * Use these scenarios to extract as much information about requirements and design as you can, but stay within the bounds of what’s mentioned or implied in the scenarios

  * In addition to the sketches, make a brief list of questions raised by the scenarios but not answered. This would be the list you would take back to the client on your next visit.
EXAMPLE:
USAGE SCENARIO

• Example of usage scenario for Y2K Calendar:

Sue, a patient with an existing appointment with Dr. Kevorkian for next Tuesday, calls secretary at the physician’s office. Sue is unable to keep that appointment, and needs to reschedule it. The secretary must locate the current appointment, find an open time slot that also is a time the patient is available, and re-enter patient information into the new time slot. While the secretary is doing this, another phone line is ringing and another patient is standing at the secretary’s desk wanting to make a follow-up appointment with Dr. Kevorkian.

• Note that temporal order of locating current appointment and finding open time slot could be reversed.

* This raises UI design question: should system force user to perform task as described, or should user be able to perform sub-steps (locating current appointment and finding open time slot) in either order?

* This decision may be delayed until more detailed design, but it should be noted at this point, so not forgotten
EXAMPLE:
USAGE SCENARIO ANALYSIS FOR CONCEPTUAL DESIGN

• First, highlight in scenario all references to user roles, actions, objects, object attributes, object relationships, and indications of work context/environment

• Tease out as much of the conceptual design information as possible, extrapolating from scenario where useful

* Application objects: Appointments

* Application object properties:
  Date
  Time
  Description
  Length? - omit for first pass
  Alarm or not?

* Relationships: Only one object so far
EXAMPLE:  
USAGE SCENARIO ANALYSIS FOR CONCEPTUAL DESIGN

• Teasing out conceptual design information (continued)

* How objects are represented conceptually in user interaction design

- By month, week, day, hour (time slot?)

- Time slot can be empty or contain appointment

- Implications: In user interaction design these probably are objects, too, as containers of appointments, but can be selected and possibly manipulated
EXAMPLE:
USAGE SCENARIO ANALYSIS FOR
CONCEPTUAL DESIGN

• Conceptual design continued

  * Access methods: How users get at the objects

  * Accessing an existing appointment

    - By viewing, possibly preceded by search or navigation through views

  * Invoking and carrying out operations on objects

    - Menu? Pull-down?

    - Small, fixed number of commands

    - Implication for interaction style: Buttons or icons?
EXAMPLE:
INITIAL SCREEN LAYOUT SKETCHES

• Goal:
  * To develop together an initial design/layout for the screen(s) and other interaction objects, from the conceptual information extracted by scenario analysis

• Assumption:
  * Generic desktop platform (not specific to Windows, Mac, etc.)

• Activities:
  * Draw pictures of screens, including menus, buttons, icons, application objects
  * Label objects with behavior as appropriate

• Deliverables:
  * A few representative screen sketches
EXAMPLE:
INITIAL SCREEN LAYOUT SKETCH

• Conceptual design might lead to something like:

- Cognitive/human factors analysis
  * Design doesn’t closely match user’s concept of a calendar
  * Can do better with direct manipulation
    - Have all view containers (day, week, etc.) on desktop and select to be on top
    - Eliminates explicit view control/command
    - Add and modify by typing (editing) directly on text of appointment; eliminate modify button
EXAMPLE:
ITERATE SCENARIO

Sue, a patient with an existing appointment with Dr. Kevorkian for next Tuesday, calls secretary at the physician’s office. Sue is unable to keep that appointment, and needs to reschedule it.

The secretary, Ann, must locate the current appointment, find an open time slot that also is a time the patient is available, and re-enter patient information into the new time slot. She clicks on the current month to bring its picture up to the top of the stack on month images. She sees an indication of the 10:00 a.m. appointment on next Tuesday (by a mark at the 10:00 spot on the day square). Instead of looking at the weekly view, she goes right to the day view by double-clicking on next Tuesday. She scrolls just a bit to see the 10:00 a.m. appointment slot, selects the appointment, and cuts it with 'ctrl-x', a short cut for Cut on the Edit menu.

Ann clicks on the Next Month tab at the right side of the month view and looks for the first available date. Sue agrees to the date at 9:00 a.m. Ann clicks in the 9:00 a.m. slot for that date and does a Paste with a 'ctrl-v'.
EXAMPLE:  
ITERATE SCENARIO

While the secretary is doing this, another phone line is ringing and another patient is standing at the secretary’s desk wanting to make a follow-up appointment with Dr. Kevorkian.

While changing this appointment for Sue, Ann remembers that some time ago she was supposed to have scheduled an appointment for her cousin, Jim. She expected to see that appointment on this month's calendar, but doesn't. Wondering whether she put it down for the wrong month, she quickly clicks on the Search button and types Jim's name into the search text box. It turns out his appointment is early next month. So the image of next month comes to the top and the day of the appointment is highlighted.
EXAMPLE: ITERATE SCENARIO ANALYSIS

• Scenario analysis iterated
• Highlight keywords to design again
• Meet for client/user scenario walk-through (evaluation plus participatory design)
• Used a camcorder on a tripod to capture fast-moving discussion, so could review later back home
• Discussion leads to many design decisions and a new screen layout sketch

* Access methods to appointment objects by:
  - Selection and navigation on desk top
  - Search on content (user types string to match against)
EXAMPLE:
ITERATE SCENARIO ANALYSIS

• Design discussion (continued)

* Decisions about container objects
  - Default display: Several months overlapped, with current month on top
  - In higher level objects user can select lower level objects (view control)
  - Try to show at least an indication of each appointment in each view (page preview idea)

* Appointment editing
  - Keep it simple (it’s not a word processor)
  - Do only at appointment slot (hour) level
  - Try for direct manipulation to add, modify, delete
EXAMPLE: ITERATE SCREEN LAYOUT SKETCHES

• Month level (current month is default)
EXAMPLE:
ITERATE SCREEN LAYOUT SKETCHES

• Dialogue box for searching
EXAMPLE: ITERATE SCREEN LAYOUT SKETCHES

• Week level

Month visible for selection

Appointments for week are formatted to fit, squeezed in

• Day level

No close box; keep on desk top

Click here to edit, type

Scroll up or down to midnight

* Appointments saved when deselect
TEAM EXERCISE:
SCENARIO AND SCREEN LAYOUT
SKETCHES

• Goal:
  * To develop as a team a usage scenario and an initial design/layout for the screen(s) and other interaction objects

• Requirement:
  * Make it different from Web applications of the same type that you already know

• Activities:
  * First, write a quick and dirty usage scenario. After you get this started, one team member can clean it up in parallel with the other steps.

  * Start your design with home page design to show broad functionality and user tasks.

  * Draw pictures of screens, including menus, buttons, icons, application objects, links.
* Label functions and behavior as appropriate.
TEAM EXERCISE:
SCENARIO AND SCREEN LAYOUT
SKETCHES

• Activities (continued):
  * Design one main task thread over a few more pages. Don’t go into much breadth for whole system.

• Cautions and hints:
  * Don’t get too involved in human factors issues (e.g., icon appearance or menu placement).
  * For the sake of progress, keep things simple (e.g. from CMS: don’t worry about what to do when a calendar gets full).
  * Cut corners where it doesn’t matter (e.g. from CMS: number of days in a month, what day each month starts on)
  * Control time spent on arguing; remember you are learning the process, not building a marketable product

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TEAM EXERCISE:
SCENARIO AND SCREEN LAYOUT
SKETCHES

• Cautions and hints (continued):

  * If team members have different ideas for a feature, consider offering both via "preferences"

  * Use yellow "stickies" to be flexible in design

• Deliverables:

∫ One usage scenario

∫ A few representative screen sketches on paper (be sure to do home page) that will (sort of) support the scenario

• Completed by: