

CSCI310: Conceptual Design

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Today

- Assignment 1 due...
- Recap from last lecture
 - Review of task scenarios
- Conceptual Design
 - Content/Affinity Diagrams
- Peek at assignment 2

Last time...

- Affordance
- Visibility
- Mapping
- Feedback
- Consistency
- Constraints
- Interface metaphors

Persona for GoCoffee

- Johannes Zummerman
 - 34
 - Software consultant
 - Frequent traveler
 - Doesn't ask for directions
 - Limited time
- Coffee habits
 - quality of utmost importance
 - ritualistic drinker
 - not afraid to try a new place if it looks OK



Task scenarios

- Today, after his daily Advanced Pilates class, Johannes wants to get a quality hot beverage. He grabs his iPhone, and wants to discover a new coffee place. He's feeling particularly amped after his class, and decides that coffee isn't best, but instead wants to have a Yerba Mate.
- It's important to him, however, that the place offer a number of quality, fair trade, organic, shade-grown beverage options, as well as a variety of sweeteners like agave, unpasteurized honey, and organic non-refined cane sugar
- His iPhone app identifies 3 nearby shops that offer products matching his needs. He chooses the one with the least cool logo.

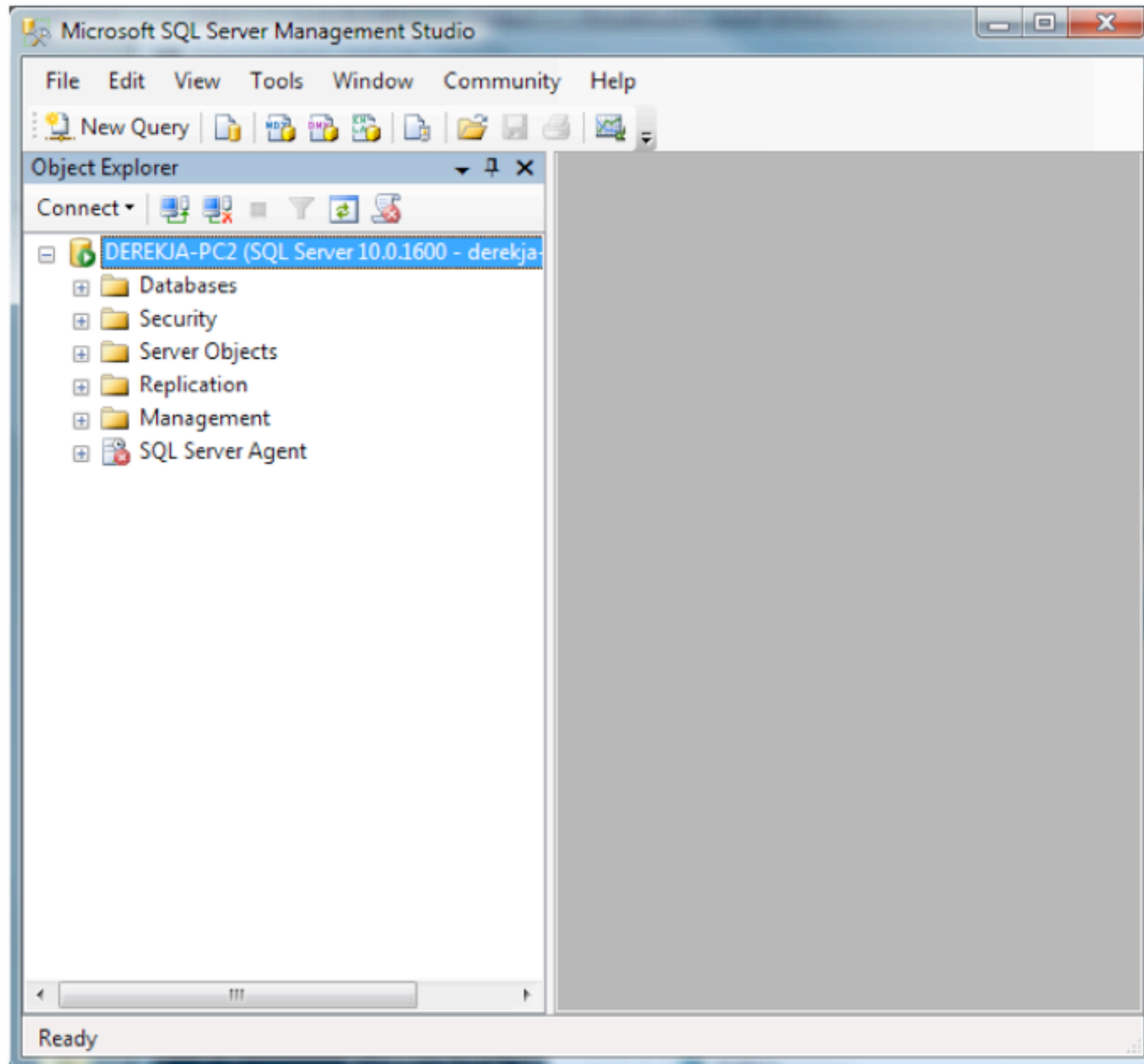
Task Scenarios

- Focus on the user's perspective
- Include details specific to your chosen persona
- Ignore the back-end details
- At this point, should not include specifics of your application
 - specifics of the user's behaviour, instead!!

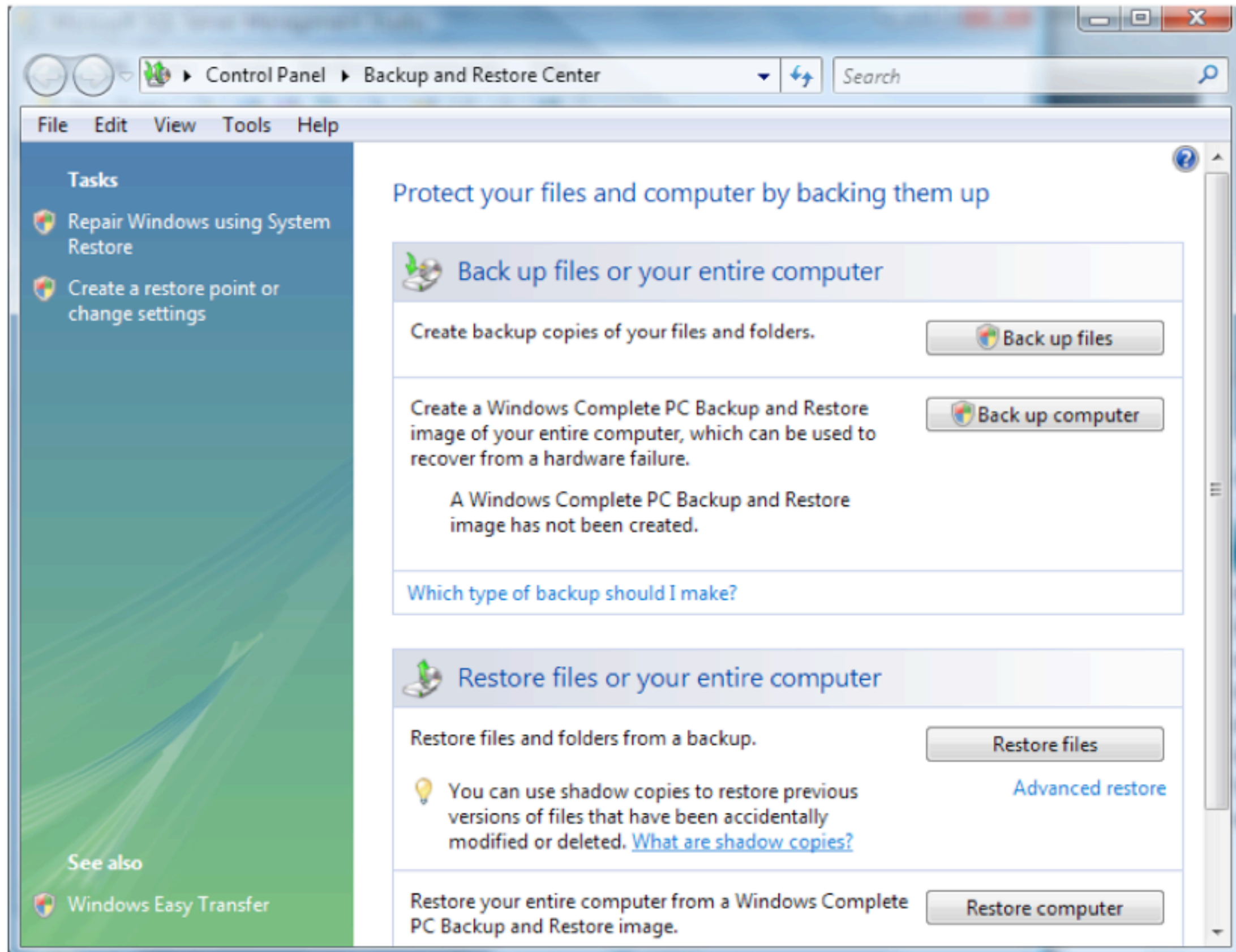
Conceptual Design

- Process of establishing the underlying organization
- Ensures interface is organized in a logical way **from the user's perspective**
 - NOT from the system perspective
- Goal: UI - but no graphics considered yet
- This is **interaction design** not graphic design
- The bigger the project, the more important this step is

Object-based UI



Task-based UI



Object- vs. Task-based UI

- Developers:
 - think in terms of objects
- Users:
 - think in terms of tasks
- Tasks are simpler, but less scalable
- Most complex applications are a mix of the two
- Conceptual design is
 - important in designing task-based UI
 - critical in designing object-based UI

Object- vs. Task-based UI

- Even if the goal is object-based UI:
 - it is *critical* to build up a large set of tasks
 - make sure that the sequence of operations on objects is reasonable

When to do conceptual design

- After some task scenarios and use cases are established
- Before interface sketching begins
 - need to know what a screen should contain **before** you design it!
- Techniques:
 - Affinity diagrams
 - Content diagrams

How to do conceptual design

- Start with scenarios and use cases
- Forces you to:
 - divide tasks into system tasks and user tasks
 - Explicitly define all objects, actions, and attributes needed for a task
- Affinity diagramming
 - List each function on a sticky note
 - Arrange sticky notes until organization is logical
 - Result:
 - a content/affinity diagram

One way to do this...

- Derive concrete use cases
- Identify primary task objects, attributes and actions
- Identify containers and task objects that go into each container
- Link the containers to show the navigation flow
- (chapter 8 of text)

Online library scenarios

- Search and request resource
 - Julia is looking for a particular book containing examples and exercises on OO analysis and design. She accesses the digital library from home and types in the key phrase ‘Object Oriented Analysis’. The system retrieves a result. Geoff owns the appropriate book. Julia sends an email to Geoff asking to borrow the book.
- View updates and request resource
 - Mark has recently returned from study leave and wants to find out what the latest additions to the digital library are. He selects ‘check updates’, identifies the books he is interested in, and sends an email to the owner of the book that interests him the most.

Process (1)

- First identify user's purpose and system responsibility, for this scenario:
- search and request resources

User's purpose	System responsibility
Enter search parameters	Show results
Select a resource	Show the contact details of the owner of the selected resource
Send an email	Confirm the send

- Essential use case

Process (1)

- Next, identify user actions and system responses

User's actions	System responses
The academic enters one or more of the search parameters for the book: title, year and platform	System displays search results
Academic selects a search result	System displays full details of the book and the contact details for the owner of the book
Academic chooses the email address	System displays a message area
Academic writes and sends the email request	System confirms the sending of the request

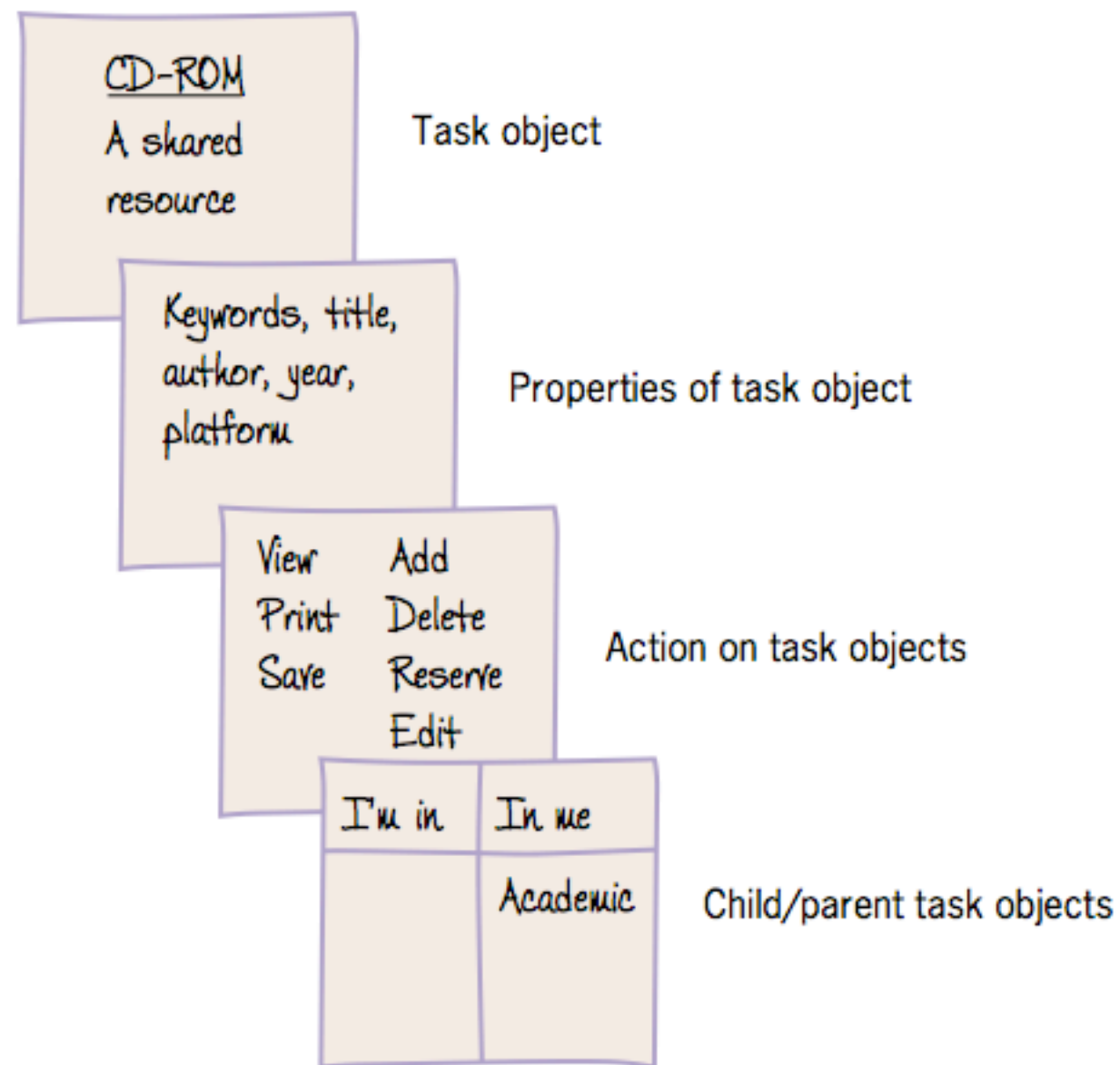
- Derive concrete use case from essential use case

Process (2)

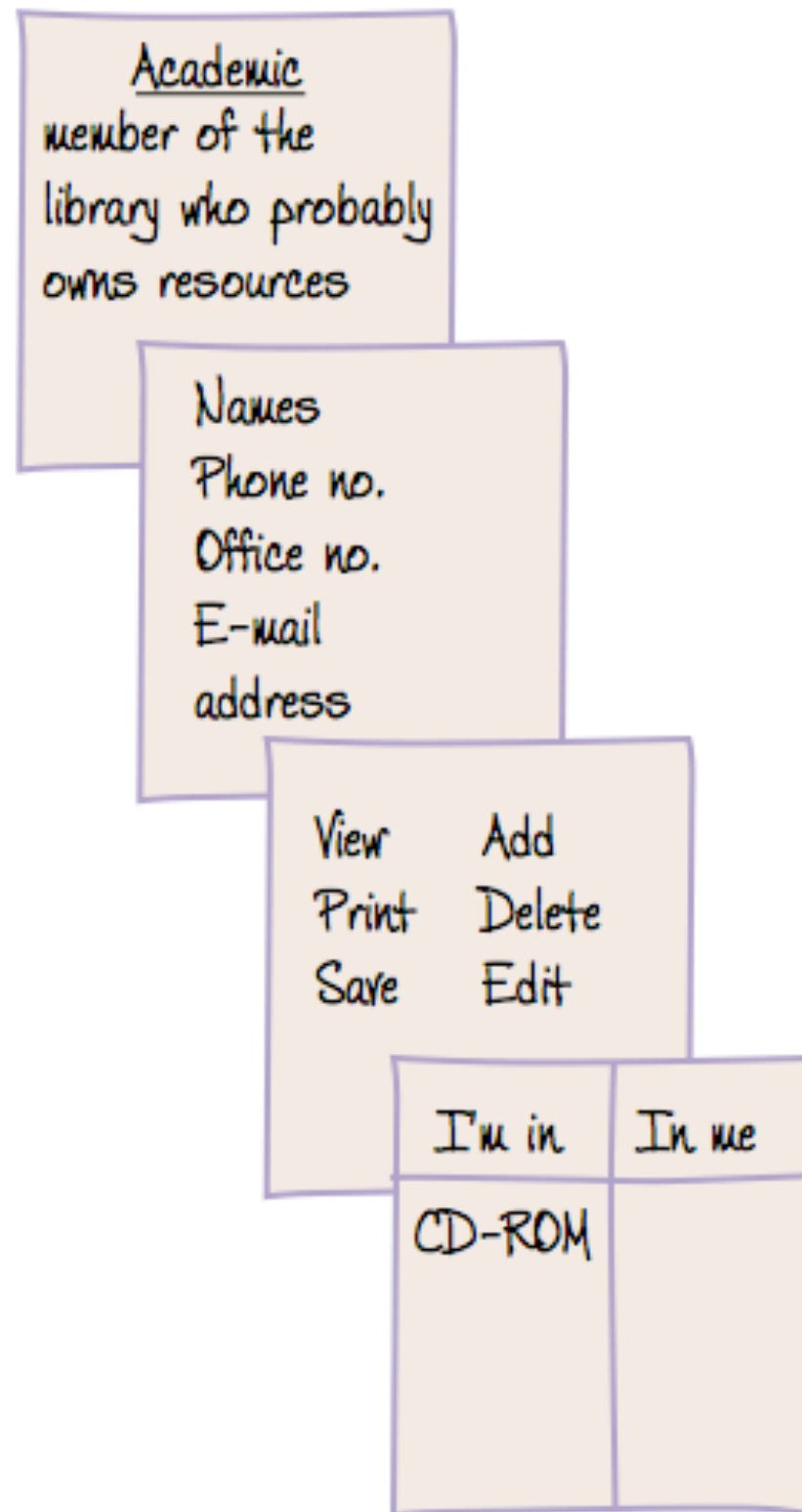
- Next, identify task objects, attributes and actions

User's actions	System responses
The <u>academic</u> enters one or more of the search parameters for the <u>book</u> : <u>title</u> , <u>year</u> and <u>platform</u>	System displays search results
Academic selects a search result	System displays full details of the book and the contact details for the owner of the book (an <u>academic/student</u>)
Academic chooses <u>the email address</u>	System displays a <u>message area</u>
Academic writes and sends the email request	System confirms the sending of the request

Sticky notes to prototype task objects, attributes and actions



Sticky notes to prototype task objects, attributes and actions



Process (2)

- Compile into an object-attribute-action table

Task object	Attributes	Actions
Book	Keywords	View
	Title	Add
	Author	Print
	Year	Delete
	Owned by (academic, student etc)	Reserve
		Save

- Then, use sticky notes to prototype the task object, attributes and actions

Process (3)

- Next, identify **containers** and task objects that go in each container

User's actions	System responses
The <u>academic</u> enters one or more of the search parameters for the <u>book</u> : <u>title</u> , <u>year</u> and <u>platform</u>	System displays search results
Academic selects a search result	System displays full details of the book and the contact details for the owner of the book (an <u>academic/student</u>)
Academic chooses <u>the email address</u>	System displays a <u>message area</u>
Academic writes and sends the email request	System confirms the sending of the request

Template for containers

- Name
- Purpose
- Functions
 - performed by user
 - performed by system
- Links
 - single: user moves into another container
 - double: work switches between 2 container (editing a word document, go to spell check)
- Objects
- Constraints

The digital library example

- Title: main
- Purpose: supports most frequent tasks
- Functions
 - search resources (user)
 - view current updates (user)
- Links
 - enter search criteria
 - view updates
- Objects
- Constraints

Search for resources concrete use case

User's actions	System responses
The <u>academic</u> enters one or more of the search parameters for the <u>book</u> : <u>title</u> , <u>year</u> and <u>platform</u>	System displays search results
Academic selects a search result	System displays full details of the book and the contact details for the owner of the book (an <u>academic/student</u>)
Academic chooses <u>the email address</u>	System displays a <u>message area</u>
Academic writes and sends the email request	System confirms the sending of the request

The digital library example

- Title: Enter search criteria
- Purpose: User can specify the search criteria for a resource
- Functions
 - enter keywords, title, author (user)
 - check search criteria (system)
- Links
 - view search results
- Objects: a resource - book, video
- Constraints: time? < 1 sec to retrieve results

Search and request task

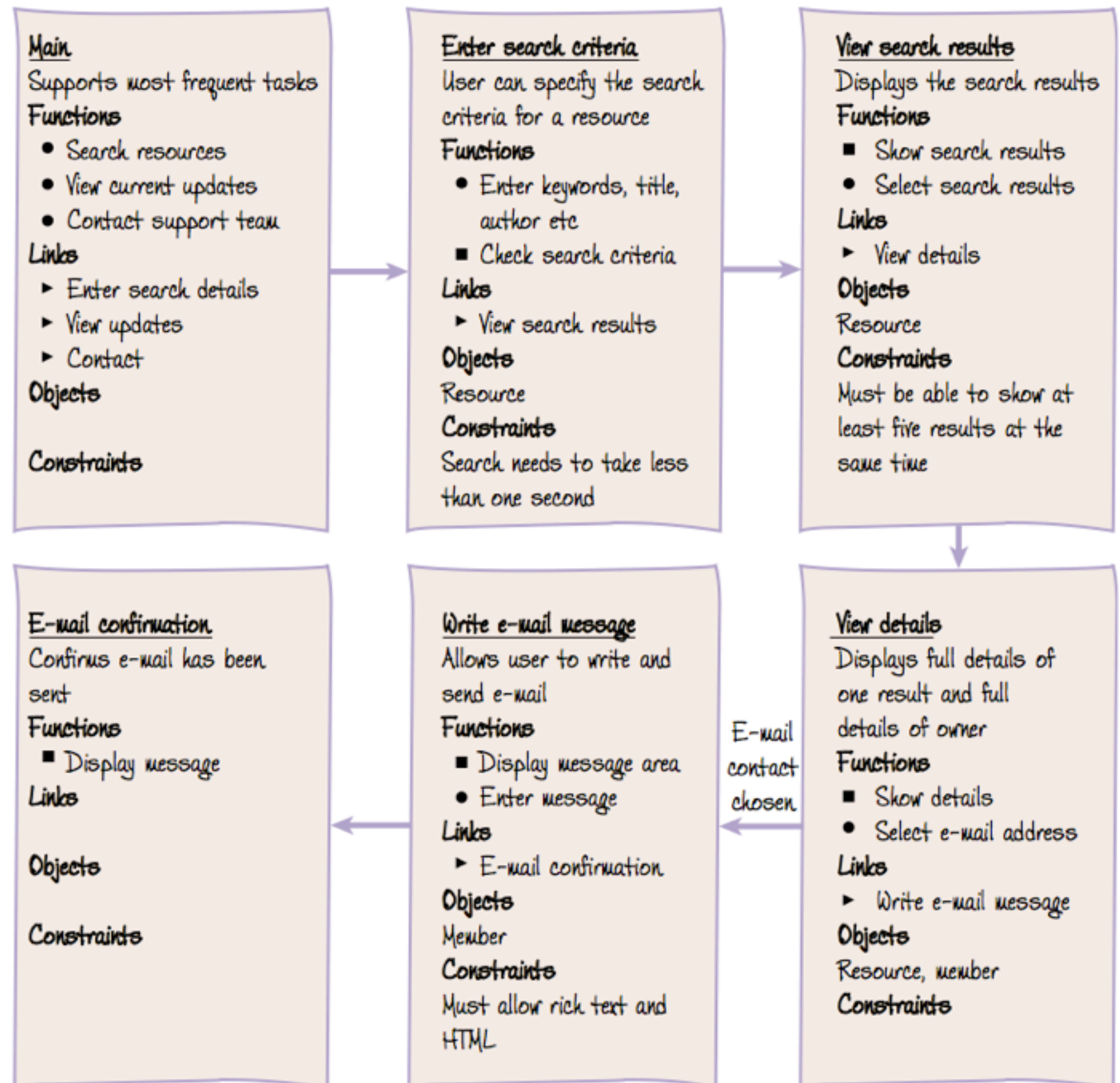


Figure 8.17 Section of the content diagram corresponding to the "Search and request CD-ROM" concrete use case.

View updates and request resource task

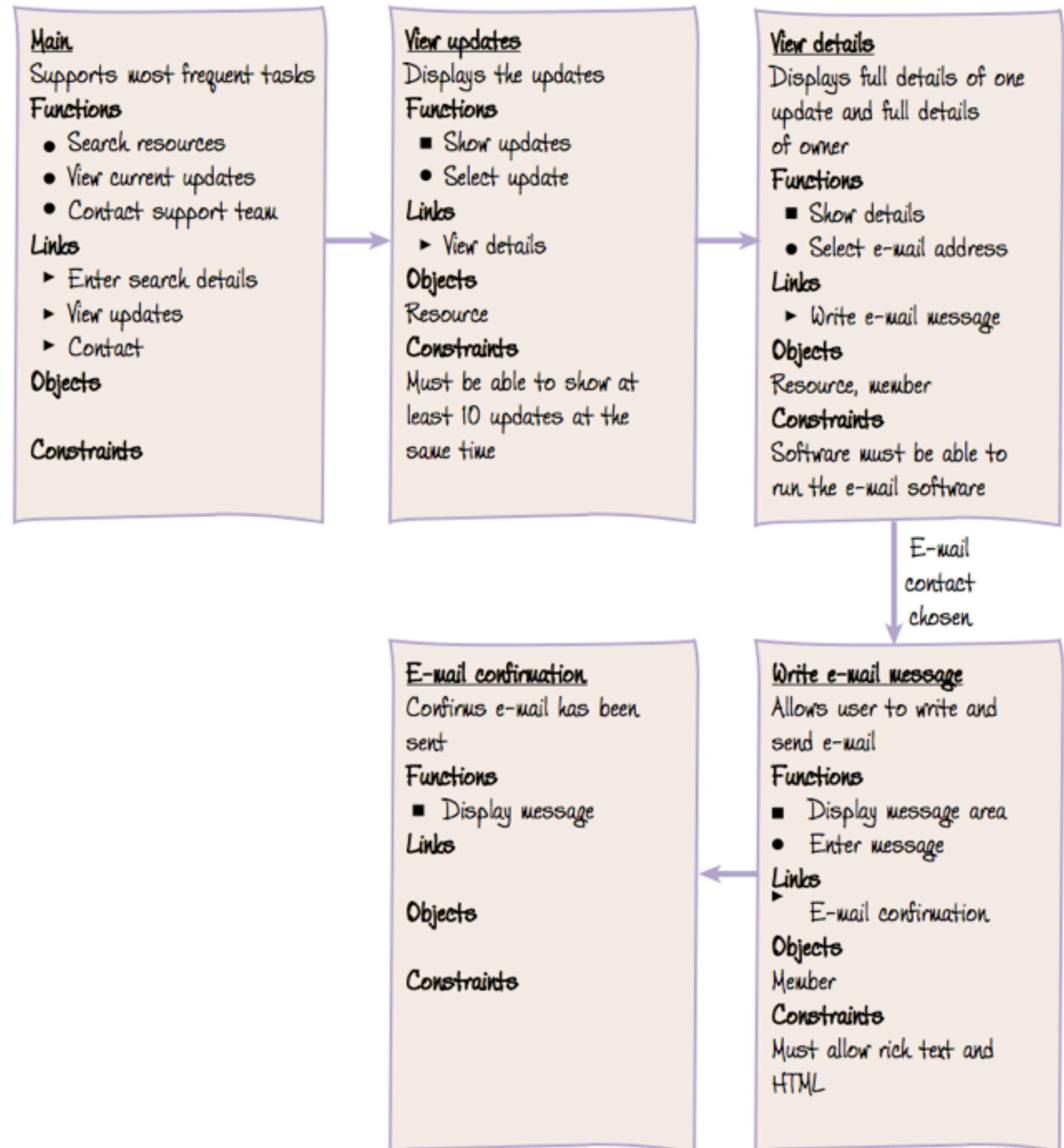
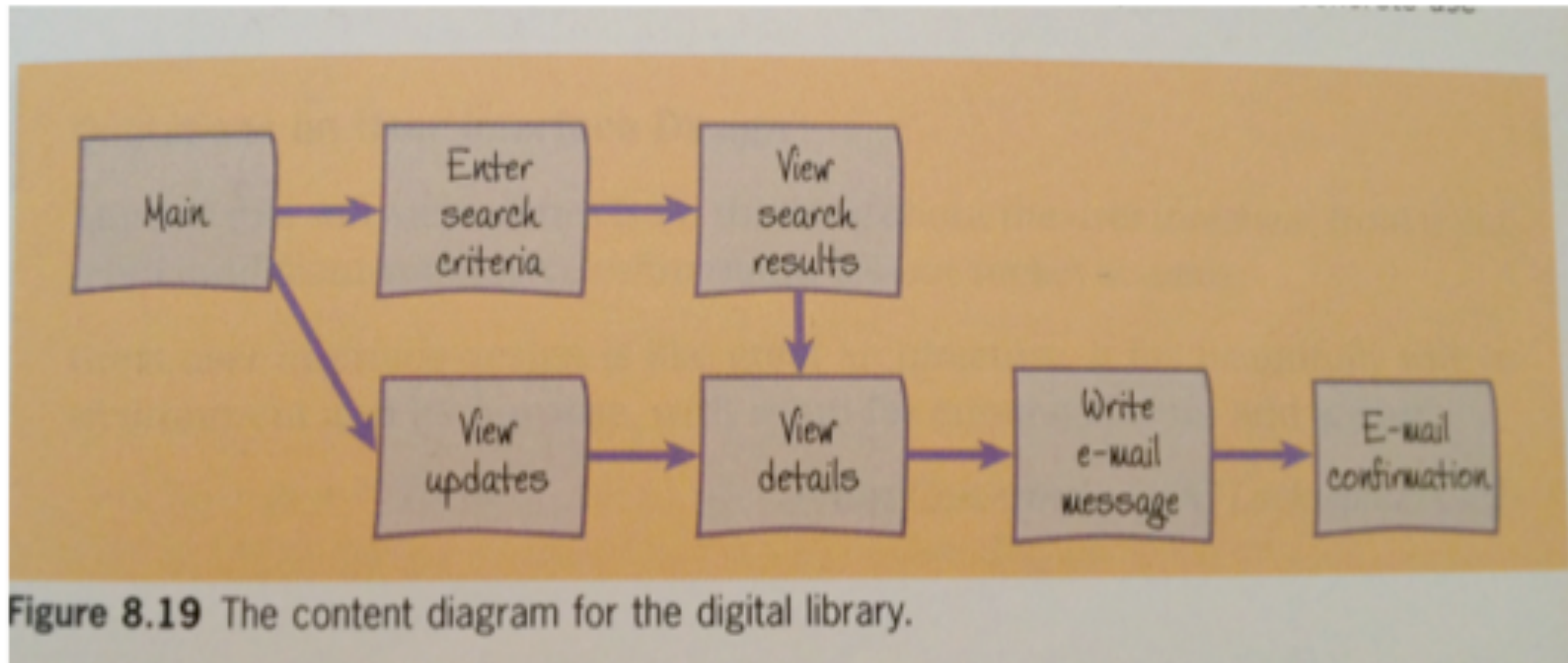


Figure 8.18 A section of the content diagram corresponding to the “View updates and request book” concrete use

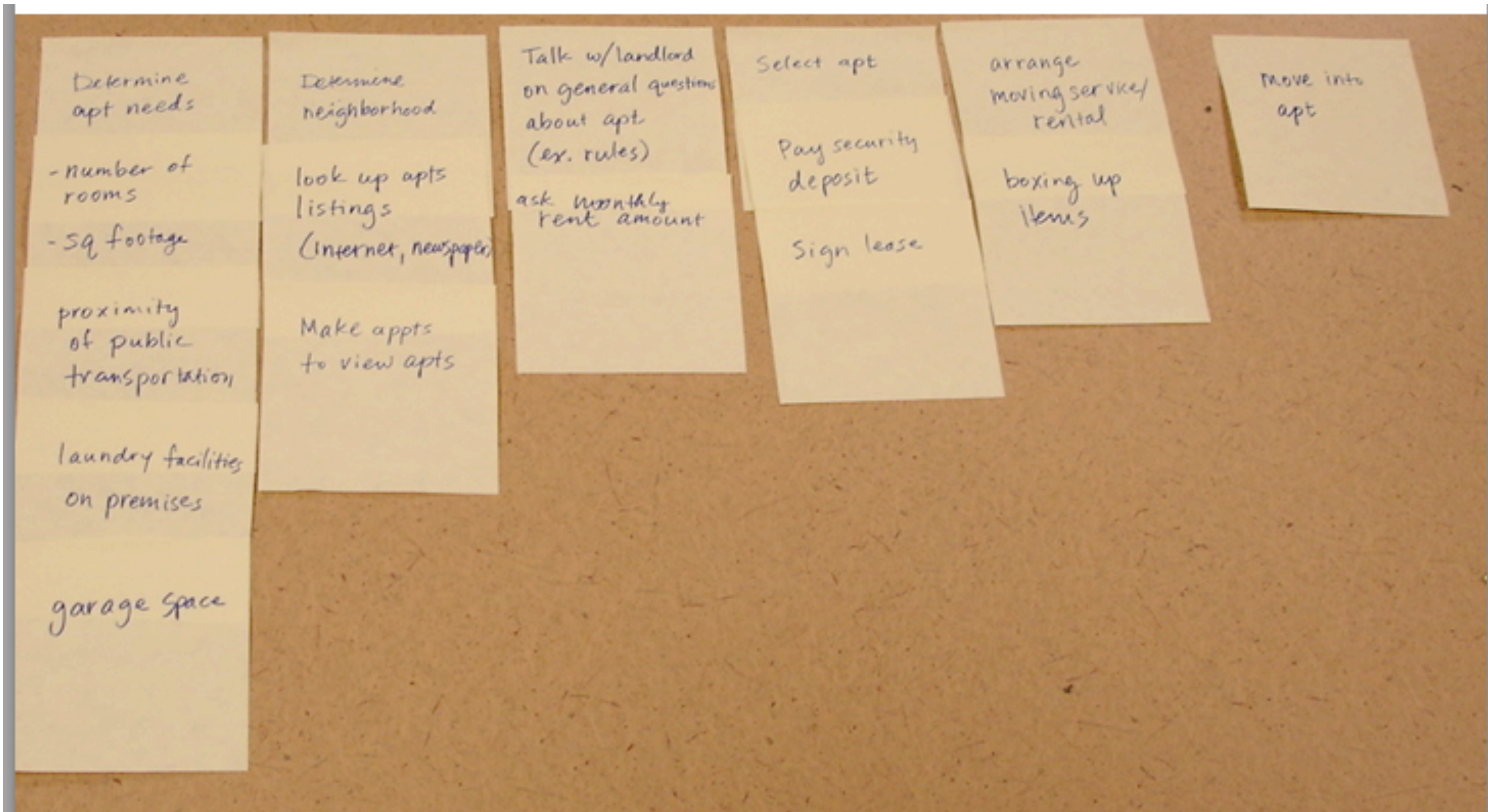
Process (4)

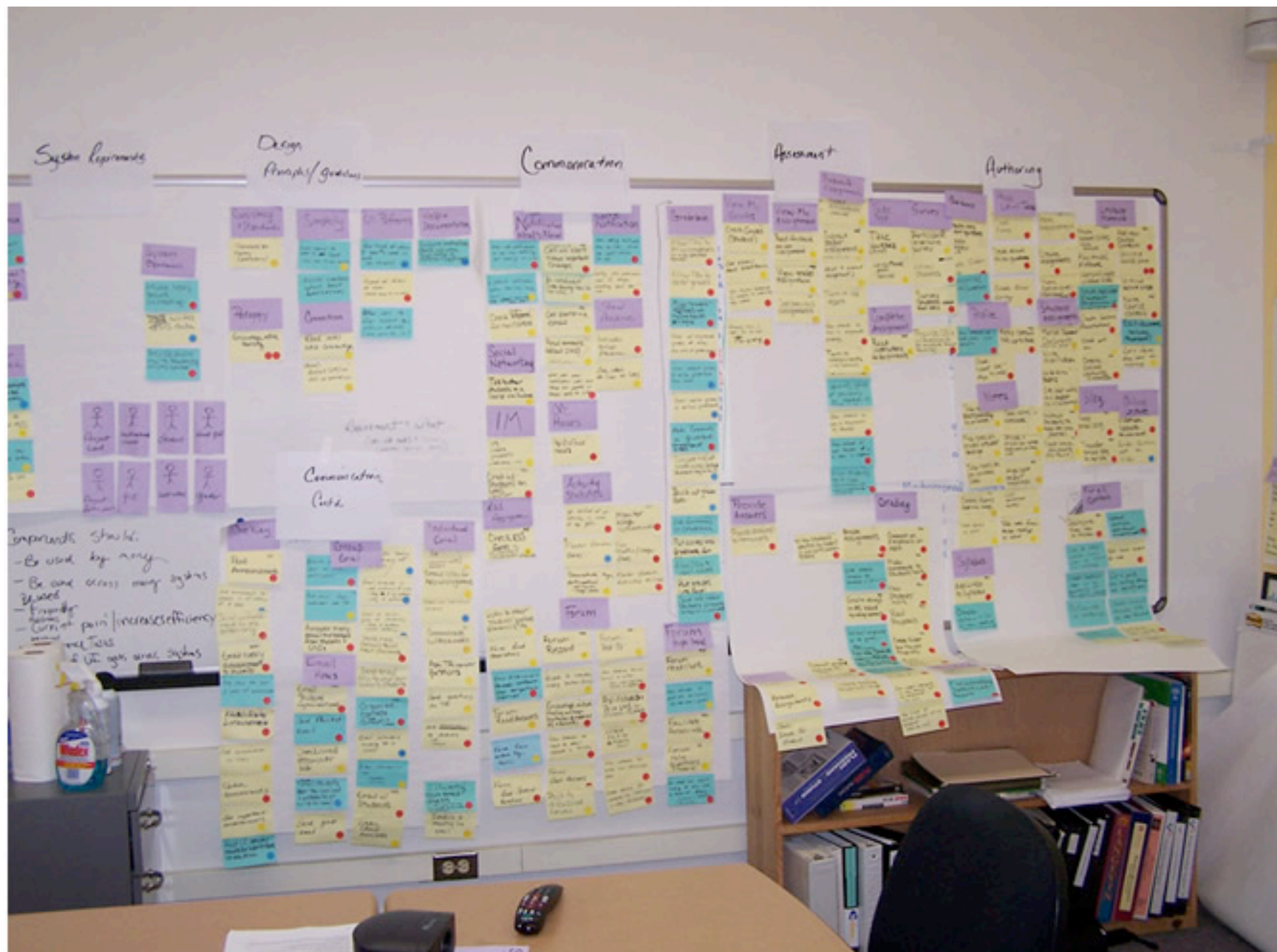
- Connect containers together to demonstrate flow and identify redundant containers



- Like a flow chart, showing the screens and how they are related

Content Diagrams/Affinity Diagrams



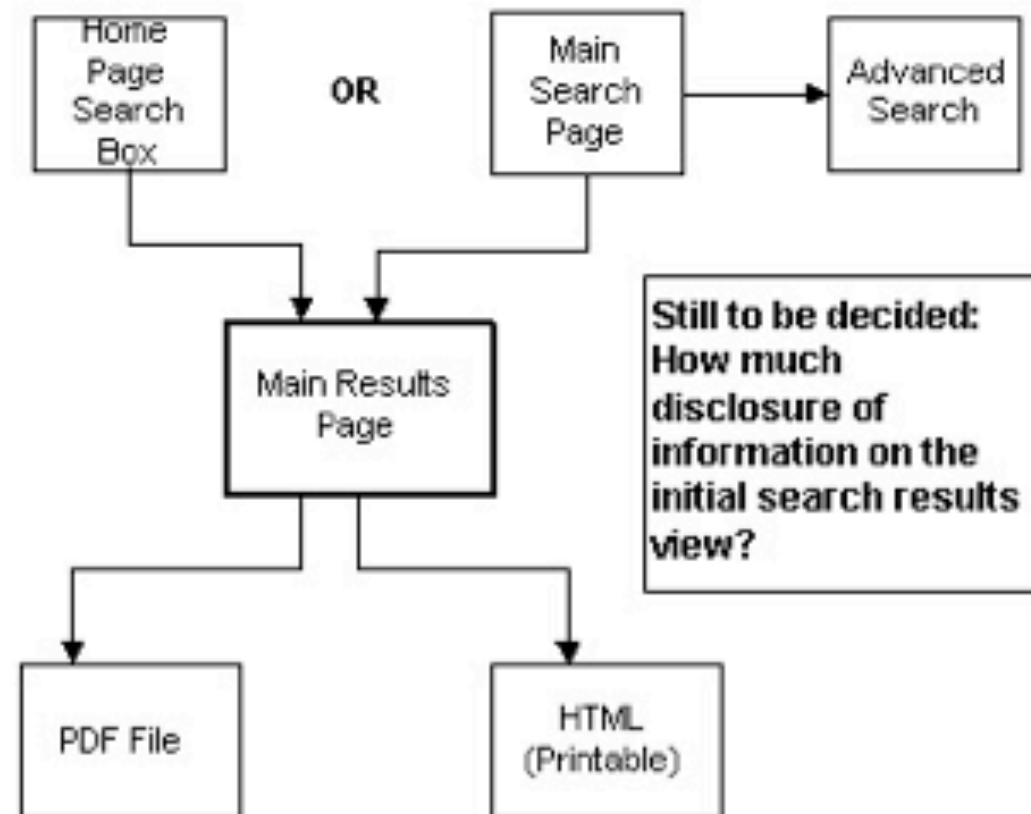




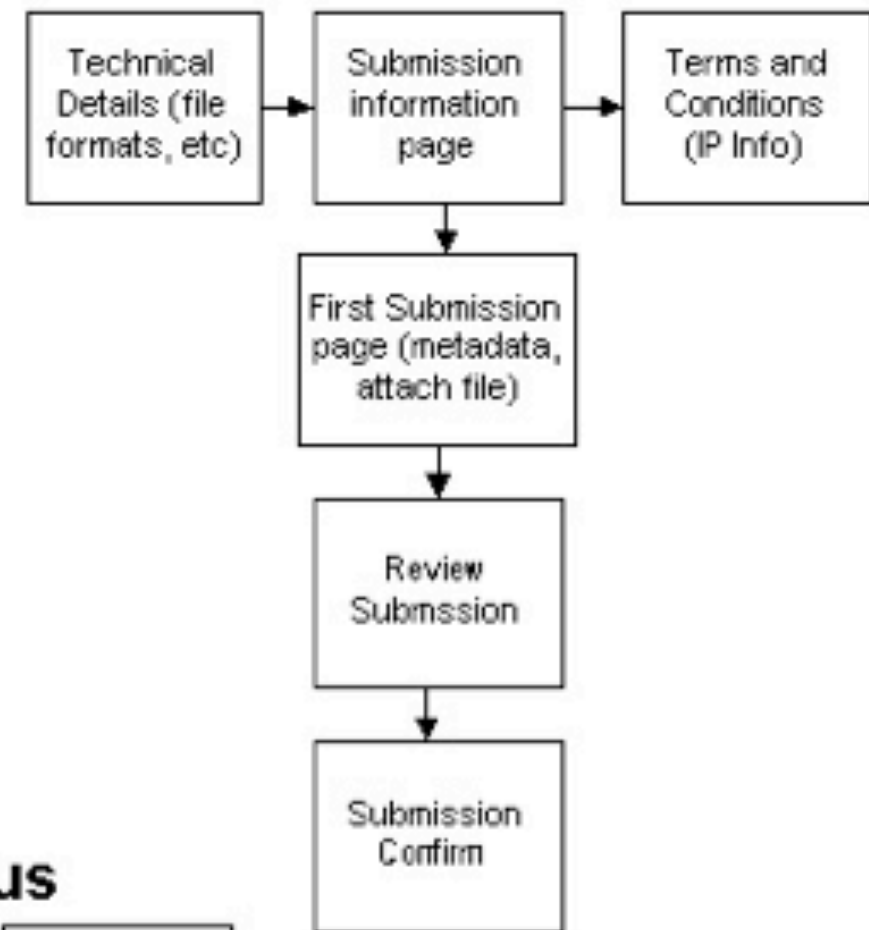
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BriefBank Conceptual Overview

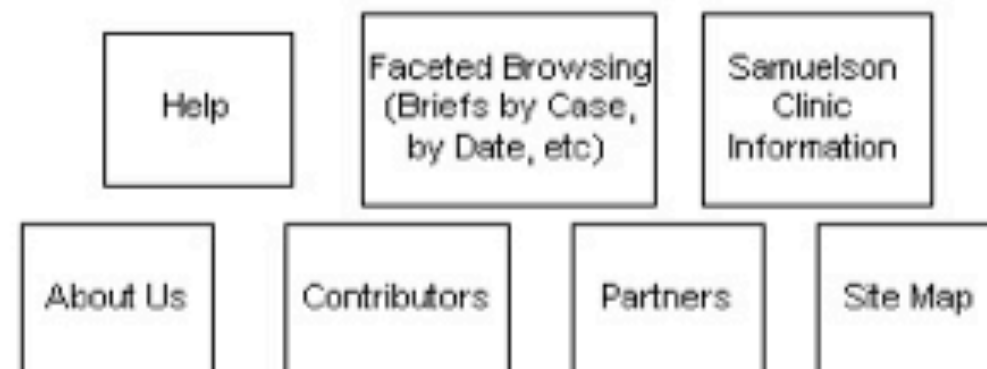
Search Function



Submit Function



Miscellaneous



Recall...

- Task scenarios should be:
 - personalized
 - motivate the need for the application
 - walk through the steps of a task to completion
 - not concerned with interface details
 - not too specific
 - specific to a single task:
 - account creation
 - item purchase
 - set up repeat deliver

- Aunt Cindy is seeking an alternative to grocery shopping in the store. She hears about an online alternative. Upon visiting the site, she is prompted to login or register. After selection to sign up for a user account, she is directed to an online form where she fills out basic personal information.
- John is at work and he remembered that there's not much food left in his home. He made a order in a online grocery store and now he needs to schedule the delivery. He is asked about the time that he will be at home, the address for the delivery and a phone number to contact him in case of some problem. The delivery had worked perfectly and he got all his products.
- John Smith needs kettle chips delivered to his home in time for the game that night. He is not sure of the brand or flavour that he would like so he has to search for it. Once he logs in, he types in "kettle chips" into the search bar on the top right of the main page. This brings up a list of brands of kettle chips with a range of prices sorted by price. Once he selects a brand, the page displays the flavours of that brand, and he can add his favourite to the shopping cart.
- Sarah is busy with her kids so she uses the online grocery store. She logs in to her account and the system shows her frequent purchases. She selects the items she needs. The payment and delivery time page show up and she receives a confirmation email.

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- John Smith needs kettle chips grocery item delivered to his home in time for the game that night. He is not sure of the brand or flavour that he would like so he has to search for it. Once he logs in, he types in the item name: "kettle chips" into the search bar on the top right of the main page. This brings up a list of brands of kettle chips with a range of prices sorted by price. Once he selects a brand, the page displays the flavours of that brand, and he can add his favourite item to the shopping cart.
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Tips

- Ideas need to be easily movable (sticky notes, cards, diagramming software)
- Also need a base plane on which you can draw links and make categories
- Do conceptual design before designing actual screens
- Use sticky notes, cards or drawing software to create the conceptual design

Homework

- Reading:
 - chapter 8
- Assignment 1 due Tuesday morning before class!