

Interaction design and information architecture

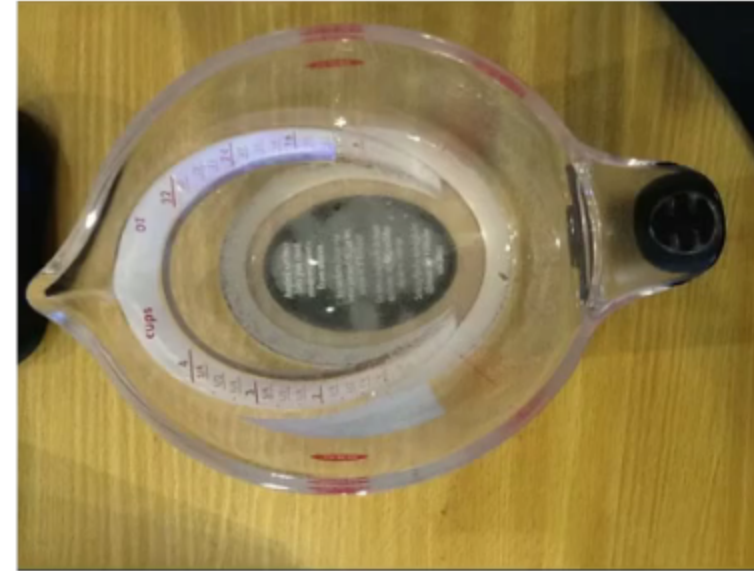
Lecture 4 · Week 4
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Choosing an interaction style

Style	Strength	Design cost
Command	Express repeated operations	Syntax and target knowledge
Menu	Recognize alternatives	Grouping and search effort
Form	Inspect related values	Space and entry organization
Direct manipulation	See incremental changes	Precision and hidden actions

A command names an operation. A menu exposes choices. A form exposes fields. Direct manipulation acts on represented objects.

Direct manipulation



Visible objects and immediate feedback connect action to result.

The angled scale keeps quantity visible while pouring.

In software, incremental and reversible changes support exploration.

Visible relationships in a spreadsheet

Quantity	Unit cost	Total
12	8	96
15	8	120
Input	Input	Quantity × unit cost

A formula connects inputs to an output. Recalculation exposes consequences. The formula and the result answer different questions.

Whole forms and conversational entry

A whole form keeps the address available for cross-checking.

A guided sequence exposes one decision at a time.

Back and Review all answers provide different routes to correction.

Whole form

Delivery address

Name

Deniz Kaya

Street

42 Oak Road

City

Ankara

Postal code

06000

Review address

Cancel

One question at a time

Delivery address



Step 3 of 4

Which city?

Ankara

Back

Continue

[Review all answers](#)

Dragging supports exploration.

Typing supports an exact value.

Commands and shortcuts can reduce repeated navigation.

A single preferred interaction style cannot efficiently express every intention. A well-designed interface can offer several routes while keeping their meanings consistent. The result of setting a width should not depend on whether the user typed it or selected a preset. Different routes should also share coherent feedback and recovery.

Which route should a repeated image-resizing task provide?

Provide exact dimensions and a way to apply them to a selection. Retain a visible preview and a clear recovery path. A drag handle alone makes repeated exact work unnecessarily demanding.

Item	User purpose	Relationship
Graduation deadline	Know when to apply	Links to application
Application form	Submit required details	Needs eligibility rules
Eligibility rules	Check readiness	Explains prerequisites
Contact details	Resolve an exception	Supports all three

List what exists and what each item is for. Identify duplicates, dependencies and missing content. Separate content ownership from the user's route.

Organizing dimensions

Dimension	Example	Question answered
Category	Research topics	What is this about?
Time	Session schedule	When does it happen?
Location	Building / floor	Where is it?
Alphabet	Author index	Where is this name?
Continuum	Price or size	How does it compare?

Category, time and location express different relationships. Alphabet and ordered scales support other routes. The same collection can need more than one view.

Labels need shared meanings.

Categories should make likely destinations predictable.

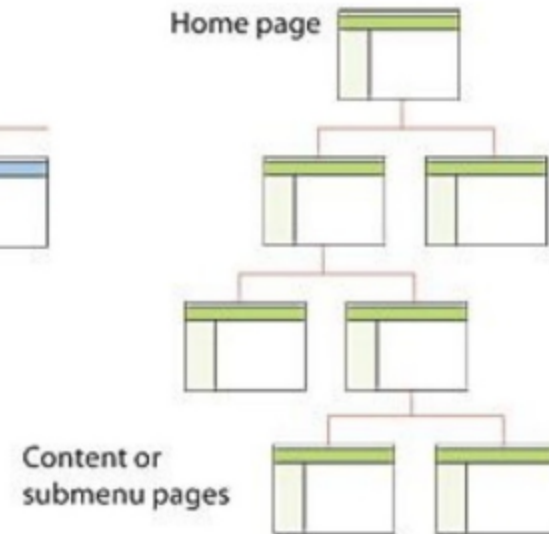
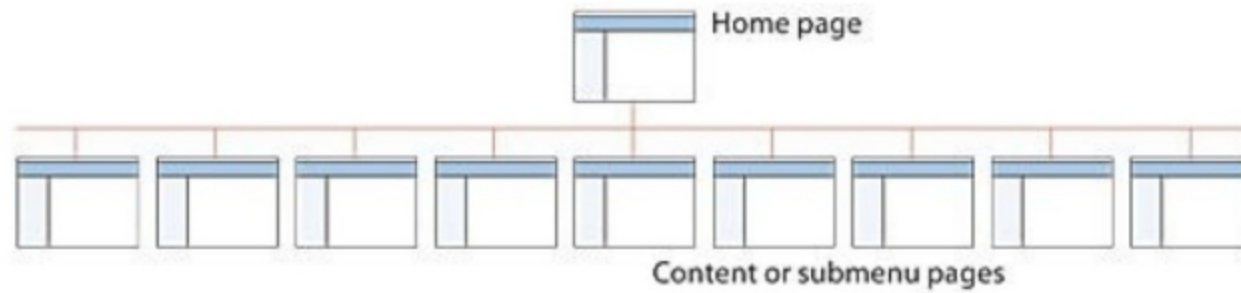
Synonyms may need one destination and several entry terms.

Consider “fees,” “payments” and “financial services.” These can refer to overlapping content, but their boundaries are not self-evident. A student looking for a payment receipt should not need to know which office owns it. Clear definitions, suitable cross-links and search synonyms can help. Category names must also distinguish neighboring choices, not merely sound sensible in isolation.

The result informs an architecture that still needs testing.



Breadth and depth

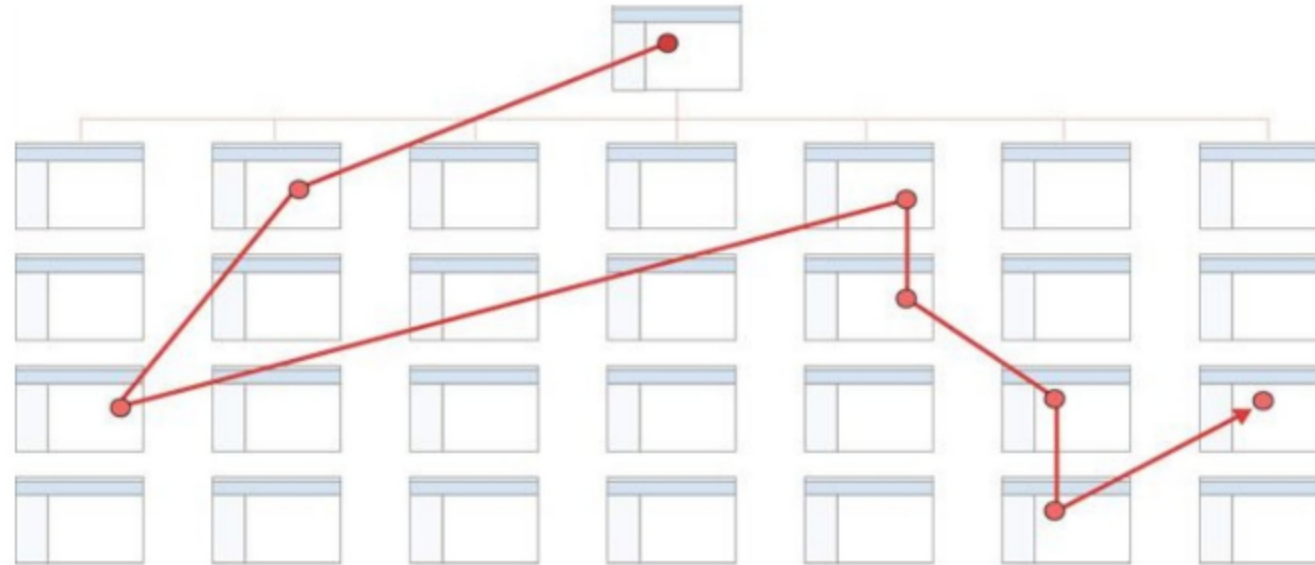


Broad levels expose more choices at once.

Deep structures require more intermediate decisions.

Grouping and label quality affect both.

Linear, hierarchical and linked structures



A sequence supports ordered work.

A hierarchy supports progressively narrower categories.

Cross-links support related tasks and alternate routes.

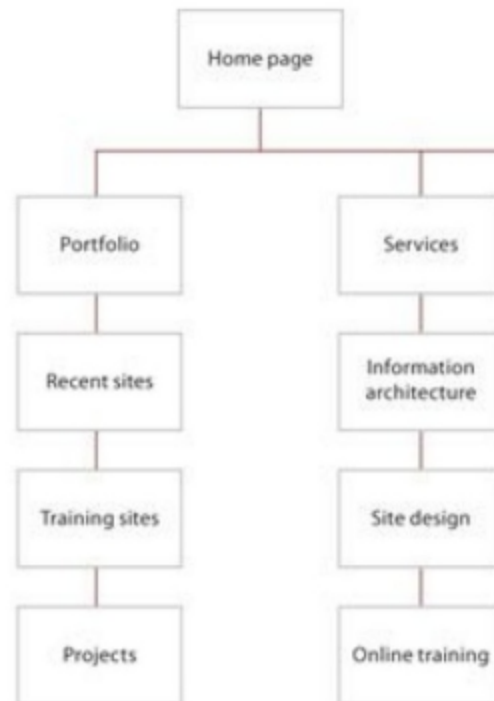
Conceptual maps and implementation detail

A conceptual map explains content relationships.

An implementation map can add files, routes and technical detail.

Early design questions do not require every technical decision.

Early simple site diagram for planning



Mature site diagram for the technical team



Menu size and the 7 ± 2 misconception

Working-memory findings do not set a universal menu limit.

Visible choices can be scanned and grouped.

A useful comparison examines actual tasks and labels.

This does not imply that arbitrarily long menus are good. It means that a fixed number cannot replace analysis. Compare the organization of the items, the clarity of group labels, the need to scroll and the cost of entering another level. Keep options visible when overview helps, and introduce hierarchy when it provides meaningful distinctions.

Would splitting twelve clear choices into three vague groups necessarily help?

No. The split reduces the number initially visible but adds an uncertain classification decision. Compare paths using the actual labels and tasks before choosing the structure.

An action changes something.

A destination takes the user somewhere.

A selection assigns a value.

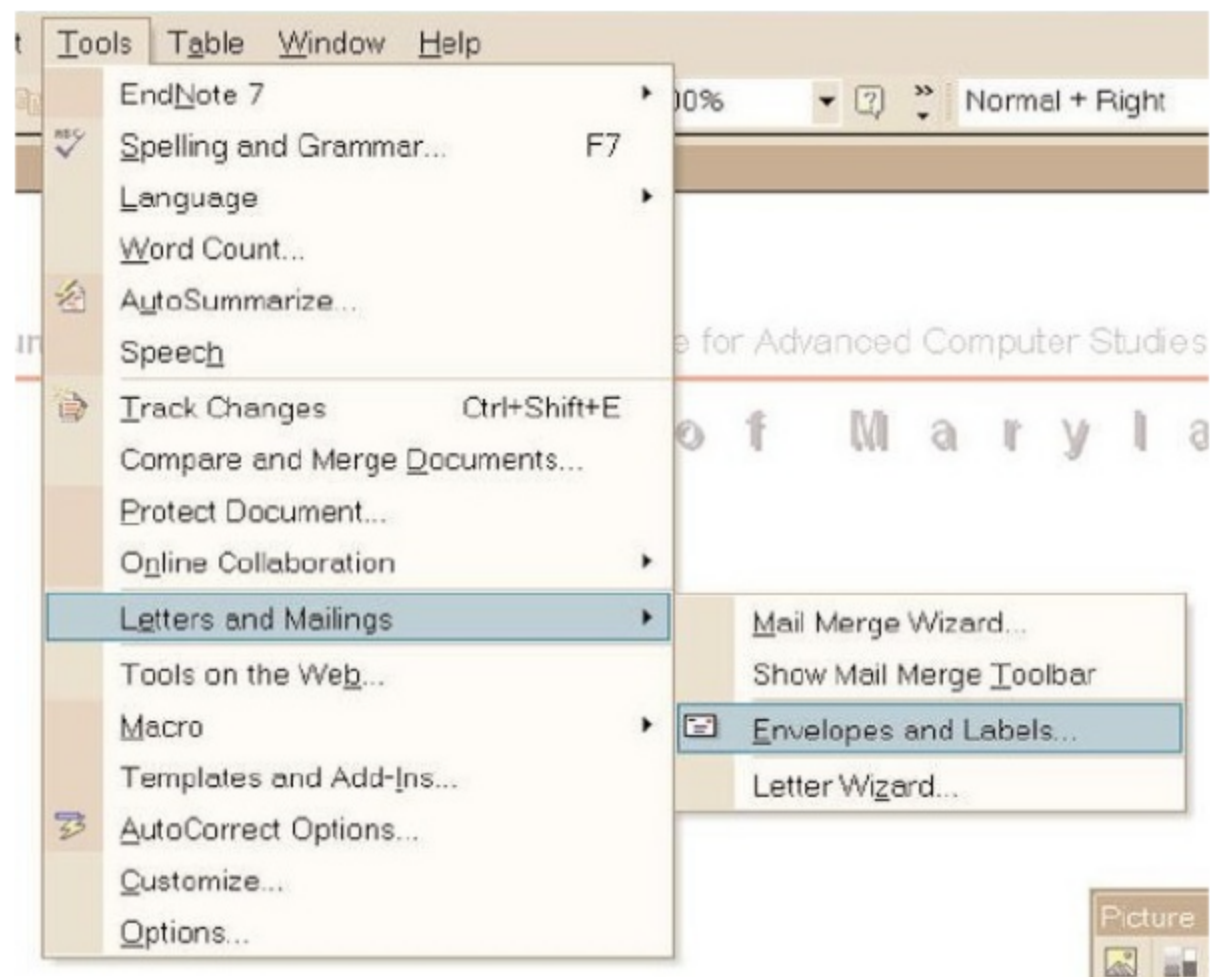
Specify what changes after activation. Does a menu item immediately perform an operation, open a dialog or reveal a submenu? Does selecting a value commit it or leave an unfinished edit? An interface should make these distinctions understandable through labels, feedback and consistent behavior, rather than expecting people to discover them by trial and error.

Nested command menus

Grouping can expose a meaningful action family.

Submenus add a navigation step and a pointing demand.

The selected path should remain understandable.



Ordering choices

Choices	Useful order	Reason
Months	Chronological	Known sequence
Authors	Alphabetical	Known name
Submission steps	Task dependency	Prerequisites
Recent files	Most recent first	Resume prior work

Task order suits dependent steps. Alphabetical order suits names. Frequency and importance can justify prominence.

A short label can still be ambiguous.

Distinctive words help separate neighboring choices.

Navigation labels may need more context than commands.

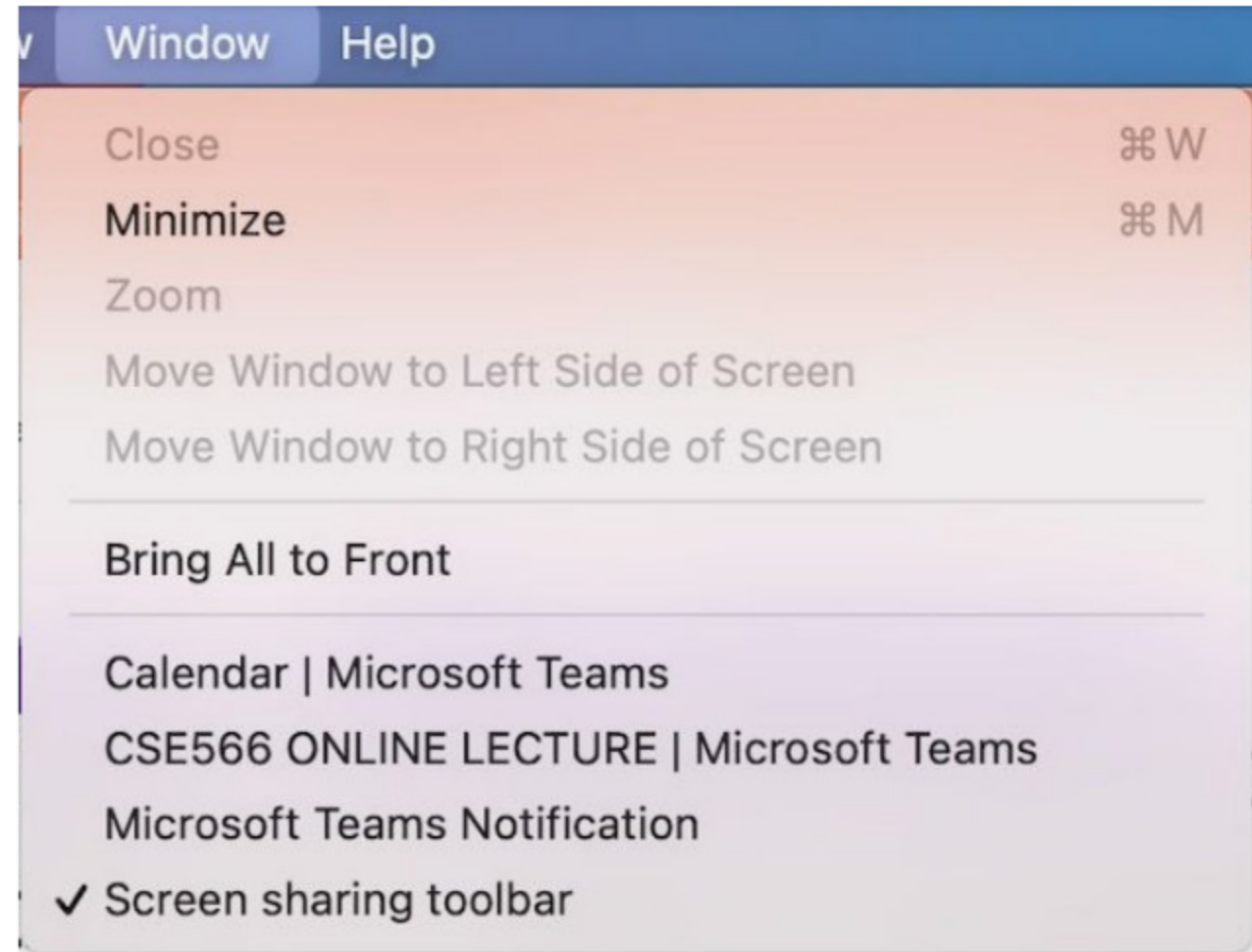
Compare neighboring labels together. “Manage,” “Tools” and “Services” may each sound reasonable while failing to divide the available tasks clearly. More specific wording can reduce guessing. Keep repeated grammatical patterns where they help comparison, but do not remove the words that distinguish one choice from another.

Menus communicate state

A checkmark can identify the current choice.

Unavailable actions reveal a prerequisite or limitation.

Shortcuts offer another route to the same operation.



Overview menus and visual categories

A two-dimensional arrangement exposes categories together.

Pictures can support recognition when their meaning is specific.

The surrounding controls still need a clear hierarchy.



Tabs expose parallel views or sections.

Toolbars make frequent actions readily available.

Menus and shortcuts support discovery and repeated use.

These mechanisms should reinforce each other. A toolbar icon and a menu command that perform the same action should use compatible wording, feedback and availability rules. Avoid hiding essential distinctions behind an unfamiliar icon. Also consider what happens when space becomes scarce: moving an action into overflow changes its discoverability, even if the underlying function is unchanged.

Should the most frequently used commands move whenever usage changes?

Not necessarily. Moving commands can undermine learned locations. A stable organization plus a distinct recent or customizable area can support both familiarity and efficient access.

Where am I?

What is available here?

Where can I go, and how can I return?

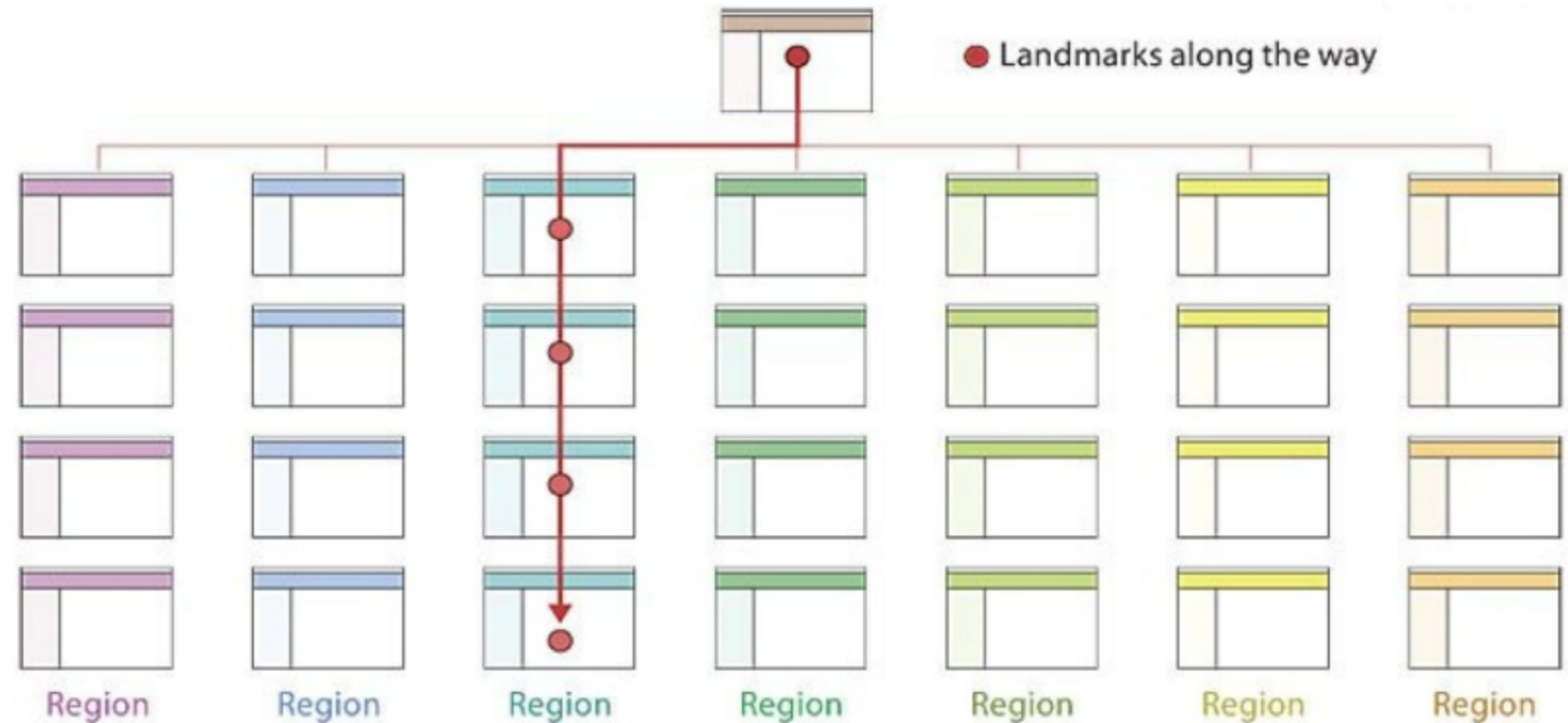
People frequently arrive through search results, shared links or saved bookmarks. They may never see the home page. Design internal pages to communicate their identity and context independently. A visually consistent header is helpful, but it cannot substitute for a meaningful title, a clear section relationship and relevant onward routes.

Landmarks and regional identity

Stable patterns support familiarity.

Distinctive regions support orientation.

A label must carry meaning even without color.



Mechanism	Represents	Example
Breadcrumb	Structural location	Library / Methods / Interviews
History	Visited route	Results, article, related article
Progress	Task stage	Details, review, submit

A breadcrumb can show the current hierarchy. Browser history records a path actually taken. A progress indicator shows a process state.

A link predicts what lies beyond it.

The destination should confirm that prediction.

Weak labels force exploratory clicking.

Klemmer's credit-union example uses labels such as Transact and Account View. These terms require customers to infer which category contains the service they need. Hidden secondary choices add another layer of exploration. A route becomes easier to judge when its wording matches the customer's purpose and the destination confirms that expectation.

How could you improve a route labeled “Transact” for someone seeking a payment receipt?

Expose a label or supporting description that names the relevant records, such as “Payments and receipts.” Ensure the destination then presents those records rather than another unexplained menu.

A shared word can suggest the wrong route

“OPEN-END FUND” shares a word with “open an account,” but names a different service.

The destination must fit the intended task.

Nearby alternatives can clarify the distinction.



“Here” depends on its surrounding sentence.

Descriptive link text can stand on its own.

A matching destination heading confirms arrival.

Compare “Click here” with “Compare the course tracks.” The second supports scanning and makes the destination more predictable. At the destination, a relevant heading should confirm that the user has arrived. If the page uses different terminology, explain the relationship. Backtracking can indicate a mismatch, but it can also be part of legitimate exploration, so interpret it in context.

Different search tasks

Task	Starting knowledge	Useful support
Known item	Title or identifier	Precise match
Fact finding	Question	Relevant preview
Exploration	Broad interest	Categories and refinement

Known-item retrieval starts with a target. Fact finding starts with a question. Exploration develops the question while searching.

Five stages of search

Stage	Interface responsibility
Formulate	Expose scope and terms
Initiate	Show when search runs
Review	Support relevance judgments
Refine	Make constraints editable
Use	Support the next real action

Formulation and initiation establish the request. Review and refinement develop useful results. Use completes the information task.

Search scope and query visibility

Search for: 

Advanced Search Options

Topics

Departments

Authors

Publication Date
from
to



Found 968 matches. << 1 - 25 of 968 >>

Rank	Headline	Author	Published	Department
****	Defendant DeLay? Part 2 Who blurted out: "\$100,000"? A	Timothy Noah	Oct 06, 2004	Chatterbox

SEARCH FOR:

Date(s): ☐ Past 7 Days ☐ Past 30 Days ☐ Past 90 Days ☐ Past Year ☒ Since 1996



 **Advanced**

SORT BY « 1 - 25 OF 2131 »

HEADLINE	AUTHOR	DATE	DEPT.
The Truth About Barack Obama Rumors the Obama campaign shouldn't try to correct.	Christopher Beam	Jun 17, 2008	Low Concept
Slate Votes Obama wins this magazine in a rout.		Oct 28, 2008	Politics

The user needs to know what is being searched.

The current query should remain available.

Results must retain enough context for interpretation.

Results support relevance judgments

Distinctive titles and previews help comparison.

Repeated generic text hides differences.

A result should explain why it may be useful.

Search: color laser printer

Search results

- » Buy HP Color LaserJet 1600 Printer(CB373A#ABA), HP color laser printers, HP LaserJets, HP printers, Printers direct from the ...
Buy HP Color LaserJet 1600 Printer(CB373A#ABA), HP color laser printers, HP LaserJets, HP printers, Printers direct from the HP Home & Home Office Store. On a budget but want ...
2006-12-05
- » Buy HP Color LaserJet 4700dn Printer(Q7493A#ABA), HP color laser printers, HP LaserJets, HP printers, Printers direct from ...
Buy HP Color LaserJet 4700dn Printer(Q7493A#ABA), HP color laser printers, HP LaserJets, HP printers, Printers direct from the HP Home & Home Office Store. Get ready to deliver ...
2006-12-20
- » Buy HP Color LaserJet 4700n Printer(Q7492A#ABA), HP color laser printers, HP LaserJets, HP printers, Printers direct from ...
Buy HP Color LaserJet 4700n Printer(Q7492A#ABA), HP color laser printers, HP LaserJets, HP printers, Printers direct from the HP Home & Home Office Store. Classy, brilliantly ...
2006-12-20
- » Buy supplies for Color laser specialty paper, Paper for laser printers, Paper direct from the HP Home & Home Office Store
Buy supplies for Color laser specialty paper, Paper for laser printers, Paper direct from the HP Home & Home Office Store. Hewlett Packard computer and printer store. Shop for, ...
2006-12-09
- » Buy supplies for Color laser specialty paper, Paper for laser printers, Paper, Printing supplies direct from the HP Home & ...
Buy supplies for Color laser specialty paper, Paper for laser printers, Paper, Printing supplies direct from the HP Home & Home Office Store. Hewlett Packard computer and printer ...
2006-12-06

Search: color laser printer

Search results

- » HP® Official Store — Buy an HP Tri-fold Color Laser Glossy Brochure Paper (150 sheets, 8.5 x 11-inch) (Q6612A) from HP
Why outsource brochure printing when you can do it expertly on your own laser printer, in small batches tailored to your unique projects and clients? Ideal for use with HP Color ...
- » Color Laser Printers At a glance - HP Small & Medium Business products
Summary of all HP Color Laser Printers currently available for purchase and recommended for Small & Medium Business. Includes links to compare products, obtain more information about & ...
- » HP Color laserjets - color laser printers for large business - HP Large Enterprise Business
HP Large Enterprise Business - Find and compare color laser printers. Review the business features of HP Color LaserJets
- » HP® Official Store — Color laser specialty paper, Paper for laser printers, Paper
Use these papers with your HP Color LaserJet printer for outsource-quality marketing materials and photos
- » HP Press Release: Hewlett-Packard Color LaserJet 4550 Family Establishes New Generation of Internet-enabled Color Laser ...
Successor to the World's Best-selling Color Laser Printer Features Embedded Web Technologies Designed to Improve Ease of Use and Manageability.
- » Laser Printers, Inkjet Printers, Photo Printers - HP
Choose from a wide variety of dependable HP printers, including laser printers and ink printers, all in one/multifunction printers and photo printers.



Facets and dynamic refinement

Research-library search	Current constraint	Possible revision
Topic	Touch interaction	Add synonym
Type	Journal article	Include conference papers
Year	2022–2026	Widen range
Language	English	Remove constraint

Facets expose meaningful dimensions of a collection. Selected constraints should remain visible and removable. Feedback should reveal how each change affects results.

A search query with visible constraints

The query stays visible as the collection narrows.

24 results become 3 after type and year filters.

Removing a filter revises one constraint.

1. Broad search

Research library

touch interaction

Search

24 results

Type: Any ▼

Year: Any ▼

Touch target size

Conference paper

Gestures on small screens

Conference paper

2. Refined search

Research library

touch interaction

Search

3 results

Type: Journal article ×

Year: 2022–2026 ×

Touch accuracy

Journal article

Touch feedback

Journal article

Empty results and recovery

The query and all active filters remain visible at zero results.

Widen years changes 2026 to 2022–2026.

The new result set keeps the journal and language restrictions.

3. Too many constraints

Research library

touch interaction

Journal article ×

2026 ×

English ×



0 results

No items match all filters

Widen years to 2022–2026

[Edit query](#)

4. Explicit recovery

Research library

touch interaction

Journal article ×

2022–2026 ×

English ×



Year filter changed

3 results



Touch accuracy



Touch feedback



Touch input on the move

Should the interface quietly remove all filters to avoid an empty page?

No. That changes the request without explaining it. Preserve the constraints, suggest a useful relaxation and show which constraint changed when the user accepts it.

Opening a result is often an intermediate step.

Comparison needs retained context.

Saving or exporting should identify what was captured.

Make these distinctions visible. If an export includes only selected rows, communicate the selection and scope. If a query is shared, preserve the constraints that define it. Search design is complete only when the user can apply the information to the purpose that motivated the search.

Grouping communicates relationships

Proximity suggests which items belong together.

Spacing can distinguish local actions from global actions.

A tidy grid can still imply the wrong grouping.

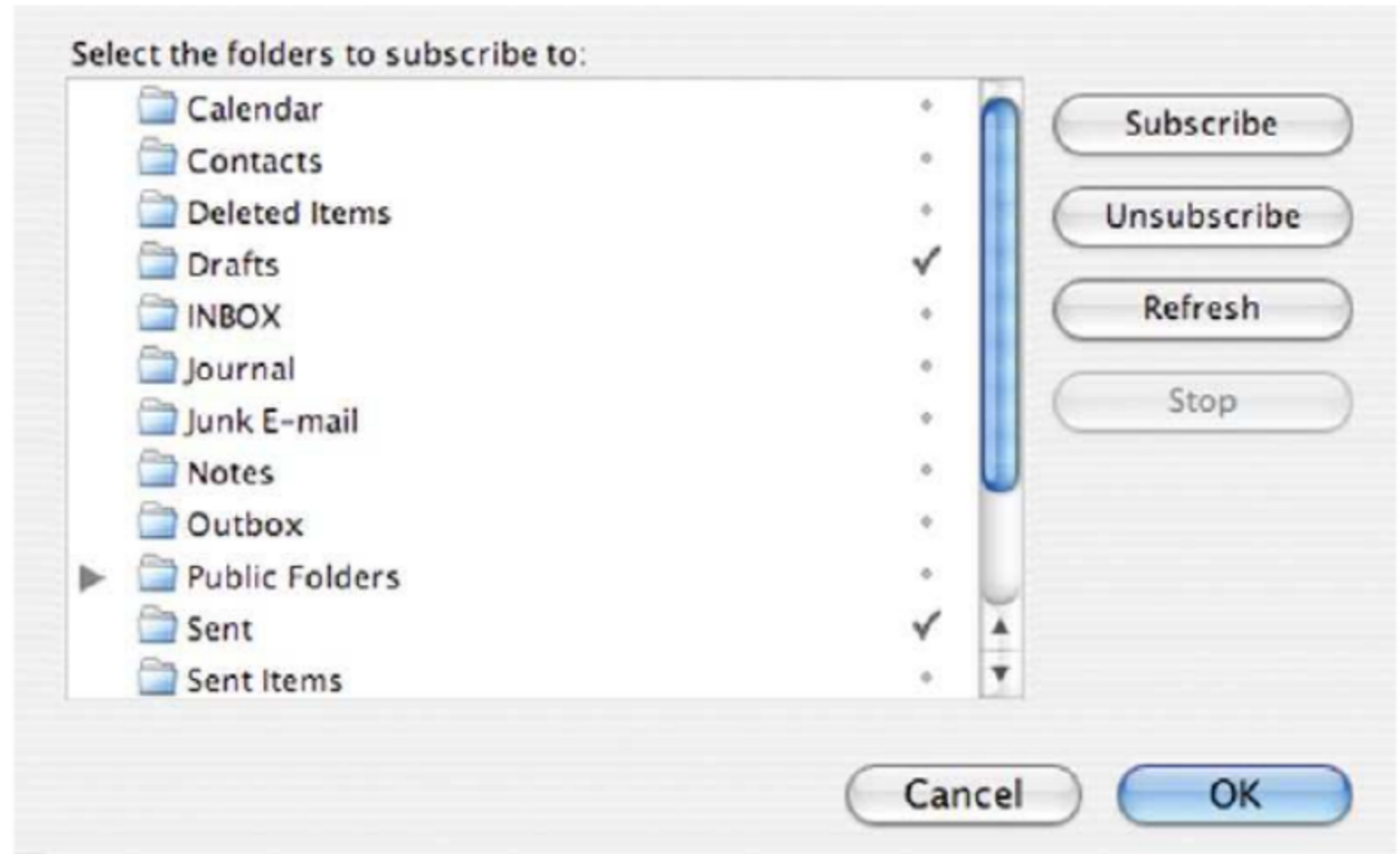
3ds max 6 components				
Add	Remove			installation action
		3ds max 6	application	install
		3ds max 6	documentation	install
		3ds max 6	samples	install
		3ds max 6	architectural materials	install
		3ds max 6	SDK	remain uninstalled
		character studio 4.2		install
Add will install any components not currently installed.				
Remove will uninstall any components currently installed.				

Local actions and dialog actions

An action should have a clear object and scope.

Spacing can separate a list from its controls.

Dialog-wide decisions belong at a different level.



Alignment in a registration form

Aligned labels and fields support scanning.

Group headings expose meaningful subsets.

Field length and formatting suggest expected data.

File Registration Courses Help

Students Select Courses Register Students

Name and Address

Student ID: [dropdown]
Family Name: [dropdown] Given: [text]
Apt / Box No: [text]
Address: [text]
City: Calgary Province: AB
Postal Code: [text]
Phone: () - -

Citizenship

☐ Canadian Citizen
☐ Landed Immigrant
☐ Visa Student

Other Student Information

SIN: [text]
Date of Birth: yy/mm/dd [text]

End List Save New Delete
Help Clear Exit

05/03/99

Hierarchy and task priority

Mortgage Summary	
\$1,840.59	\$662,611.22
Monthly Payment	Total of 360 Payments
\$318,861.22	Sep, 2037
Total Interest Paid	Pay-off Date
\$93,750.00	\$0.00
Total Tax Paid	Total PMI Paid



Mortgage Summary	
Monthly Payment	\$ 1,840.59
Number of Payments	360
Total of Payments	\$ 662,611.22
Interest Total	\$ 318,861.22
Tax Total	\$ 93,750.00
PMI Total	\$ 0.00
Pay-off Date	Sep 2037

Emphasis should support the next judgment.

Dense information may need structure rather than deletion.

Secondary detail can remain available without equal prominence.

Wide view

Feature	Laptop A	Laptop B
Weight	1.2 kg	1.7 kg
Battery	8 h	12 h
Ports	2	4

Narrow view

Feature	A	B
Weight	1.2 kg	1.7 kg
Battery	8 h	12 h
Ports	2	4

Keep corresponding attributes together. Stacking all of A before all of B would require comparison from memory.

Scanning depends on the task

People inspect different features for different purposes.

Headings and grouping can make likely targets visible.

A universal scan-path rule cannot determine every layout.

Inspect the actual task: where does the person start, which information must be compared, and what must be checked before acting? These questions lead to more defensible decisions than treating a letter-shaped scanning pattern as a universal law. Visual hierarchy supports attention, but it does not guarantee that a critical detail will be noticed.

Why might a clean form still be difficult to use?

Its visual order may not match the task. Ambiguous groups, unfamiliar labels or actions separated from their objects can remain even when every field aligns perfectly.

Field design starts with the data

Identify what must be collected and why.

Group related values with the people doing the task.

Choose controls after understanding the data and dependencies.

Ask whether a value already exists, whether the user can reasonably know it and whether the system can derive it reliably. Derivation also needs transparency when a person must verify the result. A form is a model of a task and its information requirements, not simply a visual arrangement of database columns.

Labels, formats and abbreviations

A label identifies the information requested.

A hint can explain a format or purpose.

An abbreviation is useful only when the intended users understand it.

The screenshot shows a 'STUDENT REGISTRATION SYSTEM' window with a menu bar (File, Registration, Courses, Help) and three main tabs: 'Students' (active), 'Select Courses', and 'Register Students'. The 'Students' tab contains two panels. The left panel, titled 'Name and Address', has fields for 'Student ID' (with a dropdown arrow), 'Family Name' (with a dropdown arrow), 'Given' (with a dropdown arrow), 'Apt / Box No', 'Address', 'City' (with a dropdown arrow), 'Postal Code', and 'Phone' (with a format hint '() - - - -'). The right panel, titled 'Citizenship', has radio buttons for 'Canadian Citizen', 'Landed Immigrant', and 'Visa Student'. Below this is a section 'Other Student Information' with a 'SIN' field (with a hint 'SIN Abbreviation understood by users.') and a 'Date of Birth' field (with a format hint 'yyyy/mm/dd' and a label 'Caption shows formatting.'). At the bottom of the 'Students' tab are buttons for 'Find', 'List', 'Save', 'New', and 'Delete'. The bottom of the window has buttons for 'Help', 'Clear', and 'Exit'.

Captions right aligned.

SIN Abbreviation understood by users.

Caption shows formatting.

Controls reflect the choice structure

Decision	Possible control	Important condition
One visible choice	Radio group	Mutually exclusive values
Several choices	Checkboxes	Independent selections
Known item in large set	Searchable list	Understandable vocabulary
Approximate range	Slider	Visible value and limits
Exact value	Numeric entry	Units and valid range

One choice and several choices are different tasks. Visible options support comparison. Long lists may require search or filtering.

A default can reduce repeated work.

It can also be accepted without inspection.

Critical assumptions need to remain visible and editable.

Distinguish a suggested value from a value retrieved from an existing record. They have different evidential status. For example, a stored contact address and a guessed country should not appear equally authoritative if the difference matters to the task. For high-consequence choices, requiring an explicit selection can be preferable to silently making the decision for the user.

Check	Example	What it establishes
Type / format	Date can be parsed	Usable representation
Valid choice	Existing course code	Membership in allowed set
Range	Quantity between limits	Constraint satisfied
Consistency	End after start	Relationship satisfied

Type and format checks inspect representation. Choice and range checks inspect permissible values. Consistency checks inspect relationships.

Valid individual fields can form an invalid record.

Dependencies need a visible explanation.

The error should identify the relationship that failed.

Present the relationship in the message. “End date must follow start date” is more useful than “Invalid record.” Keep both relevant values accessible, and avoid making users infer which part of the record caused failure. If changing one field invalidates another, explain the consequence rather than silently deleting the affected input.

Why can a form reject Save after accepting every field?

A cross-field or record-level rule may fail. The feedback should identify the related values and explain the required relationship, while preserving the entered data.

An unfinished value may not yet be an error.

Feedback should arrive when it can support correction.

Commit-time checks remain necessary for the whole record.

Validate meaningful completed input where that supports correction, and recheck relevant constraints before commitment. Some checks depend on data elsewhere in the form or on a remote system. Make pending checks and failures understandable. Do not trap users inside one invalid field if they need to inspect other information to correct it.

Error identification and preserved input

Weak message	More useful message
Invalid value	Enter a four-digit year
Record rejected	End date must follow start date
Missing information	Select the delivery method
Error 12	The file could not be saved. Your edits remain open.

The message explains what needs correction. The affected field remains easy to find. Valid input survives the failure.

Level	Purpose	Connection
Summary	Locate the problems	Link to affected input
Field message	Explain the repair	Match summary wording
Submission result	Confirm outcome	Identify task completion

A summary provides an overview of problems. Links connect the summary to affected fields. Local messages explain each repair using the same wording.

A failed form submission with a repair path

The summary exposes both problems after Save request.

Each link moves to the relevant field.

The original values remain available for correction.

Conference travel request


There is a problem

- End date must be after start date
- Enter an email address

Name

Start date



End date




 End date must be after start date

Email


 Enter an email address

1. Focus moves to summary

2. Links lead to fields

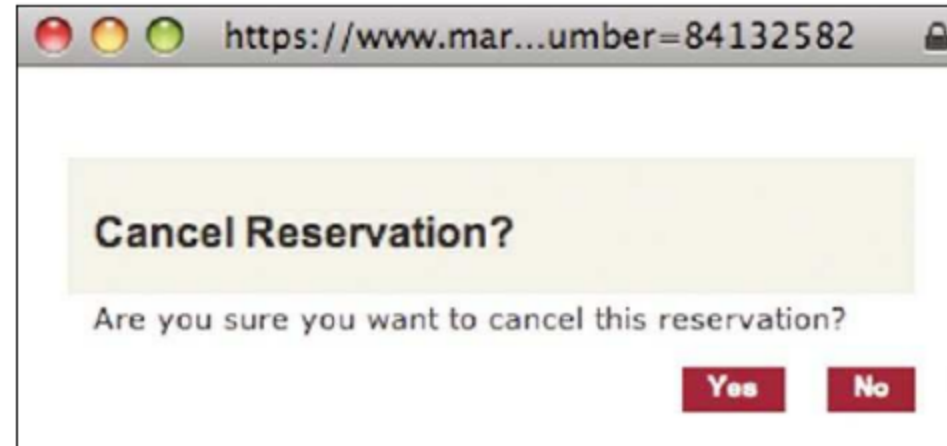
3. Entered values remain

Save, Apply, Cancel, Clear and Delete

Save or Apply commits a defined scope of changes.

Cancel abandons a defined unfinished operation.

Clear and Delete affect different objects.



Saved data and an unfinished edit

The saved city is Ankara.
Typing Izmir changes the
draft.

Save commits Izmir to the
record.

Cancel discards the draft
and retains Ankara.

Saved record

Deniz Kaya
City: Ankara

Unsaved edit

Deniz Kaya
City

Save

Cancel

After Save

Deniz Kaya
City: Izmir
Status: Changes saved

After Cancel

Deniz Kaya
City: Ankara
Status: Edit discarded

Apply, Clear and Delete change different things

Action and starting state	Draft after action	Stored state after action
Apply: 100% saved, 125% draft	125%; dialog stays open	125%
Cancel: 125% applied, 150% draft	Unapplied edit discarded	125%
Clear city: Ankara saved	Empty city field	Ankara until Save
Delete contact: record exists	Editing ends	Contact removed

Apply commits settings while the settings view stays open. Clear empties a draft field. Delete removes a saved object.

Feedback describes the operation state

State	Useful feedback	Possible action
Ready	Available operation	Start
Working	Activity and scope	Wait or cancel
Completed	Result and affected object	Continue
Failed / uncertain	What is known and preserved	Inspect, repair or retry

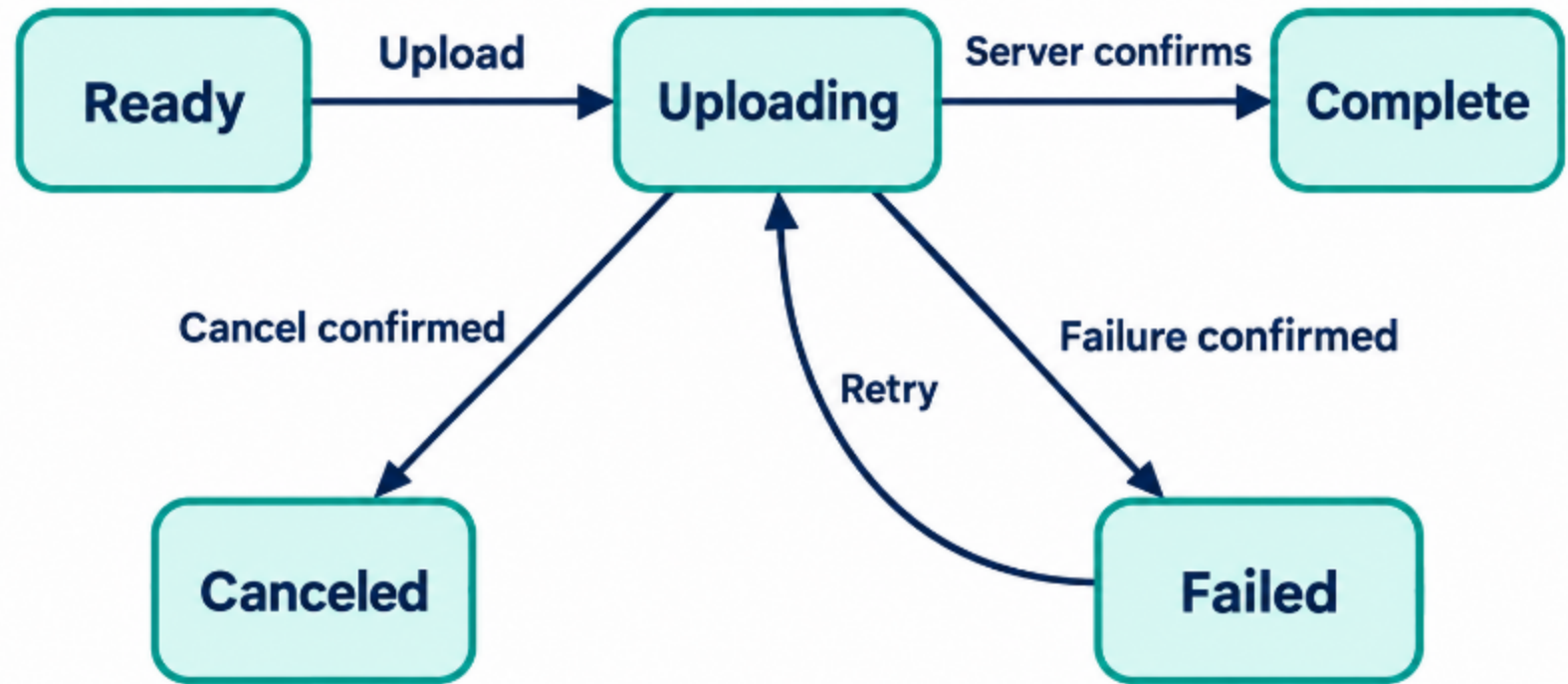
Acknowledged input is different from completed work. Progress should describe meaningful activity. Failure needs a next action and an account of preserved work.

An upload operation and its outcomes

Uploading indicates work in progress, not completion.

Complete requires confirmation from the server.

Failure and cancellation each need an explicit outcome.



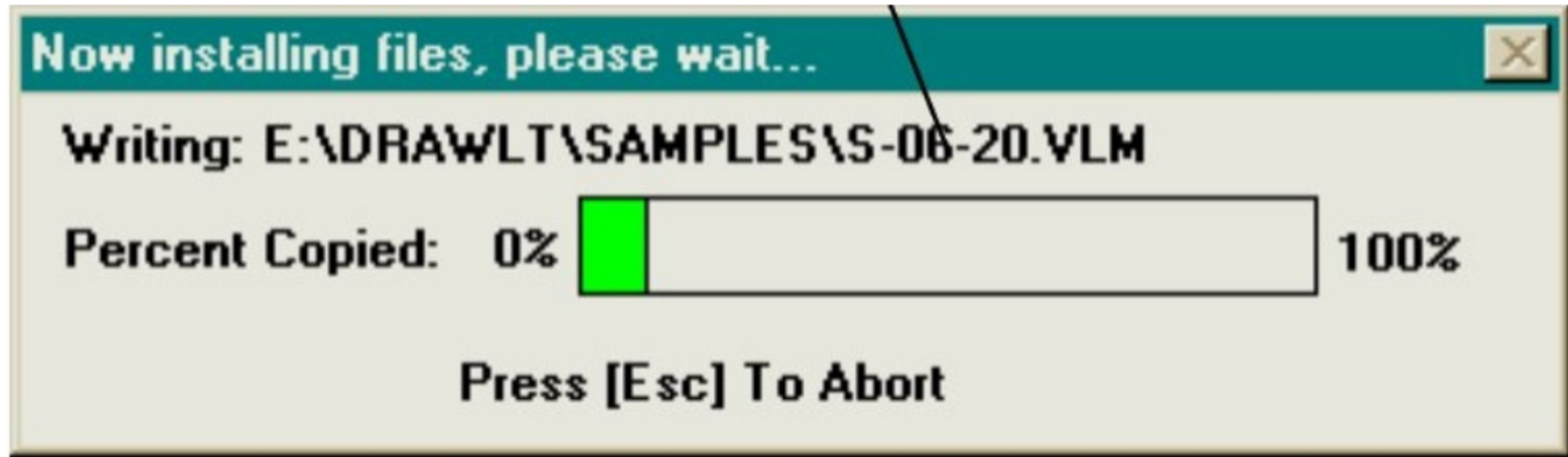
No confirmation? Check status before retrying.

A timeout can leave the outcome unknown

What the system knows	What the interface says	Useful next action
Server rejected the file	File was not stored	Repair the cause; retry
Server confirmed storage	Report saved	Open saved report
No confirmation received	Outcome not yet confirmed	Check submission status

No reply does not establish that the upload failed. Check the submission record before inviting another upload.

Progress needs the right scope



Per-file activity does not describe the whole copy job.

A percentage needs a meaningful denominator.

Cancellation should explain what happens to partial work.

Mistakes and slips

Mechanism	Example	Possible response
Wrong plan	Misunderstood deletion scope	Clear object and consequence
Wrong object	Adjacent similar items	Distinction and recovery
Habit capture	Routine overrides intention	Visible task context
Mode error	Same action, different state	Visible mode and safer mapping

A mistake can arise from an incorrect goal or plan. A slip can occur while executing an intended plan. The distinction points to different design responses.

A phone mode error

The practiced sequence is C,
then Yes.

In one state it unlocks the
phone.

In another state it deletes a
phone-book entry.



A familiar sequence can capture an intended one.

Similar objects can invite an action on the wrong target.

Interruptions can remove the goal from attention.

The remedies differ. Distinct objects and clear selections help with wrong-target actions. Visible task context and resumable state help after interruptions. Reversibility can limit damage across several mechanisms. Adding a warning to every action is not a general solution because warnings can themselves become part of a routine that receives little attention.

An exit from an expert dialogue

Dialogue without escape	Dialogue with escape
Request destination row	Request row or pass
Request destination column	Request column or pass
Reject invalid destination	Explain invalid destination
Repeat until valid	Retry or abandon the move

Validation can trap a user in a repeated prompt. Experts also need to abandon an action. An explicit escape changes the dialogue's state model.

Confirmation asks for a decision before commitment.

Undo supports recovery after an action.

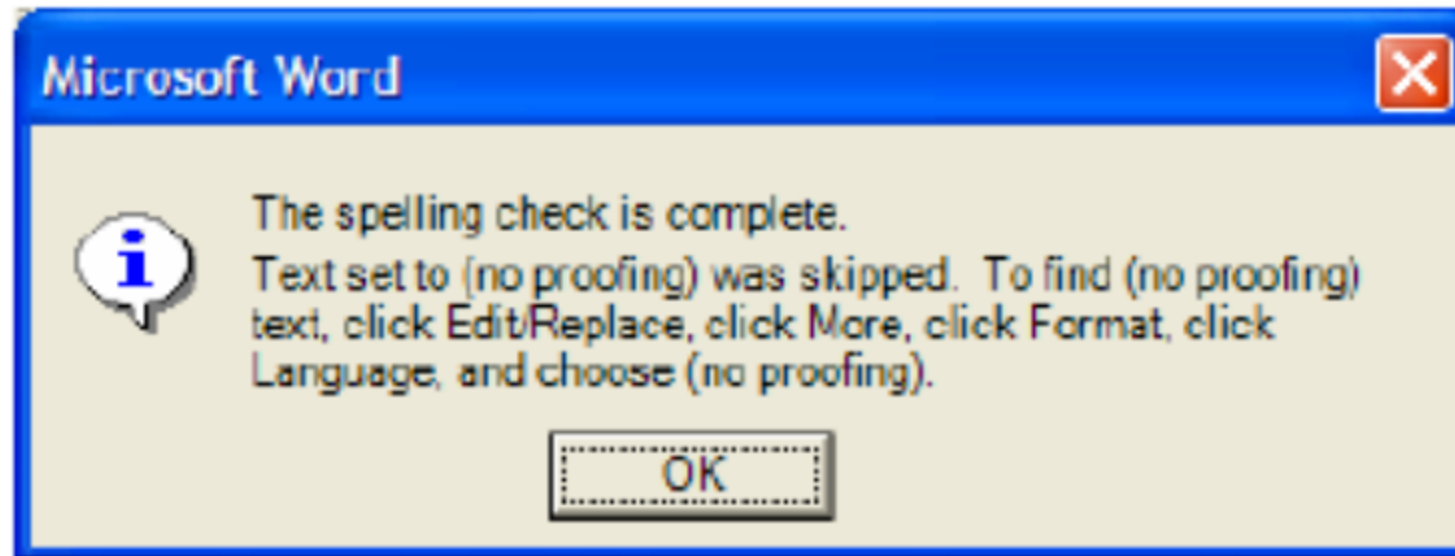
The appropriate protection depends on consequences and reversibility.

Undo supports exploration and recovery when the action can be reversed. Explain what it will restore and whether its scope includes related changes. Some actions affect other people or external systems, so reversal may require a compensating action rather than a simple restoration. The interface should communicate these differences without making every routine operation a confirmation ceremony.

Why did confirmation fail in the phone example?

The familiar C–Yes sequence included confirmation. The user could complete it habitually in the wrong mode. A meaningful repair must address state visibility, action mapping and recovery.

Error messages and useful help



A message explains the problem in task terms.

The recovery action should remain available.

Instructions should not disappear before they can be used.

A warning about an already-open document

The existing state determines the risk.

The message should identify what could be lost.

Actions should distinguish retaining work from replacing it.

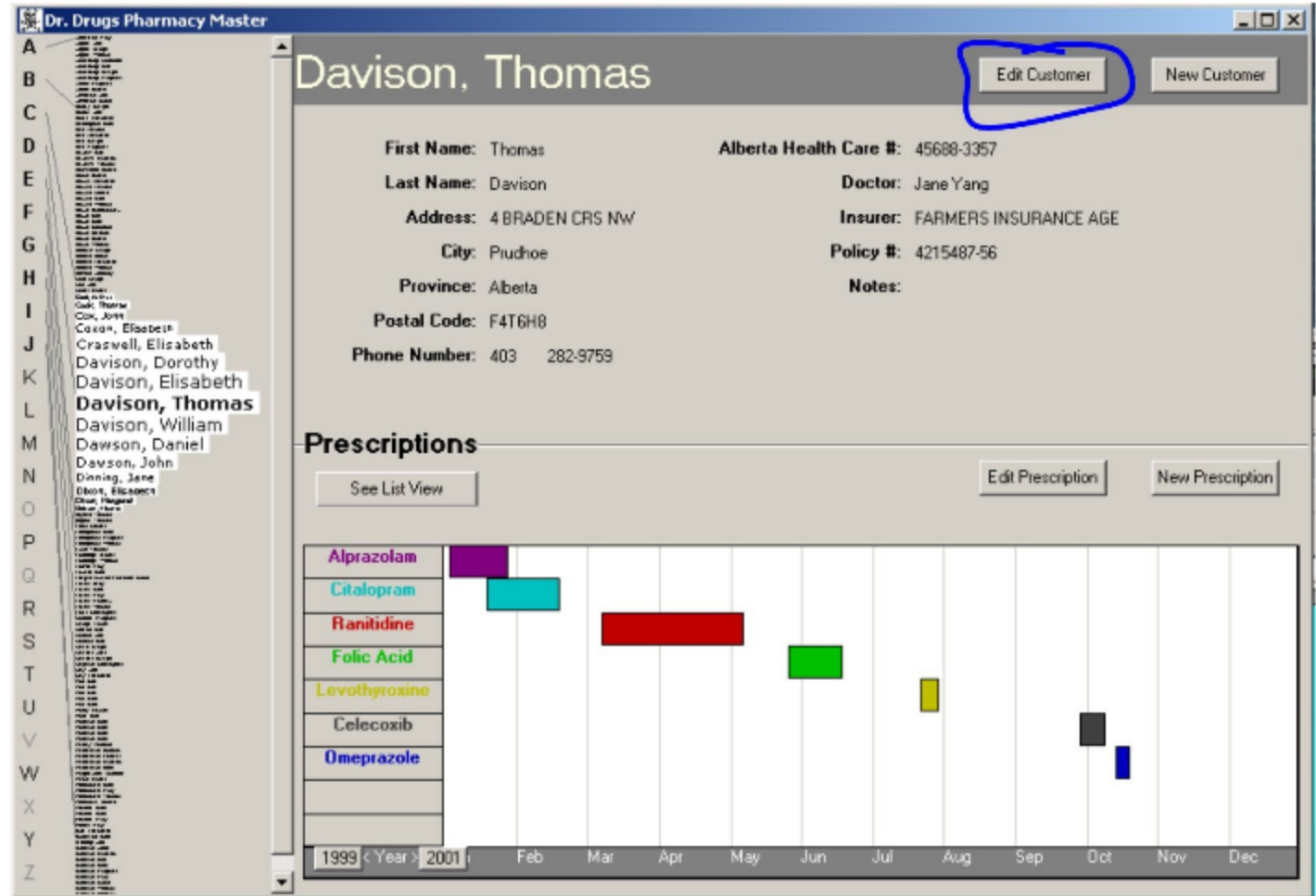


Patient context and prescription history

The overview keeps several related information types visible.

The selected patient needs an unmistakable identity.

Editing begins from an explicit action.



Editing patient details

Fields replace displayed values in the same area.

Save and Cancel make the edit boundary visible.

Other actions become unavailable during the edit.

The screenshot shows a software window titled "Dr. Drugs Pharmacy Master". On the left is a vertical list of patient names, with "Davison, Thomas" highlighted. The main area contains a form for editing patient details. The "First Name" field is highlighted with a red box and contains the text "Thomas". Other fields include "Last Name" (Davison), "Address" (4 BRADEN CRS NW), "City" (Prudhoe), "Province" (Alberta), "Postal Code" (F4T6H8), "Phone Number" (403), "Alberta Health Care #" (45688-3357), "Doctor" (Jane Yang), "Insurer" (FARMERS INSURANCE AG), "Policy #" (4215487-56), and a "Notes" text area. Below the form are "Save" and "Cancel" buttons. Under the "Prescriptions" section, there are buttons for "See List View", "Edit Prescription", and "New Prescription". A chart displays various medications as colored bars over a timeline from 1999 to 2001. The medications listed on the left of the chart are Alprazolam, Citalopram, Ranitidine, Folic Acid, Levothyroxine, Celecoxib, and Omeprazole. The timeline shows Alprazolam from Jan 1999 to Feb 1999, Citalopram from Feb 1999 to Mar 1999, Ranitidine from Mar 1999 to May 1999, Folic Acid from Jun 1999 to Jul 1999, Levothyroxine from Aug 1999 to Sep 1999, Celecoxib from Oct 1999 to Nov 1999, and Omeprazole from Dec 1999 to Jan 2000.

Starting a new prescription

The initiating action is visible beside the history.

The transition should preserve patient identity.

The next screen must support the information needed for entry.

The screenshot shows a software interface titled "Dr. Drugs Pharmacy Master". On the left is a vertical alphabetical index (A-Z) with a list of names. The main area displays patient details for "Davison, Thomas".

Patient Information:

- First Name:** Thomas
- Last Name:** Davison
- Address:** 4 BRADEN CRS NW
- City:** Prudhoe
- Province:** Alberta
- Postal Code:** F4T6H8
- Phone Number:** 403 282-9759
- Alberta Health Care #:** 45688-3357
- Doctor:** Jane Yang
- Insurer:** FARMERS INSURANCE AGE
- Policy #:** 4215487-56
- Notes:**

Buttons: "Edit Customer", "New Customer"

Prescriptions Section:

- Buttons: "See List View", "Edit Prescription", "New Prescription" (circled in blue)
- Table of prescriptions:

Drug Name	Start Date	End Date
Alprazolam	Jan 1999	Feb 1999
Citalopram	Feb 1999	Mar 1999
Ranitidine	Mar 1999	May 1999
Folic Acid	Jun 1999	Jul 1999
Levothyroxine	Jul 1999	Aug 1999
Celecoxib	Oct 1999	Nov 1999
Omeprazole	Nov 1999	Dec 1999

Navigation: 1999 < Year > 2001 | Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Entry displaces the timeline

The patient details remain visible.

The entry area replaces prescription history.

Whether that is acceptable depends on reference needs.

The screenshot shows a software window titled "Dr. Drugs Pharmacy Master". On the left is a vertical list of patient names, with "Davison, Thomas" highlighted. The main area is divided into two sections. The top section, titled "Davison, Thomas", contains patient details: First Name: Thomas, Last Name: Davison, Address: 4 BRADEN CRS NW, City: Prudhoe, Province: Alberta, Postal Code: F4T6H8, Phone Number: 403 282-9759, Alberta Health Care #: 45688-3357, Doctor: Jane Yang, Insurer: FARMERS INSURANCE AGE, Policy #: 4215487-56, and a Notes field. There are "Edit Customer" and "New Customer" buttons. The bottom section, titled "Prescriptions", contains a "See List View" button, "Edit Prescription" and "New Prescription" buttons, and a form with fields for Drug Name, Manufacturer, Quantity, Price/Unit, Doctor, Units, and Refill Quantity. "Save" and "Cancel" buttons are at the bottom right.

A combined view and its tradeoffs

The proposal retains details,
entry information and history.

Direct editing reduces explicit
mode controls.

Discoverability, accidental
changes and Undo still need
design.

Dr. Drugs Pharmacy Master

Davison, Thomas Add Undo New Customer

First Name: Thomas
Last Name: Davison
Address: 4 BRADEN CRS NW
City: Prudhoe
Province: Alberta
Postal Code: F4T6H8
Phone Number: 403 282-9759

Health Care #: 45688-3357
Doctor: Jane Yang
Insurer: FARMERS INSURANCE AGE
Policy #: 4215487-56
Notes:

Prescriptions See List View

Drug Name
Manufacturer
Quantity
Price/Unit
Doctor
Units
Refill Quantity
New Prescription

Alprazolam
Citalopram
Ranitidine
Folic Acid
Levothyroxine
Celecoxib
Omeprazole

1999 < Year > 2001 | Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

collapsed onto one screen (needs formatting)

Double click to edit (mode buttons gone)

Click to get info

Design decisions that can be justified

Observed need	Design decision	Question for evaluation
Revise an empty search	Keep query and filters visible	Can users widen one constraint?
Compare products on a phone	Retain paired attributes	Can users compare without backtracking?
Abandon an unfinished edit	Separate draft from saved data	Can users predict what Cancel retains?

Visible filters explain which search request produced the results. Paired attributes reduce the need to remember one product while inspecting another. Separate drafts from saved records to make Save and Cancel predictable.