

Proximity can backfire: example

The screenshot shows the California Employment Development Department (EDD) website. At the top left is the CA.GOV logo and the EDD State of California logo. To the right are links for "Skip to main content", "Help", "Benefit Programs Online", and "Log Out". A yellow navigation bar contains the "MAIN MENU" with links: Home, Inbox, File a New Claim, Continue a Saved Draft, Manage My Profile, and My Claim History. The main content area has a title "Employment Summary" and a process flow diagram. The flow consists of five numbered steps: 1. Personal Information, 2. Initial Questions, 3. Employment Information (which is circled), 4. Additional Information, and 5. Certification. Arrows connect the steps in sequence. Below the diagram, a message says "You are currently on Step 3 Employment Information". A blue header bar labeled "Section 4A - List of Employers" contains the instruction "Please click the 'Add' button to add information about your last or current employer. You must add at least one employer.". A message "No Results Found" is displayed. At the bottom are buttons for "Previous", "Next", "Add", "Save as Draft", and "Cancel".

CA.gov website. Pic from <https://www.nngroup.com/>

Proximity can backfire: example

- In the CA.gov website page, the «add» button, required to add employment information, is placed near unrelated buttons (move to the next step, save submission as draft, and cancel).
- When looking around the page, users may **only look at one item within a perceived grouping and use that to make a judgement about what the other items in that group must be.**

Proximity can backfire: example

CA.GOV Employment Development Department State of California

Skip to main content Help | Benefit Programs Online | Log Out

MAIN MENU

- Home
- Inbox
- File a New Claim
- Continue a Saved Draft
- Manage My Profile
- My Claim History

Employment Summary

1 → 2 → 3 → 4 → 5

Personal Information Initial Questions Employment Information Additional Information Certification

You are currently on Step 3 Employment Information

Section 4A - List of Employers

Please click the "Add" button to add information about your last or current employer. You must add at least one employer.

No Results Found

Previous Next | Add | Save as Draft | Cancel

Proximity can backfire: fixing the example

CA.GOV Employment Development Department State of California

Skip to main content Help | Benefit Programs Online | Log Out

MAIN MENU

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Employment Summary

1 → 2 → 3 → 4 → 5

Personal Information Initial Questions Employment Information Additional Information Certification

You are currently on Step 3 Employment Information

Section 4A - List of Employers

Please click the "Add" button to add information about your last or current employer. You must add at least one employer.

No Results Found

Add

Previous | Next

Save as Draft | Cancel

Principle of Connectedness

- Elements that are connected (or share a border) are perceived as related or part of the same group
- How many groups do you see in the shapes below?



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Principle of Connectedness

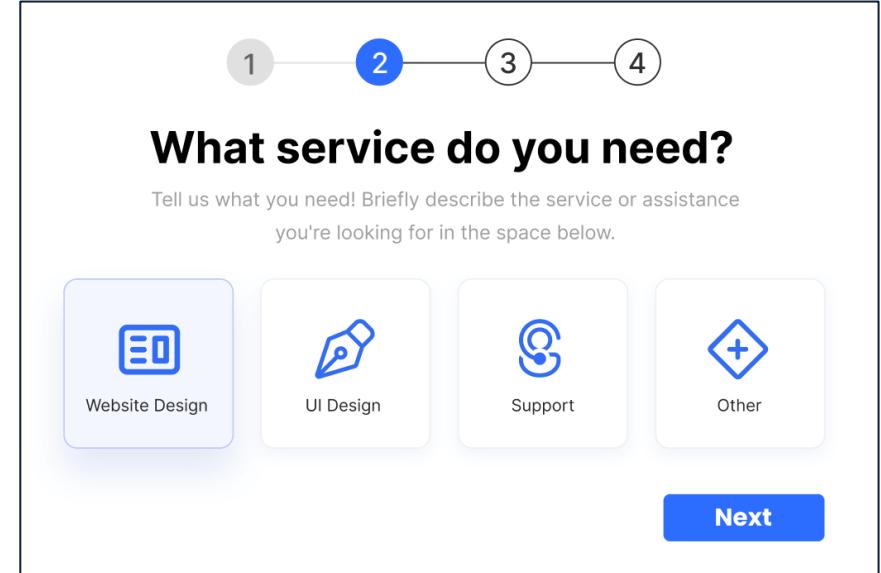
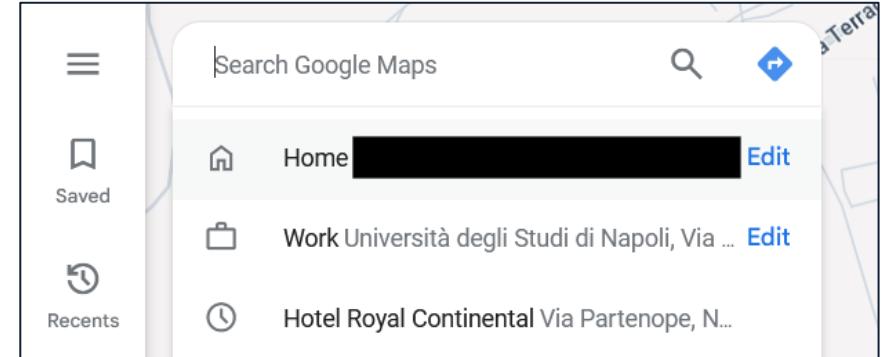
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- Connectedness **overrides** proximity and similarity

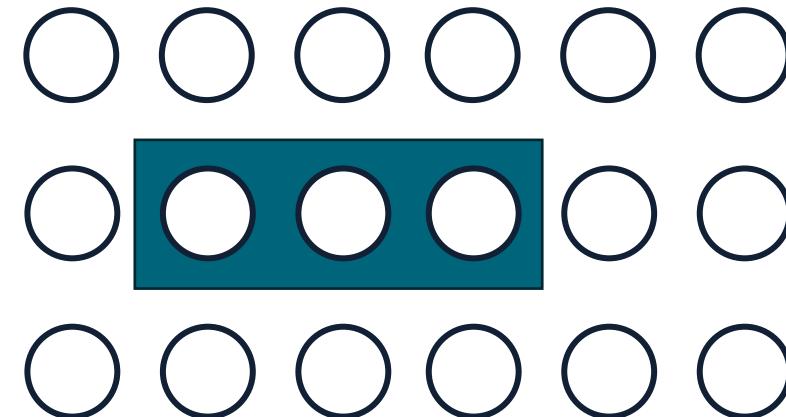
Principle of Connectedness in UI Design

- In Google Maps (web version) the search box is connected (share a border) to recent queries and saved locations
 - This suggests that those features are related
- Long forms can also be split in multiple phases or steps. The steps in the indicator on top of the figure (from fluentforms.com) are connected
 - This conveys the fact that these step belongs to the same, larger process



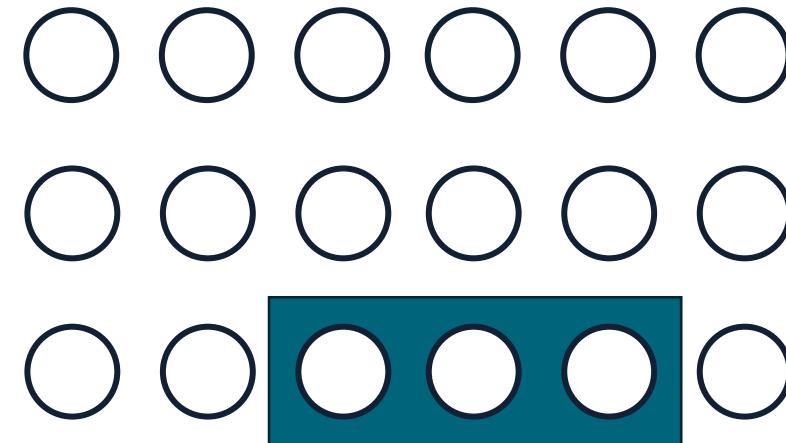
Principle of Common Region

- Items within a boundary are perceived as a group and assumed to share common characteristics or functionality



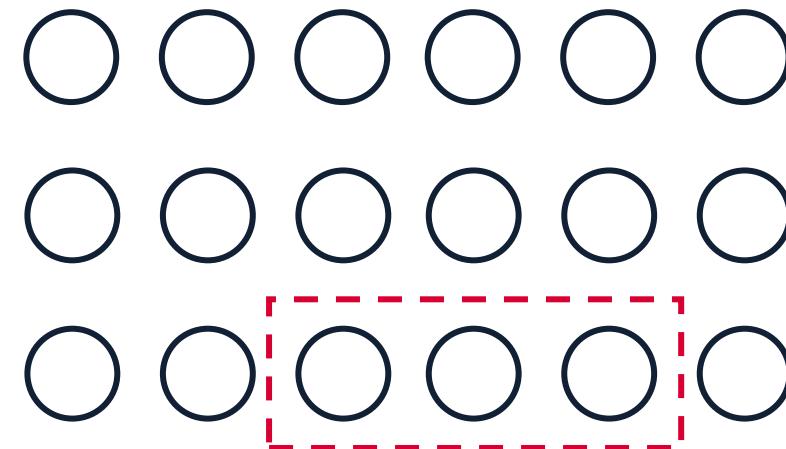
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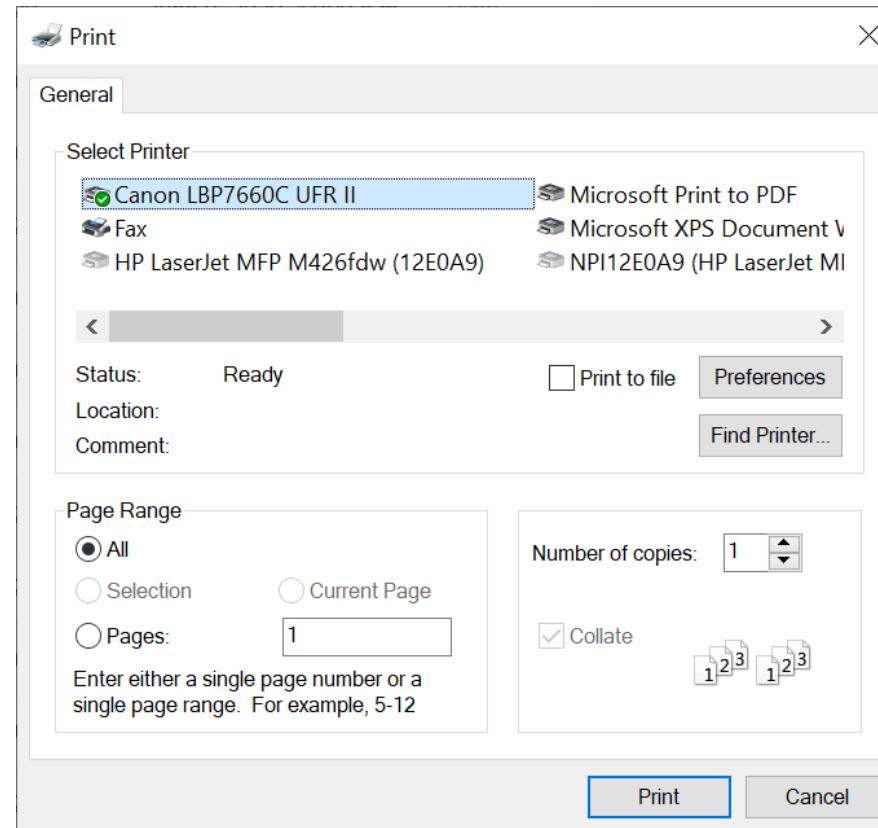


Principle of Common Region

- Items within a boundary are perceived as a group and assumed to share common characteristics or functionality



Principle of Common Region: examples



Printing dialog on Windows 11.
Pic from <https://www.nngroup.com>

Principle of Common Region: examples

2023

GUI Testing of Android Applications: Investigating the Impact of the Number of Testers on Different Exploratory Testing Strategies

Joint work with S. Di MARTINO, A. FASOLINO, and P. TRAMONTANA.

Journal of Software: Evolution and Process.

2021

 **Comparing the effectiveness of capture and replay against automatic input generation for android graphical user interface testing**

Joint work with S. Di MARTINO, A. FASOLINO, and P. TRAMONTANA.

Software Testing, Verification and Reliability.

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Designed and developed with ❤ by Luigi L. L. Starace



Footer in the teacher's personal website: <https://luistar.github.io>

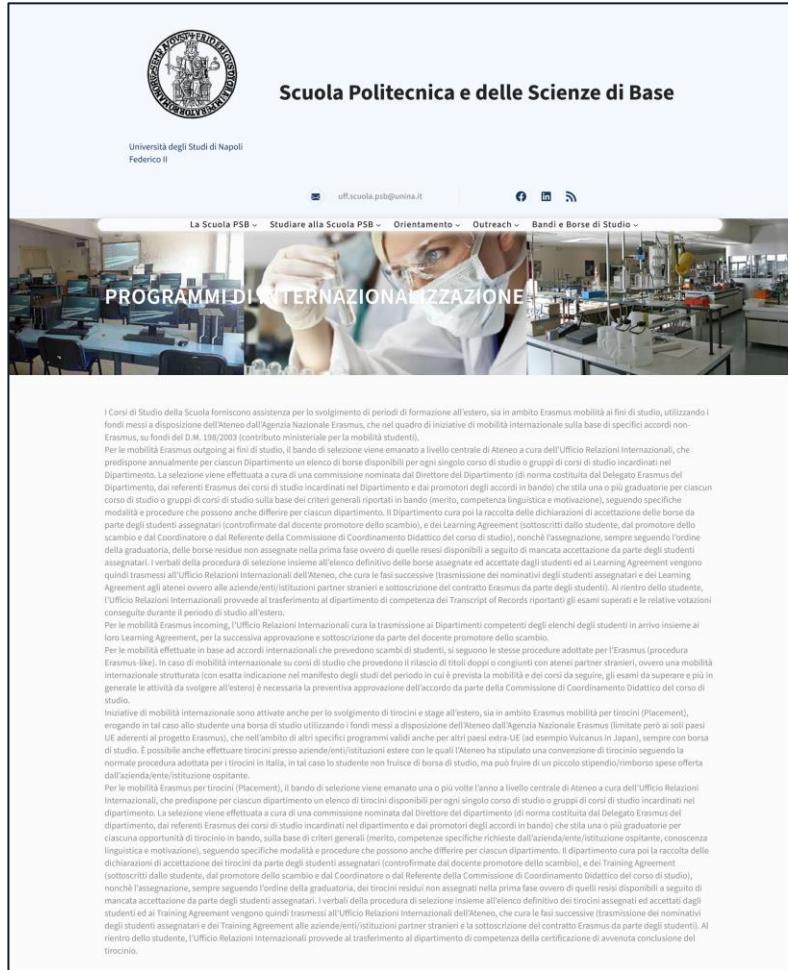
Visual Hierarchy in UI Design

- Have you ever seen a website or an app presenting a screen full of information, and you don't even know where to start looking?
- When that happens, it's likely that the layout is missing a clear **visual hierarchy**
- **Visual hierarchy** (of a 2D layout) refers to the organization of the design elements on the screen/page so that the eye is guided to consume each design element in the order of intended importance.

Lack of a Visual Hierarchy on arngren.net



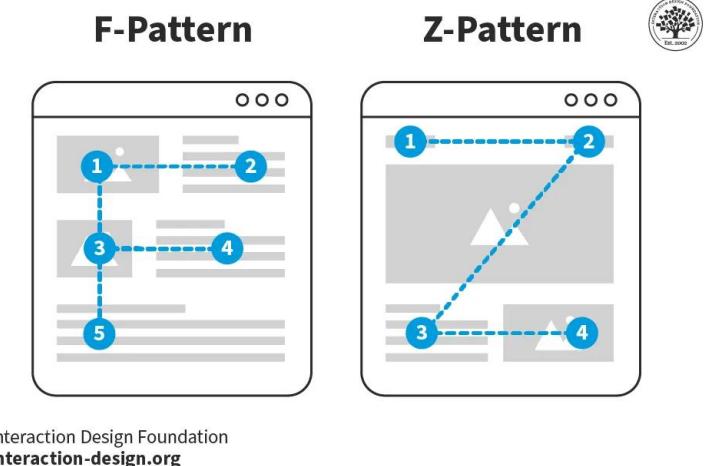
Lack of a Visual Hierarchy (SPSB website)



<https://www.scuolapsb.unina.it/programmi-di-internazionalizzazione/>

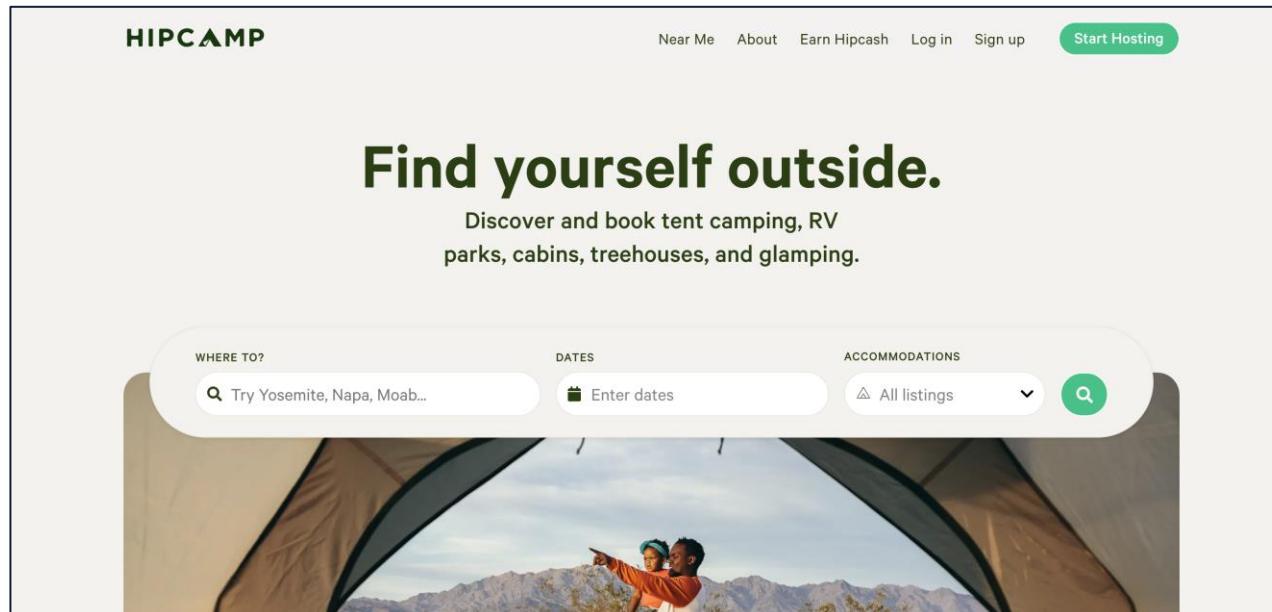
Creating a Visual Hierarchy

- You should use what you learned about colors, typography, and Gestalt principles to ensure that your designs have a clear visual hierarchy
- Designs should guide users so that they consume contents in the desired order
- Keep in mind that western users typically scan a UI using a **F- and Z-pattern**
 - You can reinforce these natural patterns
- **Scale, colors and groupings** are powerful tools to create a visual hierarchy



Creating a Visual Hierarchy: Scale

- Users pay more attention to big things than to small things
- More important elements should be larger than less important ones
- Users will notice larger elements first

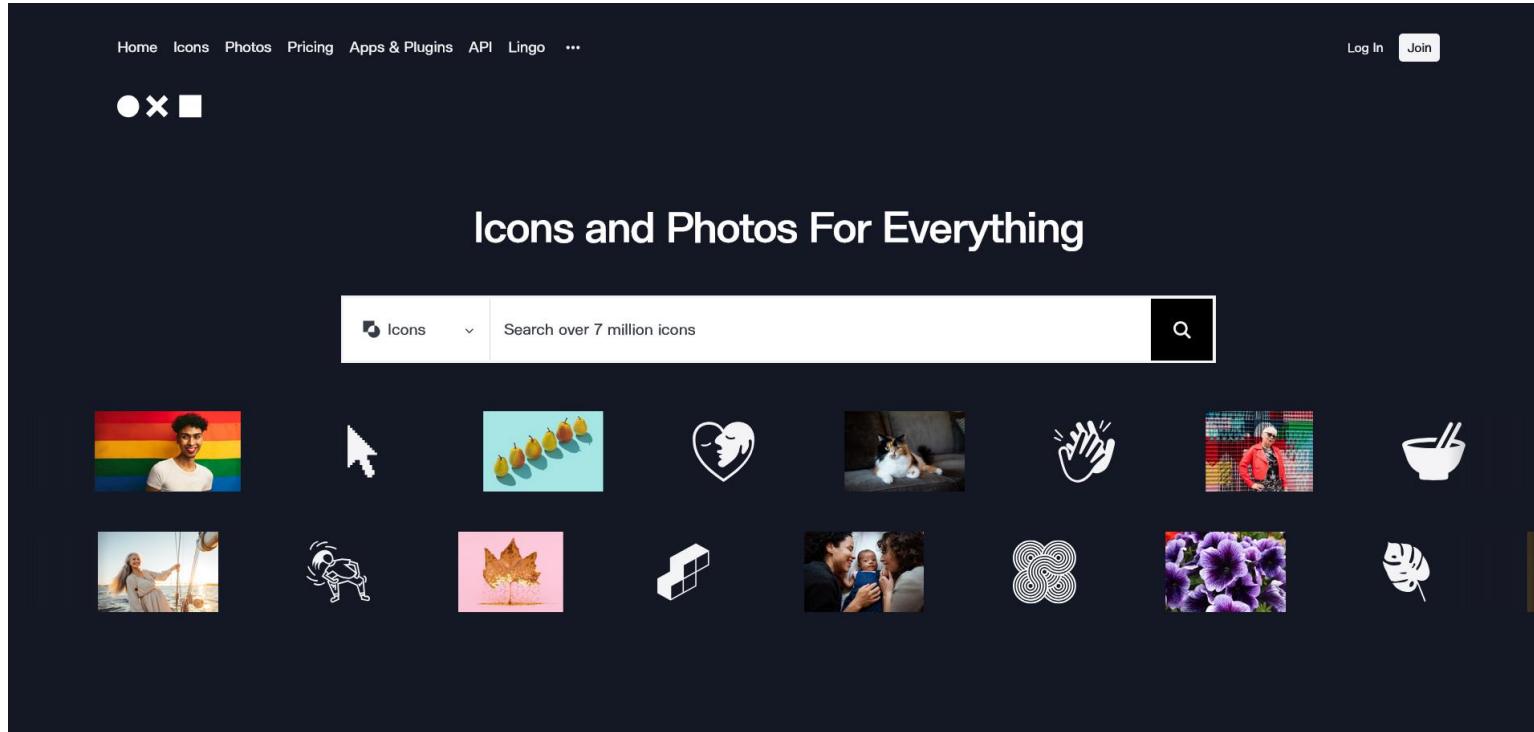


Hipcamp.com: *The visual hierarchy is communicated through font size. The eye is drawn first to the “Find yourself outside” text due to its large, bolded size. This text gives you a general idea of what you can do on this website.*

From <https://www.nngroup.com/>

Creating a Visual Hierarchy: Color / Contrast

- Color and contrast is a good way to make some elements appear in advance while others recede



In thenounproject.com, attention is drawn to the search field both because of its size and because of its high contrast w.r.t. the dark background.

Creating a Visual Hierarchy: Grouping

- Implicit and explicit groupings help us see the bones or the structure of a layout and allow us to direct attention to those areas of the screen that are likely to be relevant to our goal
- Gestalt principles (proximity, similarity, common region) can help convey groupings
- In the Spotify app (pic from nngroup.com), we immediately see 3 different groupings.

