CHAPTER 4
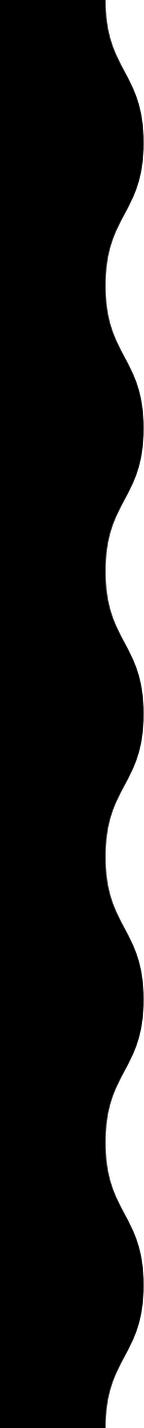## PART 2: STYLE GUIDES

BASIC PRINCIPLES

GRAPHIC DESIGN + SCREEN LAYOUT + LANGUAGE

COLORS: RECOMMENDATIONS

- The idea of color coding is to associate a precise and uniform meaning with each color in the interface for the entire application.

- **Recommendations**

- The user should be able to name the colors used.

- Do not use color; design first in black and white.

- Avoid brown and green backgrounds (Mayhew 1992, Götz 1998). Use a neutral, light color for the screen background.

- Add color only when it is useful for a function or provides an aesthetic benefit.

COLORS: RECOMMENDATIONS

- Avoid saturated blue for critical displays, text, or small objects. Prefer using blue for borders.

- Limit the number of colors to favor discrimination: a maximum of 4 in a display and 7±2 across the entire interface.

- Use the same color for the same type of information;

- Use contrasting colors to express a difference;

- Choose low-contrast colors to express a similarity;

COLOR CODE

- White / Black: Fundamental colors

- Red: Alarms or errors; Stop

- Yellow: Warnings or data requiring attention

- Green: Normal/OK, Base color if white is too bright

- Saturated Blue: Low emphasis. Do not use for critical data

- Pink (Magenta): Secondary alarm color, data differentiation

COLOR CODE

Avoid certain color combinations

White on yellow is difficult to read

White on black is easy to read

Red on blue is difficult to read

Blue on red is difficult to read

Green on pink is difficult to read

Pink on green is difficult to read

But saturation and luminance also play a role

But saturation and luminance also play a role

Le blanc sur jaune

Le blanc sur noir

Le rouge sur bleu

Le bleu sur rouge

Le vert sur rose e

Le rose sur vert e

Mais la saturation et la lu
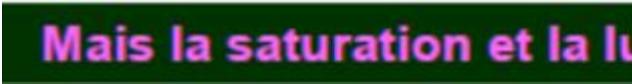
Mais la saturation et la lu

2 TEXT DISPLAY

❑ Avoid, except in special cases (highlighting an element), italic fonts.

Avoid at all costs an inclination greater than 45∘.

Éviter à tout prix une inclinaison supérieure à 45°

❑ Limit capital letters to isolated words or short titles; uppercase is less

readable than lowercase.

❑ Left-align text (Western culture). Full justification creates variable-length

spaces that hinder reading.

Les petits ruisseaux font les grandes rivières

LES PETITS RUISSEAUX FONT LES GRANDES RIVIERES

2 TEXT DISPLAY

L'interface Homme-machine étudie la façon dont les humains interagissent avec les ordinateurs ou entre eux à l'aide d'ordinateurs, ainsi que la façon de concevoir des systèmes informatiques qui soient ergonomiques, c'est-à-dire efficaces, faciles à utiliser ou plus généralement adaptés à leur contexte d'utilisation.

L'INTERFACE HOMME-MACHINE ÉTUDIE LA FAÇON DONT LES HUMAINS INTERAGISSENT AVEC LES ORDINATEURS OU ENTRE EUX À L'AIDE D'ORDINATEURS, AINSI QUE LA FAÇON DE CONCEVOIR DES SYSTÈMES INFORMATIQUES QUI SOIENT ERGONOMIQUES, C'EST-À-DIRE EFFICACES, FACILES À UTILISER...

un texte écrit en minuscules se lit beaucoup plus vite qu'un texte en majuscules. La vitesse de lecture en majuscules a été estimée 13% plus lente qu'en minuscules, ceci provenant d'une différentiation plus forte des minuscules que des majuscules. Estimation faite par Tullis en 1988. De même, la lecture d'un texte est améliorée si la longueur d'une ligne est supérieure à 26 caractères.(longueur conseillée 50 à 55 caractères ou doubles colonnes de 30à 35 car)
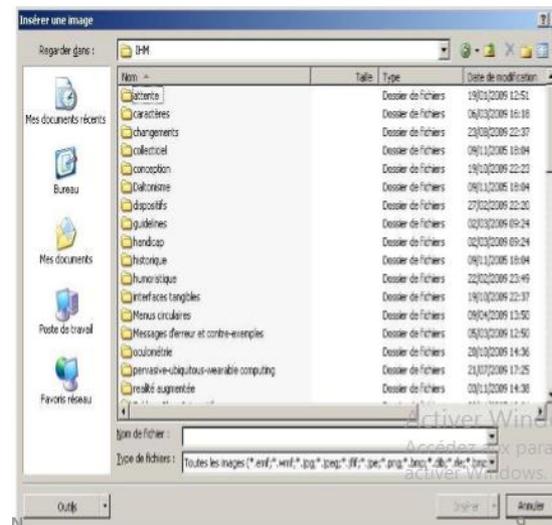
➜ **Do not underline long texts, this reduces readability.**
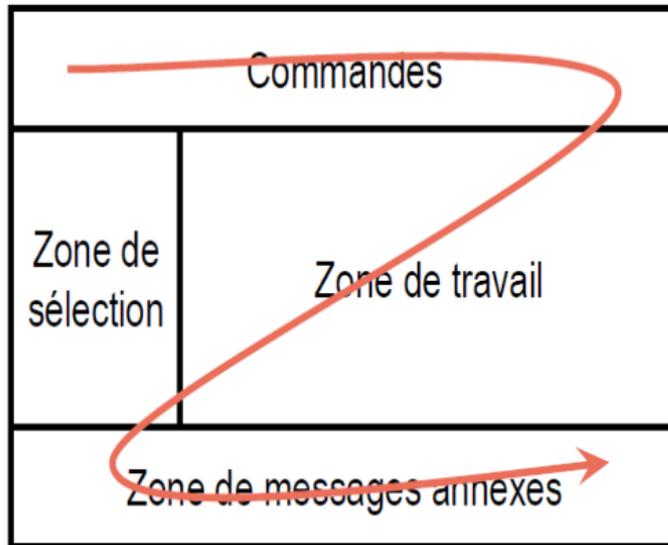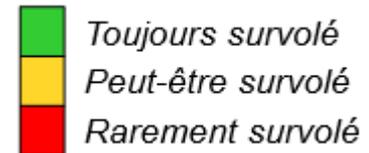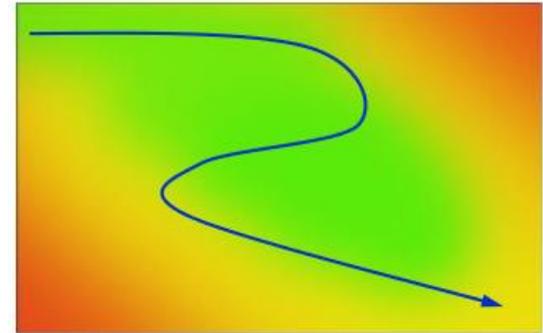
2 TEXT DISPLAY

Font Size:

*Minimum size: 8 points; characters smaller than that are almost unreadable;

*Maximum size: 16 points; using larger characters hinders readability.

Font Type:

*Choose the font type based on readability criteria (avoid italics).

*Avoid using more than three different font types in the same window or across multiple windows displayed simultaneously.

*Assign a specific role to each font (title, paragraph, boxed text, etc.)

3. SCREEN READING

- The user adopts a Z-pattern strategy (rapid exploration)

- Then: selective scanning.

- Best visibility and accessibility at the center of the screen.

Toujours survolé
Peut-être survolé
Rarement survolé

Commandes

Zone de sélection

Zone de travail

Zone de messages annexes

4. EYE MOVEMENT

- Naturally, eye movement is strongly influenced by the content and the formatting elements of the interface.

- **Images** attract more visual focus than text.

- **Highlighting** (element size, color, frame, blinking, contrast, etc.)

- The **layout** of information and their **grouping**

5 VISIBILITY / ACCESSIBILITY

- The visibility and accessibility of screen areas are also points to consider when designing interfaces.

For interfaces used with a mouse (or other pointing device), areas near the corners are considered more difficult to reach (the movement is more constrained).

Très visible Peu accessible	Très visible Bien accessible	Assez bien visible Peu accessible
Bien visible Bien accessible	Zone la plus visible Zone la plus accessible	Très visible Bien accessible
Pas très visible Peu accessible	Peu visible Peu accessible	Peu visible Peu accessible

SCREEN TEMPLATE

❑An important point to consider in the design phase is interface consistency (Element positioning, Graphics (colors, size, fonts, symbols), Behavior)

❑To ensure this consistency, **screen templates** are used, which specify the general layout of content and controls for the different types of windows or pages in the application.

❑Example:

Logo	Bandeau publicitaire	
	Fil d'Ariane	
Menu	Caractéristique du produit	Photo du produit
Téléchar-gements docum.	Avantages du produit	Prix
Pied de page (contacts, conditions générales, etc.)		
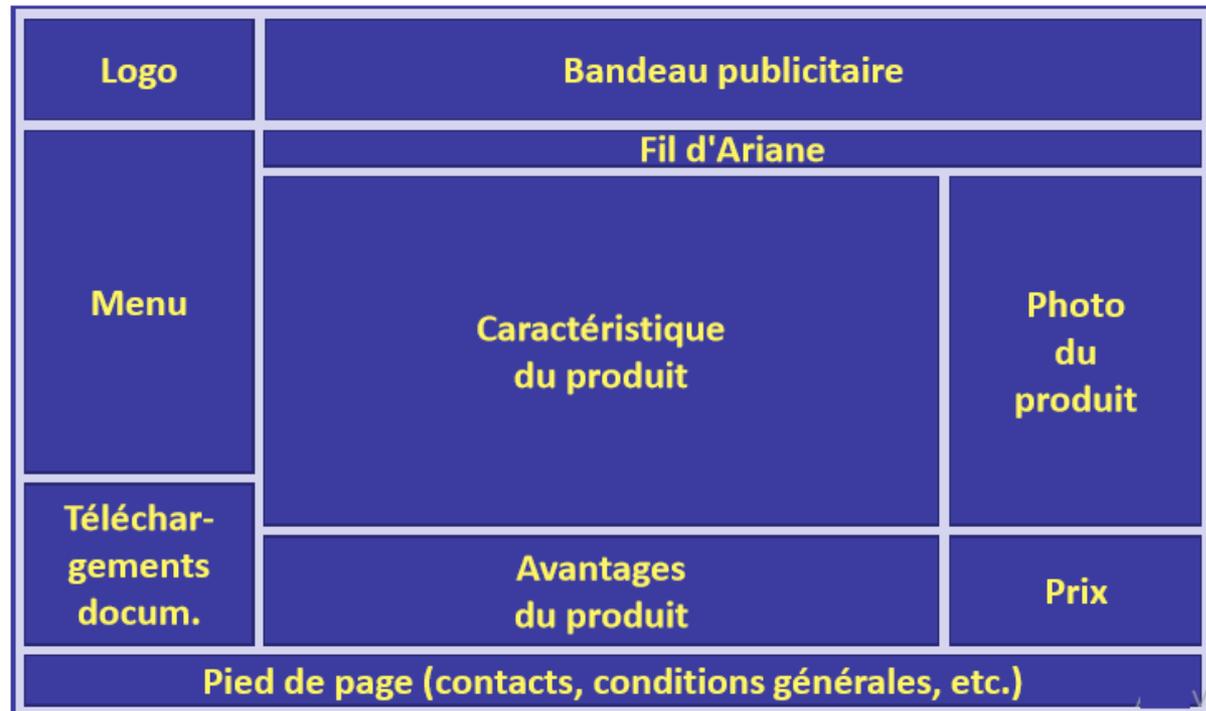
SCREEN TEMPLATE

❑Screen templates can be defined with different levels of detail.
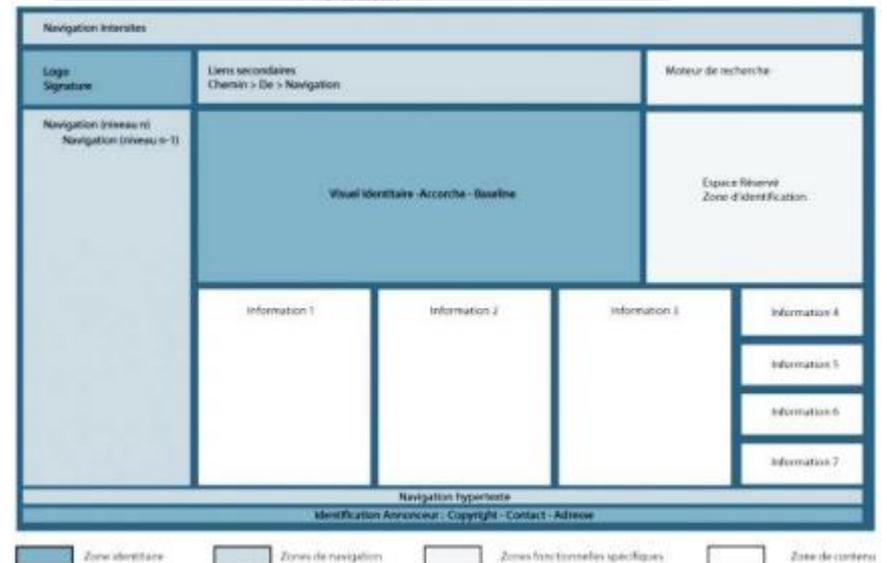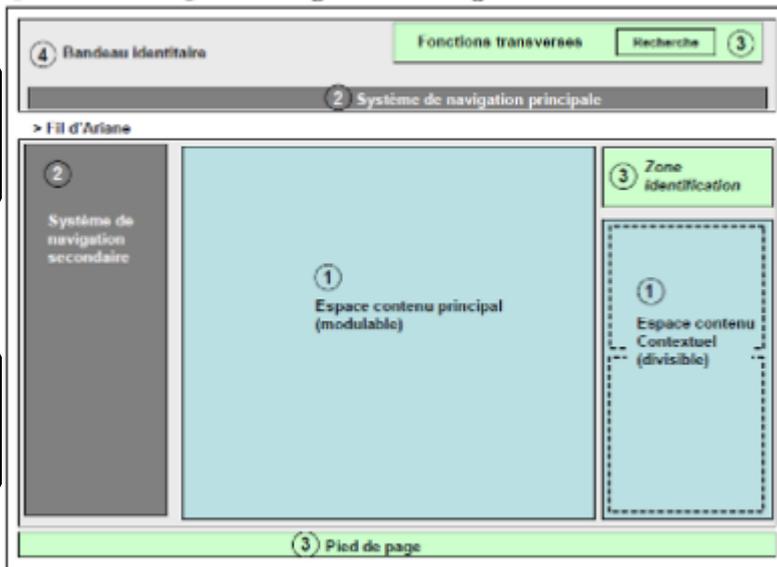
GRAPHIC CHARTER

❑Screen templates are often part of a graphic charter that defines a set of elements aimed at ensuring consistency across all views of an application, web pages of a site, etc.

❑The graphic charter will also define:
- The fonts to be used
- The size of elements
- The color palette to be used (color coding)
- The icon design style (or an icon palette)
- Spacing and margins (between and around elements)
- Text alignment
- Textures, background images
- Shadows
- Borders
- …

MANIPULATION AREAS

In the manipulation areas of interfaces, it is recommended to arrange, in the reading direction:

- Important elements first

- Frequently used commands next

- Other elements at the end

Barre de menus :

Commandes importantes	Commandes fréquemment utilisées	Commandes annexes

Palette d'outils :
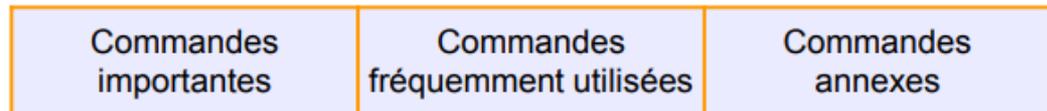
Outils importants
Outils fréquemment utilisés
Outils annexes
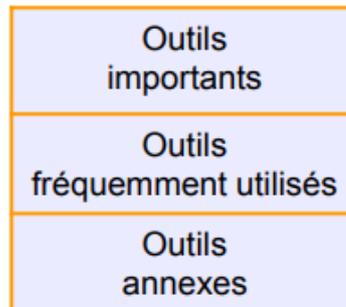
Sens de lecture

SCREEN ORGANIZATION

Text: 3 types

- **Messages**:
    - Brief and concise, adapted to the user's level
    - Affirmative in form
    - Constructive rather than critical
    - Placing the user in a position of control
    - If an action is indicated, use words consistent with the action

- **Prompts (short indications)**
    - Well located and adapted to the user's level
    - Grammatically simple (active, affirmative form)
    - Order of use
    - Well arranged
    - Consistent terminology

- **Instructions (more complex indications)**
Text: simple and clear

SCREEN ORGANIZATION

- **Numbers:**

  - Integers: right-aligned

  - Decimals: aligned on the decimal point

  - Avoid non-significant zeros

  - Split numbers into groups of 3 or 4 digits with usual separators (space, hyphen, US comma)

- **Coding techniques, found on workstations:**

  - Blinking, bold, reverse video, size, font, underline, shapes, special characters and icons, framing, sound, and color

  - These techniques attract the user's eye attention, but overusing them makes the expected effect disappear.

LANGUAGE USED

- Use the user's language

- Avoid abbreviations

- Produce messages:

- ✔ **Concise**
  ✔ **Consistent**
  ✔ **Explicit**

HIGHLIGHTING

Among the main highlighting techniques, we can mention:

- **Blinking / Animations**

    - Attracts attention even in the peripheral vision area

    - High perceptual load (disturbing)

    - Reserved for important stimuli (emergencies)

- **Reverse Video / Highlighting**

    d'arrière-plan

    - Swapping foreground and background colors, classic for indicating the selected line in a list

    - Can reduce text readability

    - Highlighting is often preferable to pure inversion

- **Text attributes**: **bold,** *italic*, <u>underline</u>, shadow

HIGHLIGHTING

- **Font Type**

  Useful for long texts (paragraphs)

  Impact depends on font choice

- **Color**

  Be consistent in its use (color coding)

  Limit the number of colors used

  Use distinguishable (nameable) colors

  For important highlighting, combine with another technique (consider color-blind users)

- **Element size** (text, icon, image, ...)

  Structuring: titles, subtitles, paragraphs, captions, ...

  Icons: reserved for specific situations

HIGHLIGHTING

- **Framing** (borders)
  Purpose: group information and focus the gaze
  Use thin lines or pastel colors (avoid the "funeral notice" effect)
  Limit nesting

- **Bullet points**
  Highlight lines of text (like the one you are reading now)
  Attract the eye to visual 'entry points'
  Allow numbering of points (facilitating referencing)

- **Sound**
  Extremely effective alert method (especially if continuous or repetitive)
  Reserved for important highlighting (critical systems)
  Spoken text can contain more information
  Use sparingly

HIGHLIGHTING

- **Proximity**
  Allows highlighting relationships (links) between elements (e.g., label - associated field)
  Poor management can lead to interpretation errors

km départ	Date départ
175	11.02.2015
km arrivée	Date arrivée
390	22.03.2015
km parcourus	Nb jours
215	40

Risque de confusion

km départ	Date départ
175	11.02.2015
km arrivée	Date arrivée
390	22.03.2015
km parcourus	Nb jours
215	40

Nettement préférable
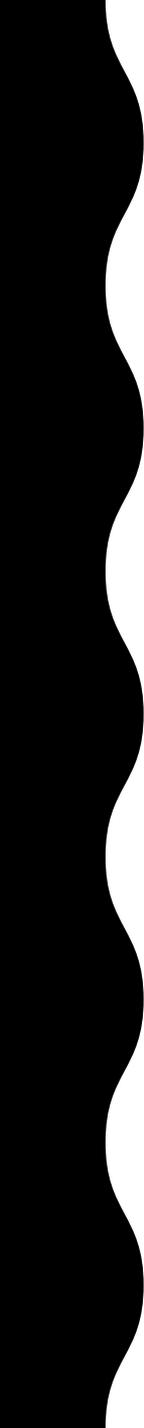
STYLE GUIDES

STYLE GUIDES

- References that must be taken into account when designing interfaces, i.e., they define the appearance of interfaces, but do not contain ergonomic recommendations.

- **WIMP**: Windows, Icons, Menus, Pointers.

1 WINDOW: VOCABULARY
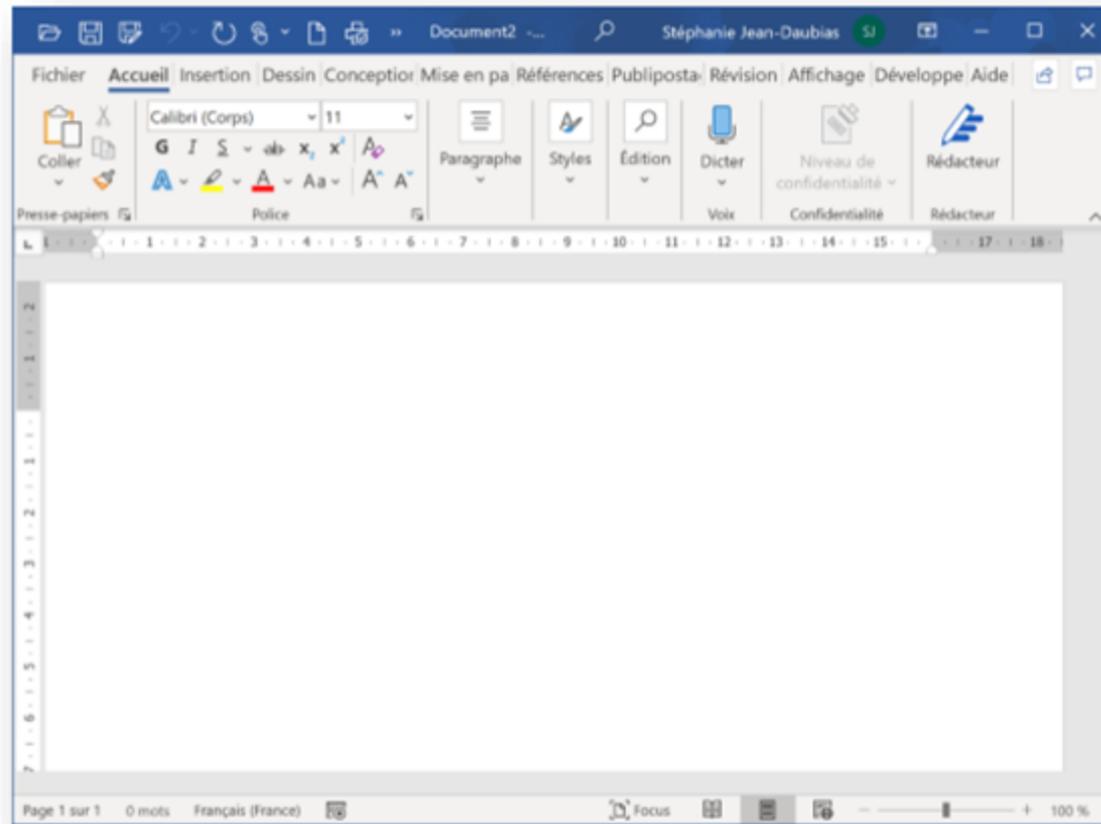
Title bar

Menu bar

Toolbars / Ribbon

State bar

WINDOW: DISPLAY STRATEGY

Multi-windowing

•**Tiled windows (tiling: without overlapping)**

•**Overlapping windows (with superposition)**
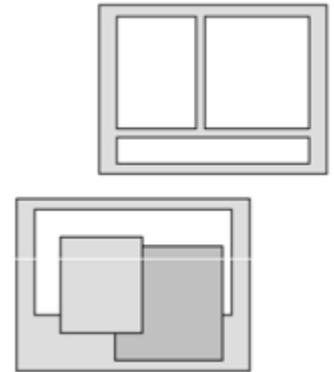
Recommendations

•Allow window overlapping for users with minimal experience;

•Use tiling (mosaic) for novice users as well as for information that must always be visible.

WINDOW TYPES:

- **Application Windows**
    - MDI: Multiple Document Interface
    - 1 unique instance of the application
    - Main window: workspace
    - Child windows: the documents
- **Document Windows**
    - 1 application instance per document
    - Adapted for multi-screen
- **Utility Windows**
    - Floating window
        - Tool palette
        - Floating toolbars
- **Pop-up window (pop-up) initiated by the system**
    - Help bubble / tooltip
    - Contextual information
    - Messages (different types)
    ✓ Question, information, warning, blocking error, progress indication
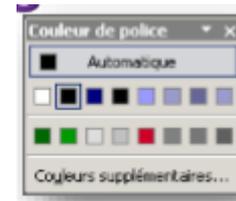
WINDOW: DIALOG BOX

This is a window allowing interaction between the system and the user.
Two types of dialog boxes exist: modal windows and non-modal
windows.

➢ Modal windows: the dialog must be closed to return to the main
window. Windows that take

control of the current page as

long as they are displayed

on the screen, which is

why the dialog box is

movable to allow the user

to see the upstream task.
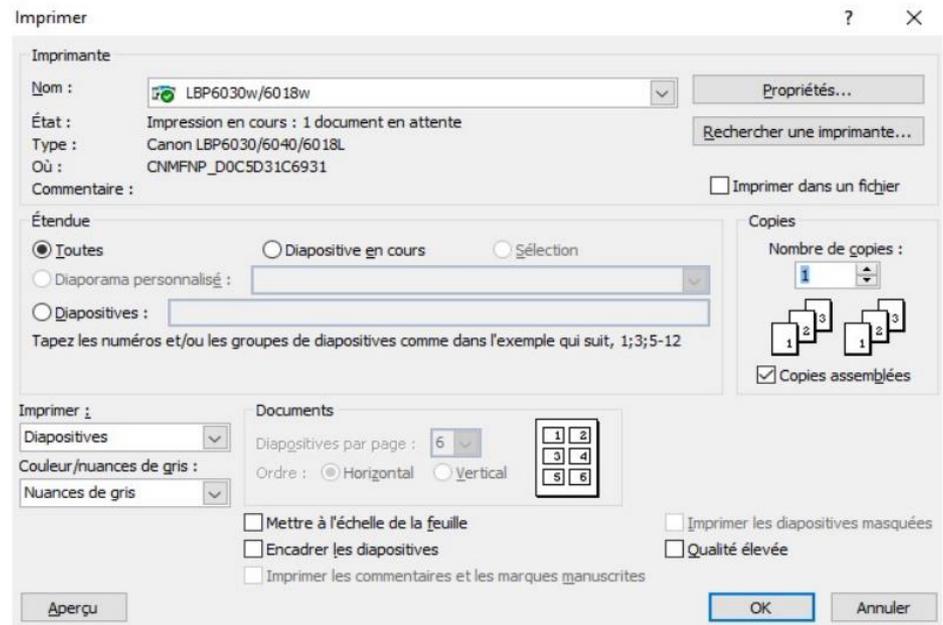
WINDOW: DIALOG BOX

- **Non-modal windows**: opens in parallel with other application windows. Each window remains accessible and usable.
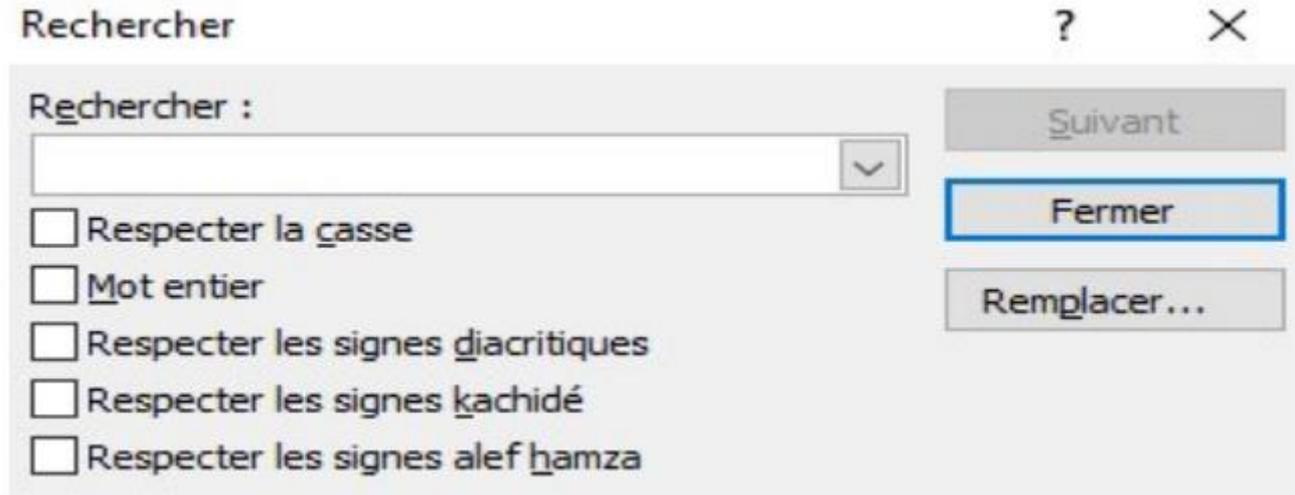
2 ICONS

- Graphics associated with a meaning in the interface, metaphorical representations:

    - **Objects**:

        - Trash, disks

        - Programs

        - Files, folders

    - **Actions**:

        - Save

        - Launch voice recognition

- **Interest**:

    - Quickly identifiable

    - Compact: little space in the interface

ICON CONSTRUCTION

Methodology

1. Identify all commands to be iconified and create them simultaneously;

2. Limit icons to frequent commands;

3. The icons used must be representative of the action or concept to be represented;

4. When an icon is used to represent something, keep it for the entire application;

5. Limit their number (12 ideally, 20 max);

6. Prefer an icon/text association;

7. Group icons by family;

8. Always validate the design through testing.

ICON CONSTRUCTION

Construction Rules

Resemblance	
Descriptive	
Example	
Caricature	
Analogy	
Convention	
Arbitrary	

Interpretation Difficulty
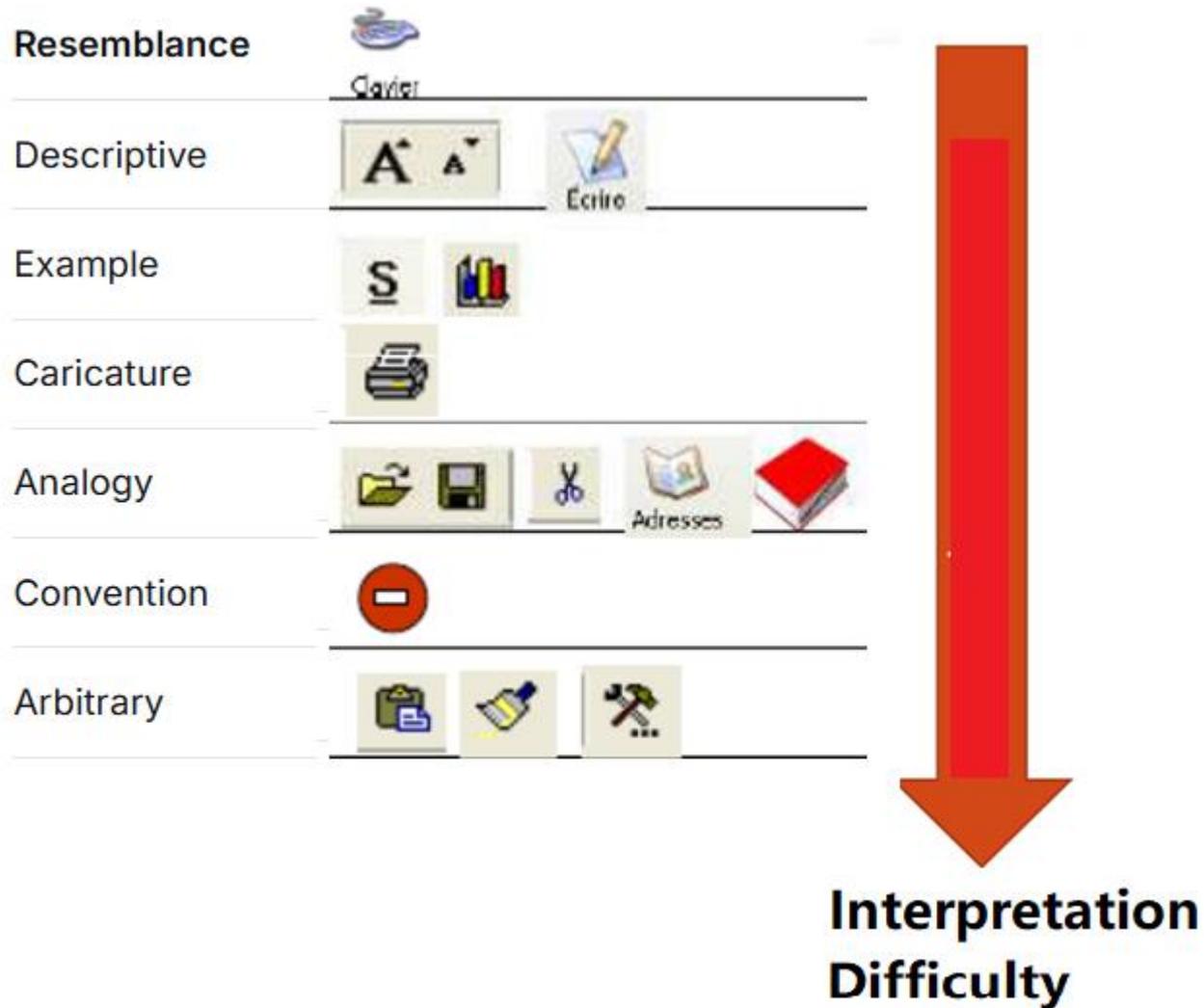
3 MENUS

Definition

•Area where choices are specified to guide the interaction.

•Different types not limited to classic application menus.

Interest

Structure system functionalities following a logical, coherent organization that is easily memorable.

Limitation

•Lack of speed: useful mainly for novice and occasional users;

- Provide shortcuts for experts.

MENUS

Types

➢ Drop-down: from an entry point

➢ Contextual (pop-up)

• From the cursor position

• Possibly circular (pie menu)
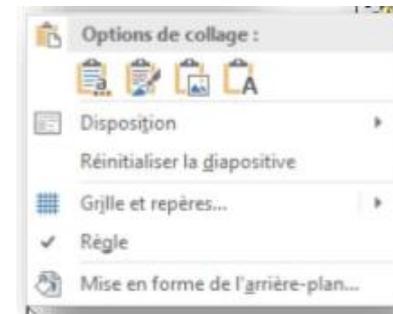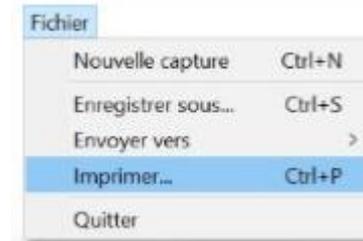
Rules for menus:

• Between 2 and 7 items

• Label with a single word

• Possibility of one-level
  submenus only
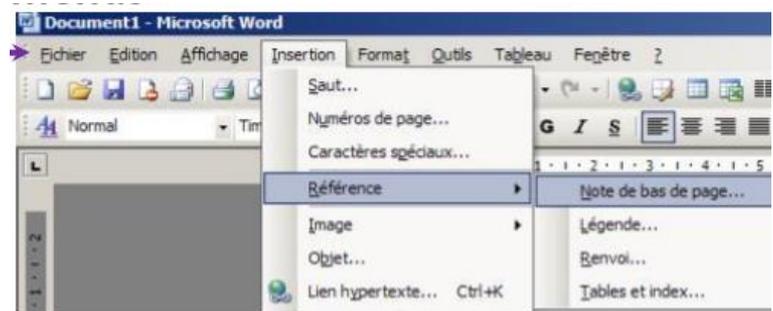
MENUS

Rules for menu items

➢ Limit the number of items to 7±2 (otherwise use another component or different distribution)

➢ Label possible in multiple words (max 4)

➢ Items of the same nature grouped and separated by a horizontal line

➢ Consider: theme, frequency of use, order of use, alphabetical order

➢ Menu items that lead to a dialog followed by …

➢ Grayed out if the action is unavailable,

GENERAL GUIDELINES

• Base menu organization on task semantics;

• Group menus in a coherent manner;

• Prefer wide menus over deep menus;

• A static menu favors learnability vs. dynamic menu;

• A dynamic menu can improve interaction speed;

• Prefer short item names: verbs (actions) or nouns/adjectives (attributes);

• Use nouns as names for submenus;

• Allow shortcuts.

4 POINTERS

- **Cursors**

- Different cursor -> different action

- Positioning

  ✓ Positioning in text

  ✓ Waiting

  ✓ Hyperlink, clickable object

  ✓ Moving
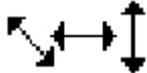
  ✓ Resizing
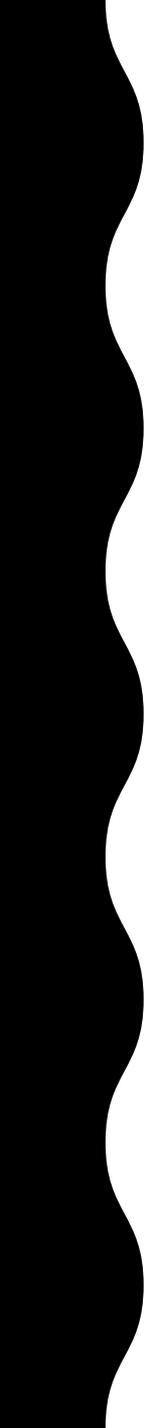
GRAPHICAL INTERACTION TASKS

GRAPHICAL INTERACTION TASKS

- Data Entry.

- Selection.

- Triggering.

- Specification of Arguments and Properties.

- Transformation.

1. DATA ENTRY TASK

- Text entry

  - Text input field

    - (Virtual) keyboard
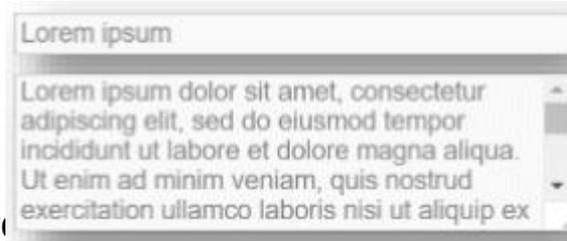
- Numeric value / quantity entry

  - Input field

  - Selector or spinner

    - Mouse/keyboard
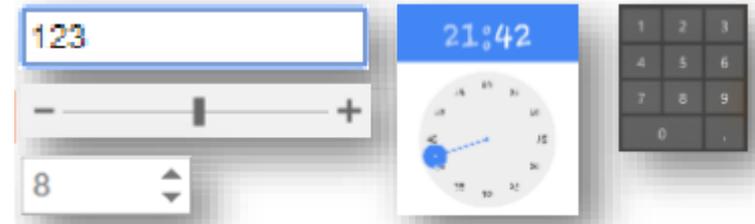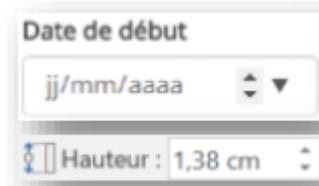
- Attention

  - Associate a label

  - Specify the unit, the format

  - Use default values intelligently
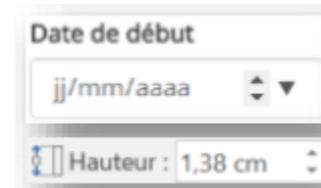
- Position entry, drawing paths

  - Pointing
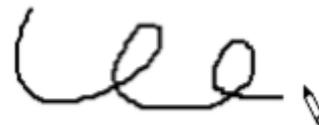
2. SELECTION TASK

☐ Choice of one element from a set

• Radio buttons

• Toggles

• Drop-down list, single selection list
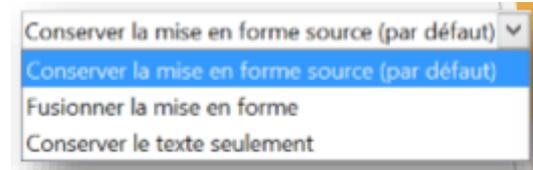
☐ Choice of multiple elements from a set

• Checkboxes

• Multiple selection list (not for general public)

➢ By addition/removal (ctrl)

➢ By range (shift)
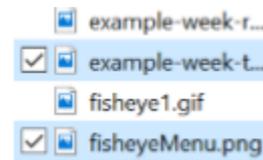
• Dual list (not for general public)

☐ File selection
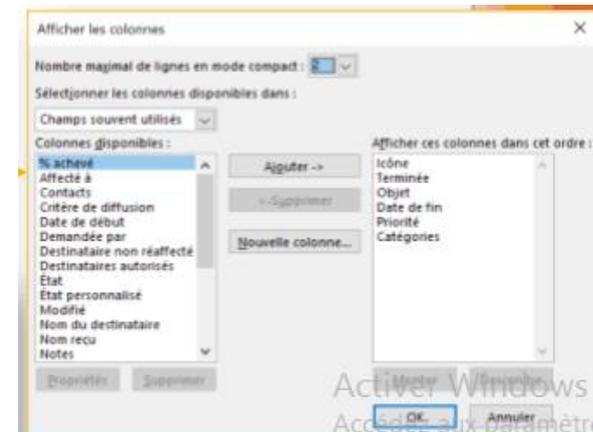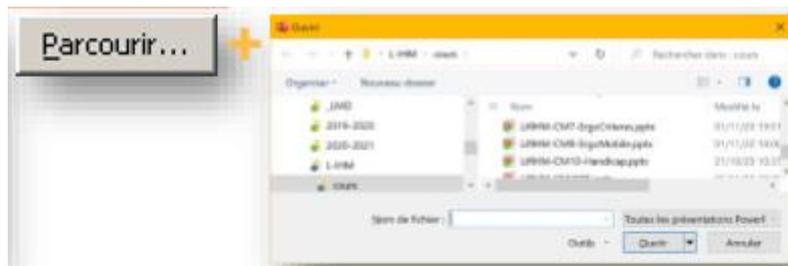
3. TRIGGERING TASK

Buttons

Attention to screen clutter 💬

Menus

If a sufficient number of functionalities

Drag and Drop

Drag - drop, drag - move, drag and drop

The action depends on the source and the destination

Drag and drop a file on the same disk: move

Drag and drop a file on different disks: copy

4. ARGUMENT SPECIFICATION TASK

☐ Argument specification
➢ Dialog boxes
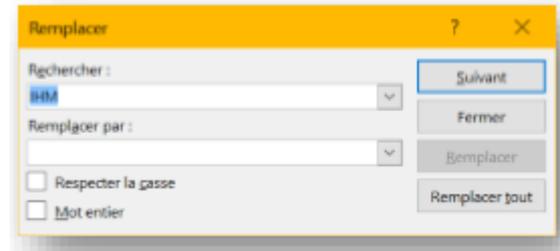
☐ Property boxes
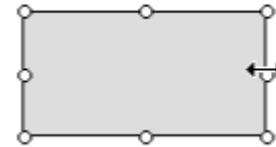➢ Preview of modifications on the object
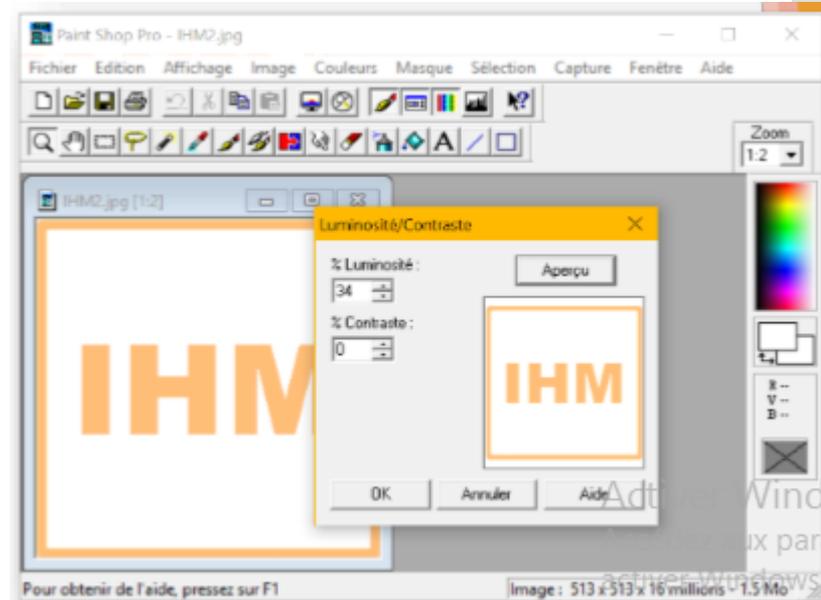
☐ Order specification
➢ Modifiable lists
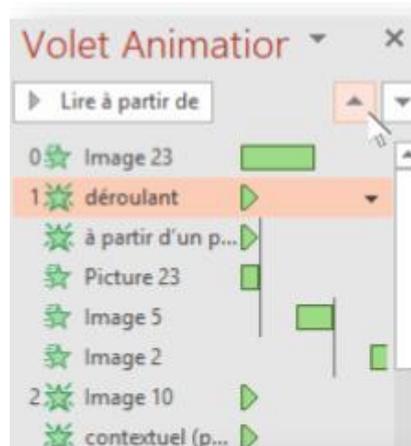
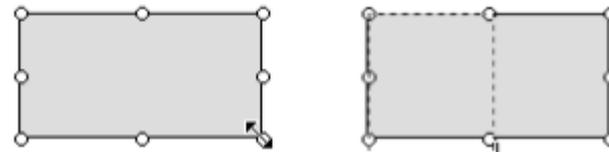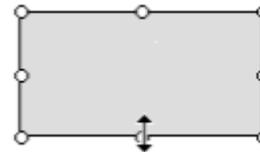# 5. TRANSFORMATION TASK

- Manipulation handles:

    - ➤ Allow resizing (windows, drawings, images).
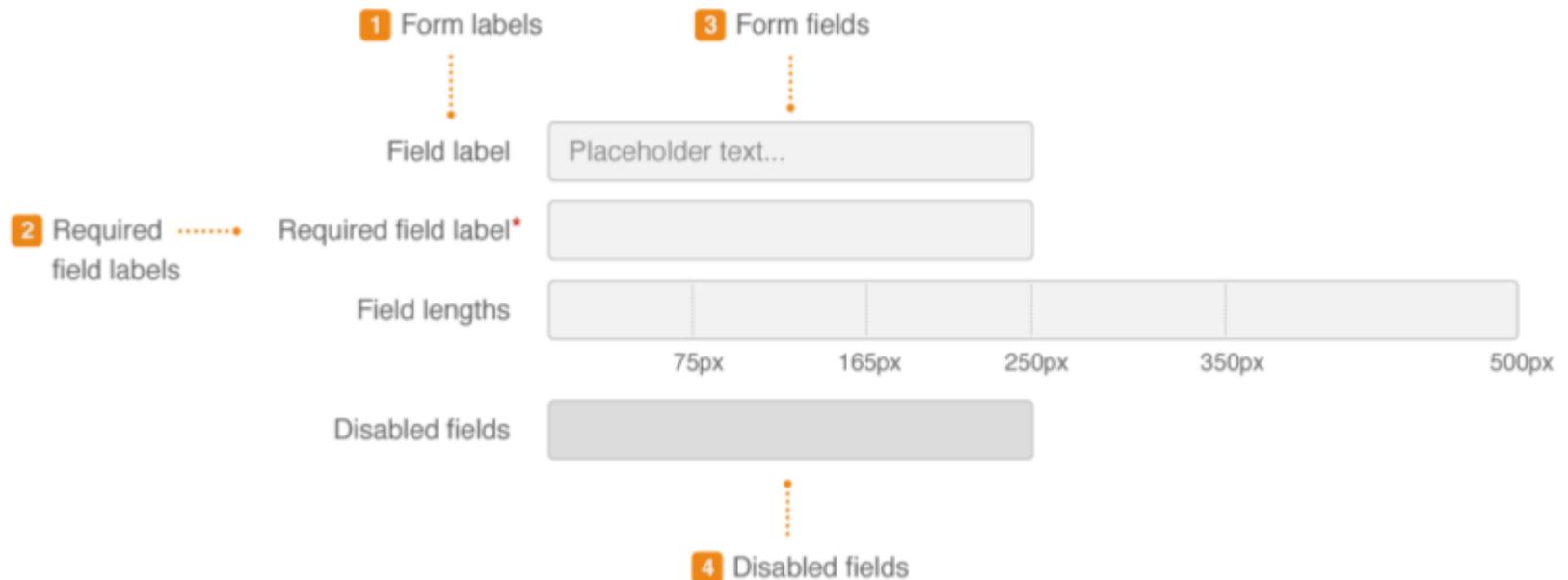
    - ➤ Resizing along an axis:

        - ✓ Horizontal

        - ✓ Vertical

        - ✓ Both axes at once

FORM-BASED INTERFACES

- Classic applications often include "form-based" interfaces composed of labels, text fields, drop-down lists, checkboxes, text areas, etc.

- A recurring question about this type of interface concerns the layout of labels associated with interactive elements.

LABEL LAYOUT

- The classic models for positioning labels relative to the field are:

- Above

![Username field with label above]

- Left, left-aligned

![Username field with left-aligned label]

Left, right-aligned

![Username field with right-aligned label]

- Inside the field

![Username field with label inside]

- As a tooltip (tooltip)

![Username field with tooltip label]

LABEL LAYOUT

- Each of these layouts has advantages and disadvantages depending on the situation (number of fields, screen size, length of labels and fields, etc.).

- As a general rule, avoid labels inside fields and as tooltips. These layouts, on average, have more disadvantages than advantages.

- On small screens, the best layout is often to place the label above the field (it limits horizontal scrolling and remains visible when zooming).

- If the length of the labels is practically identical for all fields, placement above or to the left with left alignment is preferable.

- If the length of the labels is very variable, placement above or to the left with right alignment is preferable.

LABEL LAYOUT

Example:

- The variant with right-aligned labels is preferable in this case (there is too much difference in label length; some labels are a bit too far from the associated field).
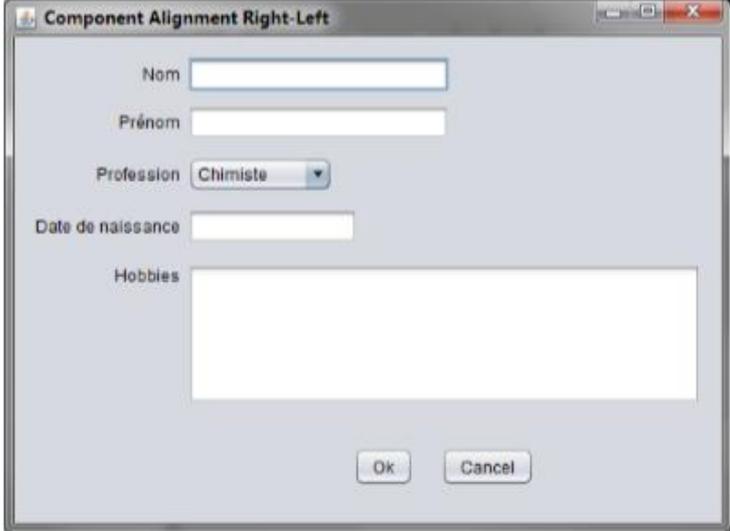

- It is also necessary to ensure a certain consistency in layout between the different views of an application, a website, etc.
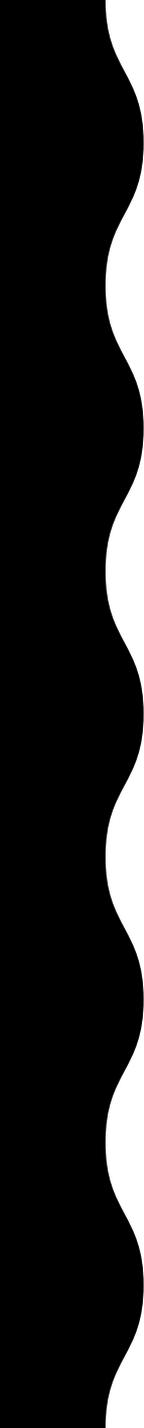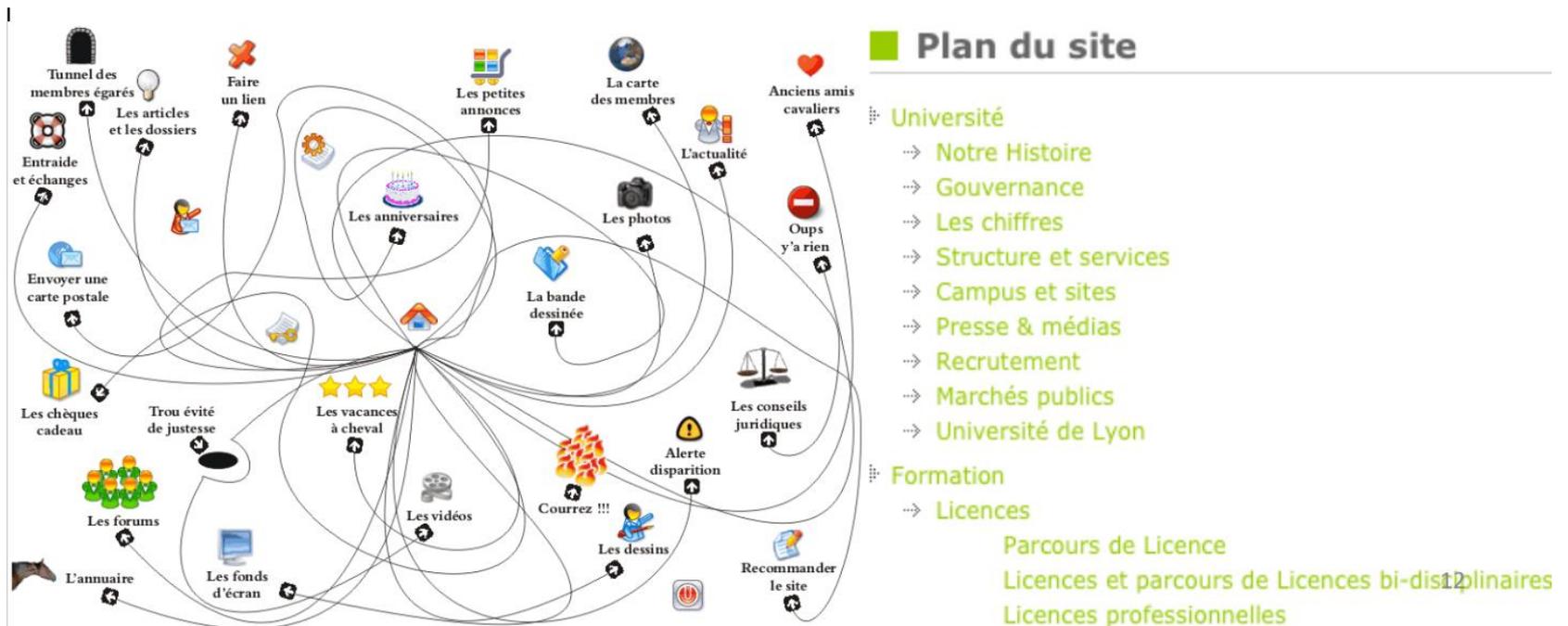
WEB ERGONOMICS

CONCEPT OF A SITE

A set of pages on the same theme, organized in a Tree structure (textual or graphic (map)).

• Homepage: Main entry (but no longer the only one).

• Orientation page: Represents the site's themes

WEB SITE

- A site or website (web site), is a set of web pages and linked resources accessible via the web @.

- A website is hosted on a web server, itself accessible via an internet or intranet network.

- **Note**: - As of June 16, 2020, there were no less than 1.78 billion websites in the world!

THE UNIVERSAL QUALITY OF A SITE

- Universal quality principles can be grouped into three main parts, applying to all websites regardless of:

- **Their theme** (academic, artistic, recreational, economic).

- **Their concept** (amateur/professional, commercial, associative.).

- **Their objective** and the target audience
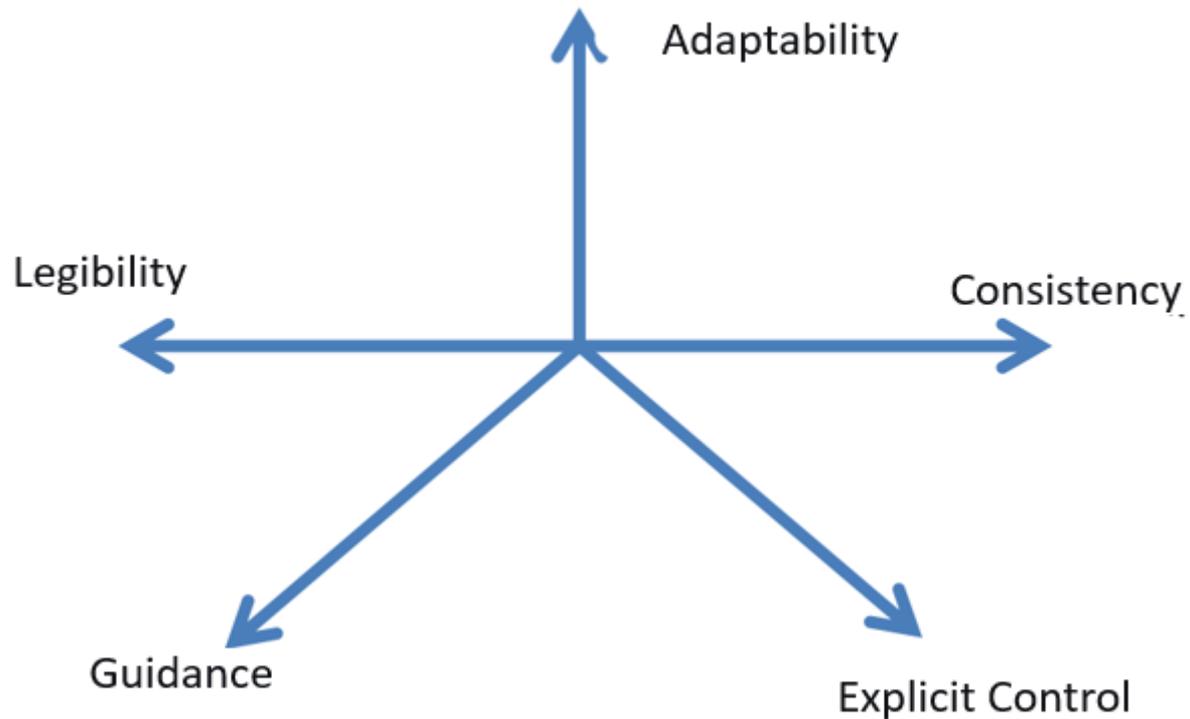
AN ERGONOMIC SITE:

- A site that leads simply and quickly to the sought information. i.e., the ability to effectively meet the expectations of Internet users and provide them with comfortable navigation.

- **Web Ergonomics:**

- Adapt the web user interface to the characteristics of the people who use it:

- Seek adequacy between the users (logic, needs, mental model) and that of the system (context of use).

- Reduce the gap between the **prescribed** (procedures, official functioning) and the **real activity** (strategies actually implemented by Internet users to perform the requested task).

COMMON ERRORS

- **Overload:** Excess of animations or text that affects comprehension.

- **Lack of guidance:** Internet users do not want to have to make extra efforts to understand what the site is, what it is for, how it works, and how to access the content.

- **Link errors:** dead links, broken links, Fake links (leading to an under construction page).

- **Incompatibility:** Site incompatible in terms of hardware, platforms, browsers.
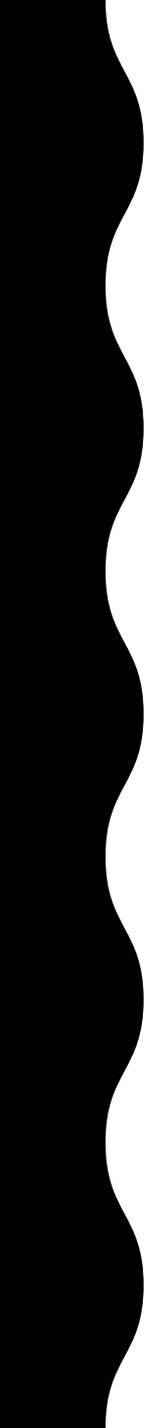
CRITERIA FOR AN ERGONOMIC WEBSITE

- Mnemonic: ACCGL

CRITERIA FOR AN ERGONOMIC WEBSITE

- **Adaptability**: Interface parameterization. – Depending on the activity: notion of role (e.g., secretary, guest...) – Depending on the experience level: beginners (online help, assistants...), experienced (keyboard shortcuts, code entry...). – Depending on preferences: parameterization by the end user.

- **Consistency**: presentation, behavior: - Similar screens, identical vocabulary... - Use metaphors (allusion).

- **Explicit Control**: keep control of the application: – Forgiving interface: change your mind, interrupt a process – Immediate feedback.

- **Legibility**: – Meaningfulness of codes and logos. – Strong structuring of screens – Position and size of elements adapted to the data

- **Guidance / Progressive Disclosure**: – Avoid cluttered screens. – Display only what is useful for the current task. – Favor a succession of steps based on the user's objectives.

THANK YOU FOR YOUR ATTENTION