

Scheme of Evaluation
Internal Assessment Test 3 – January 2024

Sub:	User Interface Design						Code:	18CS734	
Date:	03/1/2024	Duration:	90mins	Max Marks:	50	Sem:	VII	Branch:	ISE

Note: Answer Any five full questions.

Question #		Description	Marks Distribution		Max Marks
1	a)	List and explain in different ways windows are useful. Any six usage	1M*6	6M	10M
1	b)	Describe Joystick with advantages and disadvantages Joystick description Advantages Disadvantages	1M 1.5M 1.5M	4M	
2	a)	Explain following with respect to windows. a) Frame b) Window Sizing Buttons c) Scroll Bars d) Split Box Explanation with neat diagram	2.5M*4	10M	10M
3	a)	How to organize window presentation styles?	2M	2M	10M
3	b)	Draw the styles and explain Explanation with neat diagram Tiled window Overlapping window Cascading window	3M 3M 2M	8M	
4	a)	Explain the Radio Buttons and list Box selection controls Radio buttons Diagram	2M	10M	10M

		Explanation	3M		
		List Box			
		Diagram	2M		
		Explanation	3M		
5	a)	Explain different command button guide lines.			
		Diagram	2M		
		Usage	2M		
		Structure	2M	10M	10M
		Labels	2M		
		Size	2M		
		Location & layout			
6	a)	Discuss the following kinds of tests with suitable examples.			
		Think Aloud Evaluation b) Usability Test	1M		
		a) Think Aloud Evaluation	2M		
		Description	2M		
		Advantages			
		Disadvantages		10M	10M
		b) Usability Test			
		Description	1M		
		Advantages	2M		
		Disadvantages	2M		

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- Q 1. a) a) List and explain in different ways windows are useful.
b) Describe Joystick with advantages and disadvantages

Presentation of Different Levels of Information

Information can be examined in increasing levels of detail. A document table of contents can be presented in a window. A chapter or topic selected from this window can be simultaneously displayed in more detail in an adjoining window. Deeper levels are also possible in additional windows.

Presentation of Multiple Kinds of Information

Variable information needed to complete a task can be displayed simultaneously in adjacent windows. An order-processing system window could collect a customer account number in one window and retrieve the customer's name and shipping address in another window. A third window could collect details of the order, after which another window could present factory availability of and shipping dates for the desired items. Significant windows could remain displayed so that details may be modified as needed prior to order completion. Low inventory levels or delayed shipping dates might require changing the order.

Sequential Presentation of Levels or Kinds of Information

Steps to accomplish a task can be sequentially presented through windows. Successive windows are presented until all the required details are collected. Key windows may remain displayed, but others appear and disappear as necessary. This sequential preparation is especially useful if the information-collection process leads down various paths. An insurance application, for example, will include different types of coverage. A requested type of coverage might necessitate the collection of specific details about that type of coverage. This information can be entered into a window presented to collect the unique data. The windows disappear after data entry, and additional windows appear when needed.

Access to Different Sources of Information

Independent sources of information may have to be accessed at the same time. This information may reside in different host computers, operating systems, applications, files, or areas of the same file. It may be presented on the screen alongside the problem, greatly facilitating its solution. For instance, a writer may have to refer to several parts of a text being written at the same time. Or, a travel agent may have to compare several travel destinations for a particularly demanding client.

)

Combining Multiple Sources of Information

Text from several documents may have to be reviewed and combined into one. Pertinent information is selected from one window and copied into another.

Performing More Than One Task

More than one task can be performed at one time. While waiting for a long, complex procedure to finish, another can be performed. Tasks of higher priority can interrupt less important ones. The interrupted task can then be resumed without the necessity to “close down” and “restart.”

Reminding

Windows can be used to remind the viewer of things likely to be of use in the near future. Examples might be menus of choices available, a history of the path followed or the command choices to that point, or the time of an important meeting.

Monitoring

Changes, both internal and external, can be monitored. Data in one window can be modified and its effect on data in another window can be studied. External events, such as changes in stock prices, out of normal range conditions, or system messages can be watched while another major activity is carried out.

Multiple Representations of the Same Task

The same thing can be looked at in several ways — for example, alternate drafts of a speech, different versions of a screen, or different graphical representations of the same data. A maintenance procedure may be presented in the form of textual steps and illustrated graphically at the same time.

b) Describe Joystick with advantages and disadvantages

Joystick

- **Description:**
 - A stick or bat-shaped device anchored at the bottom.
 - Variable in size, smaller ones being operated by fingers, larger ones requiring the whole hand.
 - Variable in cursor direction movement method, force joysticks respond to pressure; movable ones respond to movement.
 - Variable in degree of movement allowed, from horizontal-vertical only to continuous.
 - **Advantages:**
 - Direct relationship between hand and pointer movement in terms of direction.
 - Does not obscure vision of screen.
 - Does not require additional desk space (if mounted on keyboard).
 - **Disadvantages:**
 - Movement indirect, in plane different from screen.
 - Indirect relationship between hand and pointer in terms of speed and distance.
 - Requires a degree of eye-hand coordination.
 - Requires hand to be removed from keyboard keys.
 - Requires different hand movements to use.
 - Requires hand to be removed from keyboard (if not mounted on keyboard).
 - Requires additional desk space (if not mounted on keyboard).
 - May be fatiguing to use over extended time.
 - May be slow and inaccurate.
-

Q. 2 Explain following with respect to windows.

a) Frame b) Window Sizing Buttons c) Scroll Bars d) Split Box

Components of a Window

A typical window may be composed of up to a dozen or so elements. Some appear on all windows, others only on certain kinds of windows, or under certain conditions. For consistency purposes, these elements should always be located in the same position within a window. Most windowing systems provide consistent locations for elements in their own windows. Some inconsistencies do exist in element locations between different systems, however, as do some differences in what the elements are named, or what graphic images or icons are chosen to identify them. What follows is a description of typical window components and their purposes, with emphasis on the most popular windowing system, *Microsoft Windows*. Specifically reviewed will be primary windows, secondary windows, and a form of secondary window called the dialog box. An illustration of a primary window is found in Figure 5.1. Illustrations of secondary windows and dialog boxes are illustrated in Figures 5.8 and 5.13. How these different types of windows are used will be described in a later section in this step. A summary of window components for these types of windows is also found in Table 5.1.

Frame

A window will have a frame or border, usually rectangular in shape, to define its boundaries and distinguish it from other windows. While a border need not be rectangular, this shape is a preferred shape for most people. Also, textual materials, which are usually read from left to right, fit most efficiently within this structure. The border comprises a line of variable thickness and color. This variation can be used as an aid in identifying the type of window being displayed. Windows filling an entire screen may use the screen edge as the border. If a window is resizable, it may contain control points for sizing it. If the window cannot be resized, the border coincides with the edge of the window.

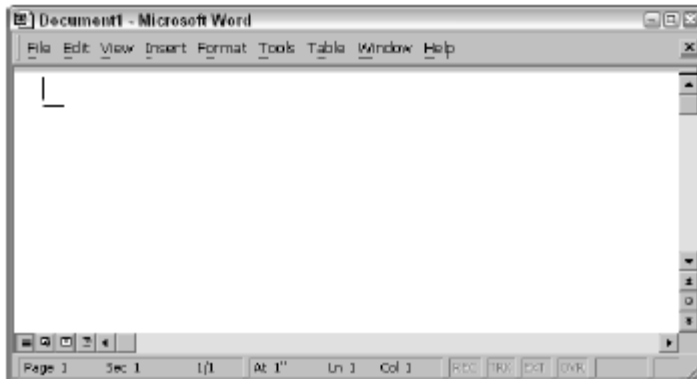


Figure 5.1: Microsoft Windows primary window.

1. Title Bar

The title bar is the top edge of the window, inside its border and extending its entire width. This title bar is also referred to by some platforms as the *caption*, *caption*

bar, or *titlearea*. The title bar contains a descriptive title identifying the purpose or content of the window.

3. Title Bar Icon

Located at the left corner of the title bar in a primary window, this button is used in Windows to retrieve a pull-down menu of commands that apply to the object in the window. It is a 16 × 16 version of the icon of the object being viewed. When clicked with the secondary mouse button, the commands applying to the object are presented. Microsoft suggests that:

- If the window contains a tool or utility (that is, an application that does not create,

load, and save its own data files), a small version of the application's icon should be placed there instead.

- If the application creates, loads, and saves documents or data files and the window represents the view of one of its files, a small version of the icon that represents its document or data file type should be placed there.
- Even if the user has not yet saved the file, display the data file icon rather than the application icon, and again display the data file icon after the user saves the file.

4. Window Sizing Buttons

A window's title bar must have equivalent commands on the pop-up or shortcut menu for that window. When these buttons are displayed, use the following guidelines:

When a window does not support a command, do not display its command button.

The *Close* button always appears as the rightmost button. Leave a gap between it and any other buttons. The *Minimize* button always precedes the *Maximize* button. The *Restore* button always replaces the *Maximize* button or the *Minimize* button when that command is carried out.

Split Box

A window can be split into two or more pieces or panes by manipulating a *split box* located

above a vertical scroll bar or to the left of a horizontal scroll bar. A split box is sometimes

referred to as a *split bar*. A window can be split into two or more separate viewing areas that are called *panes*. Splitting a window permits multiple views of an object. A split window allows the user to: Examine two parts of a document at the same time.

Display different, yet simultaneous, views of the same information.

- Q. 3 a) How to organize window presentation styles?
b) Draw the styles and explain

Window Presentation Styles

The presentation style of a window refers to its spatial relationship to other windows. There are two basic styles, commonly called tiled or overlapping.

I) Tiled Windows



Figure 5.4 Tiled windows.

Tiled windows, the first and oldest kind of window, are felt to have these **advantages**:

- The system usually allocates and positions windows for the user, eliminating the necessity to make positioning decisions.
- Open windows are always visible, eliminating the possibility of them being lost and forgotten.
- Every window is always completely visible, eliminating the possibility of information being hidden.
- They are perceived as less complex than overlapping windows, possibly because there are fewer management operations or they seem less “magical.”
- They are easier, according to studies, for novice or inexperienced people to learn and use.
- They yield better user performance for tasks where the data requires little window manipulation to complete the task.

Perceived **disadvantages** include the following:

- Only a limited number can be displayed in the screen area available.
- As windows are opened or closed, existing windows change in size. This can be annoying.
- As windows change in size or position, the movement can be disconcerting.
- As the number of displayed windows increases, each window can get very tiny.
- The changes in sizes and locations made by the system are difficult to predict.
- The configuration of windows provided by the system may not meet the user’s needs.
- They are perceived as crowded and more visually complex because window borders are flush against one another, and they fill up the whole screen. Crowding is accentuated if borders contain scroll bars or control icons. Viewer attention may be drawn to the border, not the data.

- They permit less user control because the system actively manages the windows.

II) Overlapping Windows

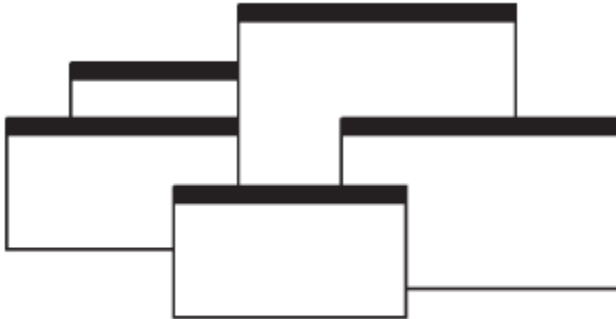


Figure 5.5 Overlapping windows.

Overlapping windows, illustrated in Figure 5.5, may be placed on top of one another like papers on a desk. They possess a three-dimensional quality, appearing to lie on different planes.

They have the following **advantages**:

- Visually, their look is three-dimensional, resembling the desktop that is familiar to the user.
- Greater control allows the user to organize the windows to meet his or her needs.
- Windows can maintain larger sizes.
- Windows can maintain consistent sizes.
- Windows can maintain consistent positions.
- Screen space conservation is not a problem, because windows can be placed on top of one another.
- There is less pressure to close or delete windows no longer needed.
- The possibility exists for less visual crowding and complexity. Larger borders can be maintained around window information, and the window is more clearly set off against its background. Windows can also be expanded to fill the entire display.
- They yield better user performance for tasks where the data requires much window manipulation to complete the task.

Disadvantages include the following:

- They are operationally much more complex than tiled windows. More control functions require greater user attention and manipulation.
- Information in windows can be obscured behind other windows.
- Windows themselves can be lost behind other windows and be presumed not to exist.
- That overlapping windows represent a three-dimensional space is not always realized by the user.
- Control freedom increases the possibility for greater visual complexity and crowding. Too many windows, or improper offsetting, can be visually overwhelming.

III) Cascading Windows

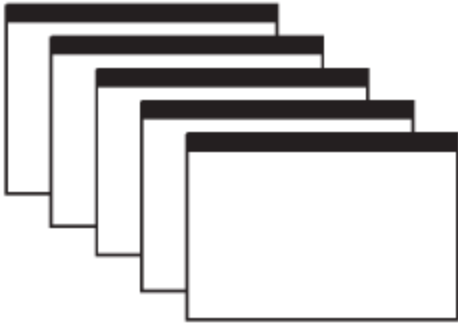


Figure 5.6 Cascading windows.

A special type of overlapping window has the windows automatically arranged in a regular progression.

Advantages of this approach include the following:

- No window is ever completely hidden.
- Bringing any window to the front is easier.
- It provides simplicity in visual presentation and cleanliness.

IV) Picking a Presentation Style

■ Use tiled windows for:

- Single-task activities.
- Data that needs to be seen simultaneously.
- Tasks requiring little window manipulation.
- Novice or inexperienced users.

■ Use overlapping windows for:

- Switching between tasks.
- Tasks necessitating a greater amount of window manipulation.
- Expert or experienced users.
- Unpredictable display contents.

Tiled windows. Tiled windows seem to be better for single-task activities and data that must be seen simultaneously. A study found that tasks requiring little window manipulation were carried out faster using tiled windows. They also found that novice users performed better with tiled windows, regardless of the task.

Overlapping windows. Overlapping windows seem to be better for situations that necessitate switching between tasks. A research study concluded that tasks requiring much window manipulation could be performed faster with overlapping windows but only if user window expertise existed. For novice users, tasks requiring much window manipulation were carried out faster with tiled windows. Therefore, the advantage to overlapping windows comes only after a certain level of expertise is achieved. Overlapping windows are the preferred presentation scheme.

Q. 4 a) Explain the Radio Buttons and list Box selection controls.

Selection Controls

A selection control presents on the screen all the possible alternatives, conditions, or choices that may exist for an entity, property, or value. The relevant item or items are selected from those displayed. Some selection controls present all the alternatives together, visibly on a screen; others may require an action to retrieve the entire listing and/ or scrolling to view all the alternatives. Selection controls include

1. radio buttons
2. check boxes
3. list boxes
4. drop-down / pop-up list boxes
5. palettes

1. Radio Buttons

■ Description:

— A two-part control consisting of the following:

- Small circles, diamonds, or rectangles.
 - Choice descriptions.
- When a choice is selected:
- The option is highlighted.
 - Any existing choice is automatically unhighlighted and deselected.

■ Purpose:

— To set one item from a small set of mutually exclusive options (2 to 8).

■ Advantages:

- Easy-to-access choices.
- Easy-to-compare choices.
- Preferred by users.

■ Disadvantages:

- Consume screen space.
- Limited number of choices.

■ Proper usage:

- For setting attributes, properties, or values.
- For mutually exclusive choices (that is, only one can be selected).
- Where adequate screen space is available.
- Most useful for data and choices that are:
 - Discrete.
 - Small and fixed in number.
 - Not easily remembered.
 - In need of a textual description to meaningfully describe the alternatives.

- Most easily understood when the alternatives can be seen together and compared to one another.
- Never changed in content.
- Do not use:
 - For commands.
 - Singly to indicate the presence or absence of a state.

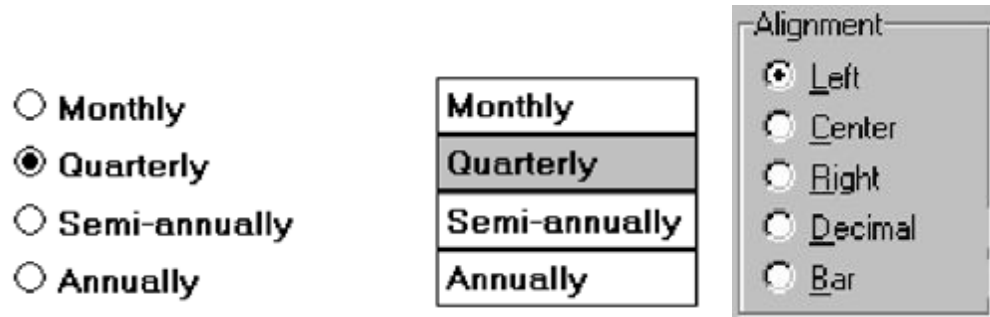


Fig : Radio Buttons

Choice Descriptions

- Provide meaningful, fully spelled-out choice descriptions clearly describing the values or effects set by the radio buttons.
- Display in a single line of text.
- Display using mixed-case letters, using the sentence style.
- Position descriptions to the right of the button. Separate them by at least one space from the button.
- When a choice is conditionally unavailable for selection, display the choice description grayed out or dimmed.
- Include a None choice if it adds clarity.

Size

- Show a minimum of two choices, a maximum of eight.

Defaults

- When the control possesses a state or affect that has been predetermined to have a higher probability of selection than the others, designate it as the default and display its button filled in.

- When the control includes choices whose states cannot be predetermined, display all the buttons without setting a dot, or in the *indeterminate* state.
- When a multiple selection includes choices whose states vary, display the buttons in another unique manner, or in the *mixed value* state.

Structure

- A columnar orientation is the preferred manner of presentation.
- Left-align the buttons and choice descriptions.

Red
 Yellow
 Green
 Blue

- If vertical space on the screen is limited, orient the buttons horizontally.
- Provide adequate separation between choices so that the buttons are associated with the proper description.
— A distance equal to three spaces is usually sufficient.

Green Blue Yellow Red

- Enclose the buttons in a border to visually strengthen the relationship they possess.

Red
 Yellow
 Green
 Blue

Green Blue Yellow Red

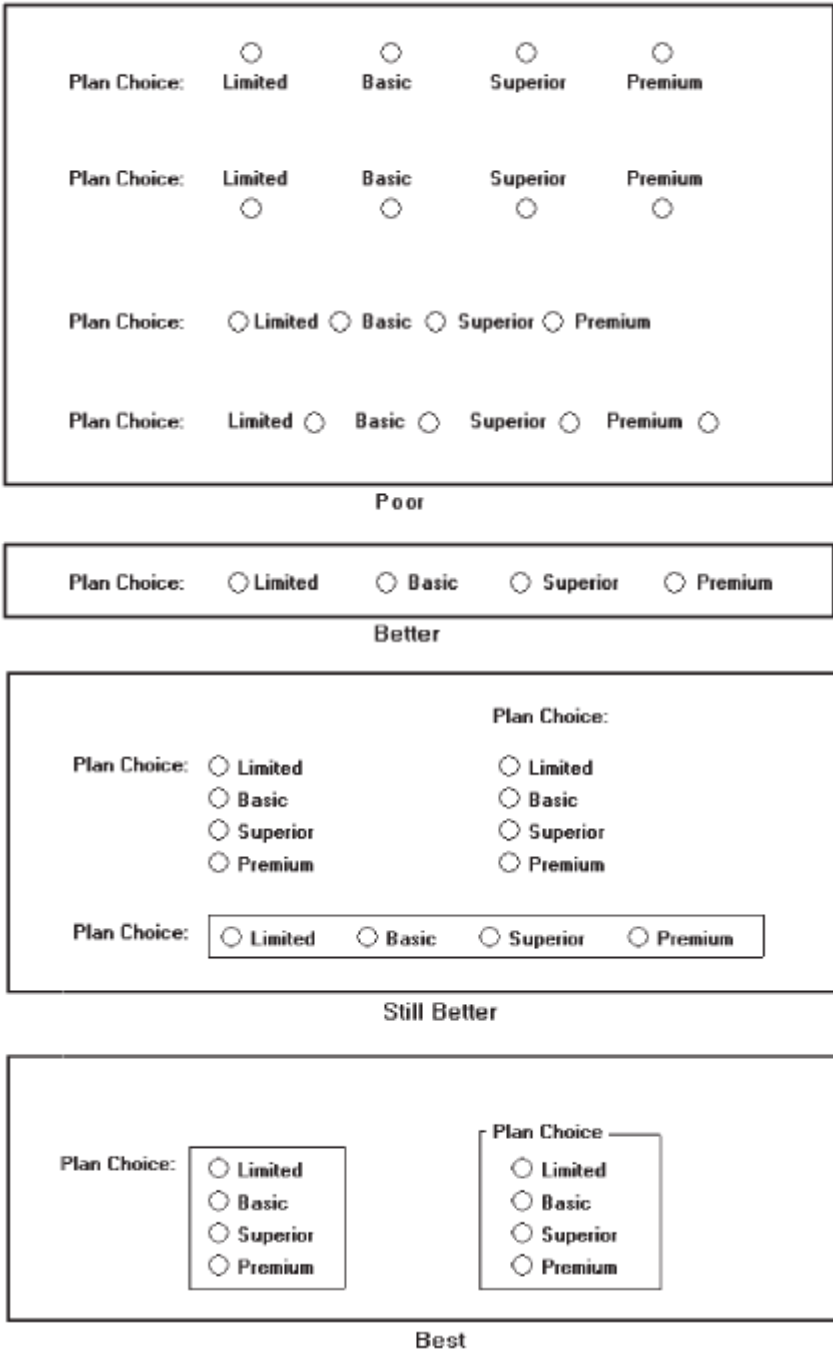


Fig :Ways to, and not to, present radio buttons.

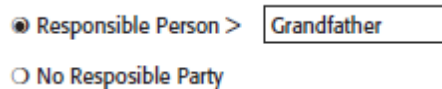
Organization

- Arrange selections in expected order or follow other patterns such as frequency of occurrence, sequence of use, or importance.
- For selections arrayed top to bottom, begin ordering at the top.
- For selections arrayed left to right, begin ordering at the left.

- If, under certain conditions, a choice is not available, display it subdued or less brightly than the available choices.

Related Control

- Position any control related to a radio button immediately to the right of the choice description.
- If the radio button choice description also acts as the label for the control that follows it, end the label with an arrow (>).

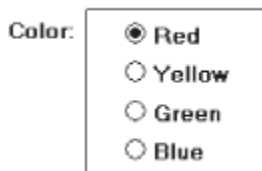


Captions

- Structure:
 - Provide a caption for each radio button control.
 - Exception: In screens containing only one radio button control, the screen title may serve as the caption.
- Display:
 - Fully spelled out.
 - In mixed-case letters, capitalizing the first letter of all significant words.
- Columnar orientation:
 - With a control border, position the caption:
 - Upper-left-justified within the border.



- Alternately, the caption may be located to the left of the topmost choice description.



- Without an enclosing control border, position the caption:
 - Left-justified above the choice descriptions, separated by one space line.

Color:

- Red
- Yellow
- Green
- Blue

- Alternately, the caption may be located to the left of the topmost choice description.

Color: Red
 Yellow
 Green
 Blue

■ Horizontal orientation:

- Position the caption to the left of the choice descriptions.

Color: Green Blue Yellow Red

- Alternately, with an enclosing control border, left-justified within the border.

Color Green Blue Yellow Red

Keyboard Equivalents

- Assign a keyboard mnemonic to each choice description.
- Designate the mnemonic by underlining the applicable letter in the choice description.

Red

Assign unique keyboard mnemonics for each alternative in the standard way, choosing the first letter (or another) and designating it by character underlining.

Selection Method and Indication

■ Pointing:

- The selection target area should be as large as possible.
- Include the button and the choice description text.
- Highlight the selection choice in some visually distinctive way when the cursor's resting on it and the choice is available for selection.
- This cursor should be as long as the longest choice description plus one space at each end. Do not place the cursor over the small button.

- Red
- Yellow
- Green
- Blue

■ **Activation:**

— When a choice is selected, distinguish it visually from the unselected choices.

- A radio button should be filled in with a solid dark dot or made to look depressed or higher through use of a shadow.

— When a choice is selected, any other selected choice must be deselected.

■ **Defaults:**

— If a radio button control is displayed that contains a choice previously selected or

a default choice, display the selected choice as set in the control.

3. List Boxes

■ **Description:**

— A permanently displayed box-shaped control containing a list of attributes or objects from which:

- A single selection is made (mutually exclusive), or

- Multiple selections are made (non-mutually-exclusive).

— The choice may be text, pictorial representations, or graphics.

— Selections are made by using a mouse to point and click.

— Capable of being scrolled to view large lists of choices.

— No text entry field exists in which to type text.

— A list box may be associated with a *summary list box* control, which allows the selected choice to be displayed or an item added to the list.

■ **Purpose:**

— To display a collection of items containing:

- Mutually exclusive options.

- Non-mutually-exclusive options.

■ **Advantages:**

— Unlimited number of choices.

— Reminds users of available options.

— Box always visible.

■ **Disadvantages:**

— Consumes screen space.

— Often requires an action (scrolling) to see all list choices.

- The list content may change, making it hard to find items.
- The list may be ordered in an unpredictable way, making it hard to find items.
- Proper usage:
 - For selecting values or setting attributes.
 - For choices that are:
 - Mutually exclusive (only one can be selected).
 - Non-mutually-exclusive (one or more may be selected).
 - Where screen space is available.
 - For data and choices that are:
 - Best represented textually.
 - Not frequently selected.
 - Not well known, easily learned, or remembered.
 - Ordered in an unpredictable fashion.
 - Frequently changed.
 - Large in number.
 - Fixed or variable in list length.
 - When screen space or layout considerations make radio buttons or check boxes impractical.

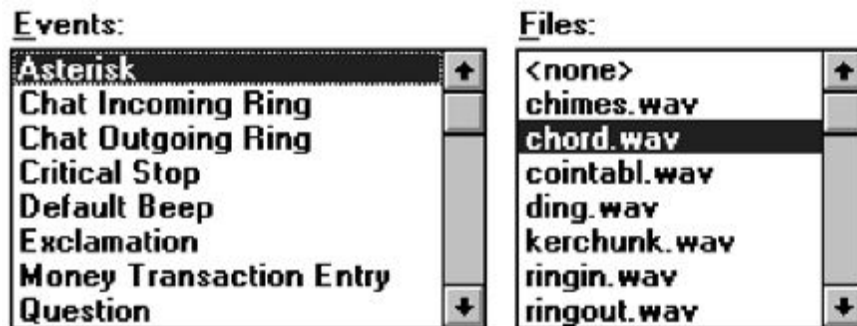


Fig : List Box

List Box General Guidelines

First, general list box guidelines will be presented. Then, specific guidelines for single and multiple-selection lists will be reviewed.

Selection Descriptions

- Clearly and meaningfully describe the choices available. Spell them out as fully as possible.
 - Graphical representations must clearly represent the options.
- Present in mixed case, using the sentence style structure.
- Left-align into columns.

List Size

- Not actual limit in size.
- Present all available alternatives.
- Require no more than 40 page-downs to search a list.
 - If more are required, provide a method for using search criteria or scoping the options.

Box Size

- Must be long enough to display 6 to 8 choices without requiring scrolling.
 - Exceptions:
 - If screen space constraints exist, the box may be reduced in size to display at least three items.
 - If it is the major control within a window, the box may be larger.
 - If more items are available than are visible in the box, provide vertical scrolling to display all items.
- Must be wide enough to display the longest possible choice.



- When box cannot be made wide enough to display the longest entry:
 - Make it wide enough to permit entries to be distinguishable, or,
 - Break the long entries with an ellipsis (...) in the middle, or,
 - Provide horizontal scrolling.

Organization

- Order in a logical and meaningful way to permit easy browsing.
 - Consider using separate controls to enable the user to change the sort order or filter items displayed in the list.
- If a particular choice is not available in the current context, omit it from the list.
 - Exception: If it is important that the existence and unavailability of a particular list item be communicated, display the choice dimmed or grayed out instead of deleting it.

Layout and Separation

- Enclose the choices in a box with a solid border.
 - The border should be the same color as the choice descriptions.
- Leave one blank character position between the choice descriptions and the left border.
- Leave one blank character position between the longest choice description in the list and the right border, if possible.

Captions

- Use mixed-case letters.
- The preferred position of the control caption is above the upper-left corner of the list box.

Destination:



- Alternately, the caption may be located to the left of the topmost choice description.



- Be consistent in caption style and orientation within a screen, and related screens.

Disabling

- When a list box is disabled, display its caption and show its entries as grayed out or dimmed.

Selection Method and Indication

- **Pointing:**

- Highlight the selection choice in some visually distinctive way when the pointer or cursor is resting on it and the choice is available for selection.

- **Selection:**

- Use a reverse video or reverse color bar to surround the choice description when it is selected.

- The cursor should be as wide as the box itself.



- Mark the selected choice in a distinguishing way.

- **Activation:**

- Require the pressing of a command button when an item, or items, is selected.

Single-Selection List Boxes

- **Purpose:**

- To permit selection of only one item from a large listing.

- **Design guidelines:**

- Related text box

- If presented with an associated text box control:

- Position the list box below and as close as possible to the text box.

- The list box caption should be worded similarly to the text box caption.

Destination:

Destination:

Australia	↑
Canada	
England	
France	
Germany	
New Zealand	
Netherlands	↓

— If the related text box and the list box are very close in proximity, the caption may be omitted from the list box.

Destination:

Australia	↑
Canada	
England	
France	
Germany	
New Zealand	
Netherlands	↓

— Use the same background color for the text box as is used in the list box.

— Defaults:

- When the list box is first displayed:

— Present the currently active choice highlighted or marked with a circle or diamond to the left of the entry.

— If a choice has not been previously selected, provide a default choice and display it in the same manner that is used in selecting it.

— If the list represents mixed values for a multiple selection, do not highlight an entry.

— Other:

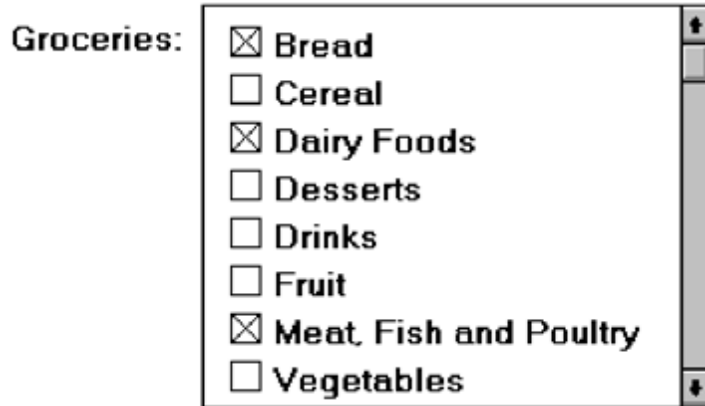
- Follow other relevant list box guidelines.

Extended and Multiple-Selection List Boxes

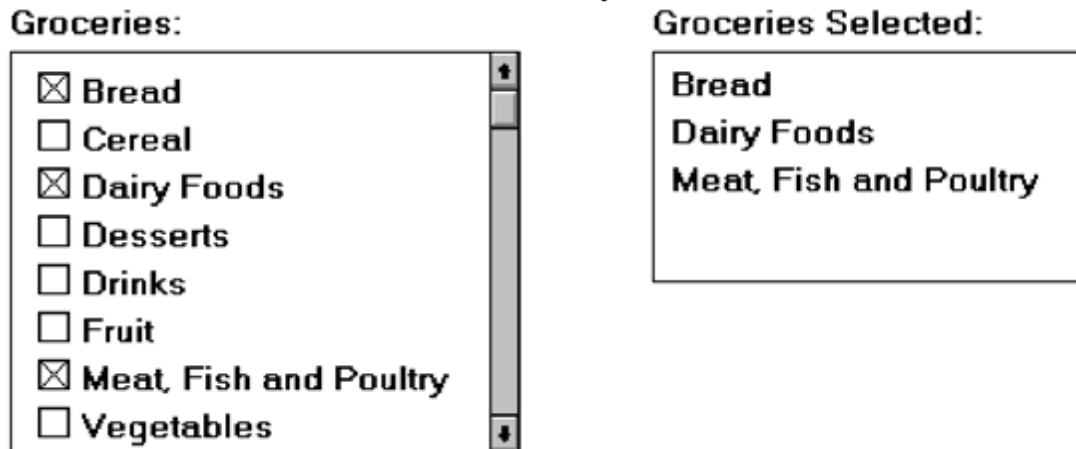
- Purpose:

— To permit selection of more than one item in a long listing.

- Extended list box: Optimized for individual item or range selection.
- Multiple-selection list box: Optimized for independent item selection.
- Design guidelines:
 - Selection indication:
 - Mark the selected choice with an X or check mark to the left of the entry.



- Consider providing a *summary list box*.
 - Position it to the right of the list box.
 - Use the same colors for the summary list box as are used in the list box.



— Provide command buttons to *Add* (one item) or *Add All* (items) to the summary list box, and *Remove* (one item) or *Remove All* (items) from the summary list box.

- Consider providing a display-only text control indicating how many choices have been selected.

— Position it justified upper-right above the list box.



— Select All and Deselect All buttons

- Provide command buttons to accomplish fast *Select All* and *Deselect All* actions,

when these actions must be frequently or quickly performed.

— Defaults:

- When the list box is first displayed:

— Display the currently active choices highlighted.

— Mark with an X or check mark to the left of the entry.

— If the list represents mixed values for a multiple selection, do not highlight an entry.

— Other:

- Follow other relevant list box guidelines.

List View Controls

■ Description:

— A special extended-selection list box that displays a collection of items, consisting of an icon and a label.

— The contents can be displayed in four different views:

- Large Icon: Items appear as a full-sized icon with a label below.
- Small Icon: Items appear as a small icon with label to the right.
- List: Items appear as a small icon with label to the right.

— Arrayed in a columnar, sorted layout.

- Report: Items appear as a line in a multicolumn format.

— Leftmost column includes icon and its label.

— Subsequent columns include application-specific information.

■ Purpose and usage:

— Where the representation of objects as icons is appropriate.

— To represent items with multiple columns of information.

Q. 6a) Discuss the following kinds of tests with suitable examples.

Think Aloud Evaluation b) Usability Test

Think-Aloud Evaluations

- **Description:**
 - Users perform specific tasks while thinking out loud.
 - Comments are recorded and analyzed.
 - **Advantages:**
 - Utilizes actual representative tasks.
 - Provides insights into the user's reasoning.
 - Helps users focus and concentrate during the session.
 - **Disadvantages:**
 - Some participants may find thinking aloud distracting and unnatural.
 - Can slow the participants thought processes.
 - Can be exhausting for the participant in a long session.
 - **Guidelines:**
 - Develop
 - Several core or representative tasks.
 - Tasks of particular concern.
 - Limit session to 60 to 90 minutes.
-

Description. In a *think-aloud evaluation*, users perform specific tasks while thinking aloud. The objective is to get the user to talk continuously. All comments are recorded so all thoughts are captured and subtle points are not missed when analysis occurs.

Advantages. This kind of evaluation utilizes actual representative tasks. Valuable insights into why the user does things are obtained. Because users are continuously explaining what they are doing, concentration and focus on the task is improved.

Disadvantages. It may be difficult to get all people to think aloud because some may find the process distracting and unnatural. Thought processes may also

increase task performance time and reduce the number of errors that would occur in a normal working environment. Talking while working may also be more exhausting than simply working.

Guidelines. Develop core or representative task scenarios, or scenarios of proposed tasks of particular concern. Limit a session to 60 to 90 minutes.

Usability Test

- **Description:**
 - An interface evaluation under real-world or controlled conditions.
 - Measures of performance are derived for specific tasks.
 - Problems are identified.
 - **Advantages:**
 - Utilizes an actual work environment.
 - Identifies serious or recurring problems.
 - **Disadvantages:**
 - High cost for establishing facility.
 - Requires a test conductor with user interface expertise.
 - Emphasizes first-time system usage.
 - Poorly suited for detecting inconsistency problems.
-

Description. A *usability test* evaluates an interface under real-world or controlled conditions. Specific tasks are performed by users, and measures of performance are taken, and the results compared with the previously defined performance goals. Evaluators also gather data on problems that arise. Errors, confusion, frustrations, and complaints can be noted and discussed with the user. It is also useful to have the user talk aloud about what he or she is doing. Failure to meet these usability design objectives will indicate that redesign is necessary.

Advantages. Usability tests incorporate a realistic work environment. Tasks are performed in an actual work setting — either a usability laboratory or another controlled setting. A usability test can identify serious or recurring problems, avoiding low-priority items.

Disadvantages. Its most serious problem is the high cost associated with establishing a facility to perform the testing. To effectively perform a usability test also requires a test conductor with user interface expertise. A usability test also emphasizes first-time or early system use, collecting little data concerning use of a system by experienced system users. These tests are also poorly suited to detecting problems with consistency.