Best Practices for Drag and Drop

1 Drag and Drop Module

Core Approaches

- **Placeholder Approach:** Use the placeholder approach when showing a clear preview during drag is important.

- **Insertion Bar Approach:** Use the insertion bar approach when you want to avoid page jitter.

- **Drag Position:** Use the midpoint of the dragged object to determine drag position.

- **Ghost Object:** Use a slightly transparent version of the object being dragged (ghost) instead of an opaque version.

- **Thumbnail Representations:** If you drag thumbnail representations, use the insertion bar targeting approach.

2 The Drag and Drop List

Context: Used for rearranging items in a list (e.g., a To-Do List).

Interaction Phases

- **Normal Display State:** List items are displayed without any indication that the items can be rearranged.

- **Invitation to Drag:** One of the in-context tools revealed during mouse hover shows a four-way arrow indicating that the object can be moved.

- **Dragging:** Rearranging occurs in real time. An empty slot is exposed where the dragged item will fit.

- **Dropped:** The item snaps into the new location (where the hole was opened up).

The Drag Lens

A drag lens provides a view into a different part of the list that can serve as a shortcut target.

- It could be a fixed area that is always visible, or it could be a miniature view of the list that provides more rows for targeting.

- The lens will be made visible only during dragging.

Best Practices for Drag and Drop List

- If possible, drag the items in a list in real time using the placeholder target approach.

- Use the mouse position for drag target positioning.

- If the goal is speed of dragging or if dragged items are large, consider using the insertion target approach, as rendering an insertion bar is inexpensive compared to dynamically rearranging the list.

- Since drag and drop in lists is not easily discoverable, consider providing an alternate way to rearrange the list.

- When the user rearranges the list with an alternate method, use that moment for a onetime advertisement for drag and drop.

3   Drag and Drop Object

Context: Appropriate when changing relationships between objects that can be represented visually (e.g., rearranging members of an organization chart).

Interaction Phases

- **Normal Display State:** An organizational chart visually represents relationships.

- **Invitation to Drag:** When the mouse hovers over a member of the organization, the cursor changes to show draggability.

- **Dragging:** An insertion bar is used to indicate where the member will be inserted when dropped.

- **Dropped:** When the dragged member is dropped, the chart is rearranged to accommodate the new location.

Best Practices for Drag and Drop Object

- If objects are represented in a complex visual relationship, use insertion targeting to indicate drop location (this minimizes disturbing the page during drag).

- For parent/child relationships, highlight the parent as well to indicate drop location.

- If possible, reveal drag affordances on mouse hover to indicate draggability.

- Initiate drag when the mouse is dragged three pixels or if the mouse is held down for at least half a second.

- Position dragged objects directly in sync with the cursor. Offsetting will make the drag feel disjointed.

- When hovering over a draggable object, change the cursor to indicate draggability.

4   Drag and Drop Action

Context: Useful for invoking an action or actions on a dropped object (e.g., dropping an item in the trash to delete, dragging a route point on a map).

Interaction Phases (Route Example)

- **Normal Display State:** Route is shown in a standard color.

- **Invitation to Drag:** Hovering over any part of the route provides a draggable circle (route point) with a tool tip saying "Drag to change route".

- **Dragging:** The route changes as we drag (e.g., rerouting a trip over a bridge).

- **Dropped:** Dropping completes the rerouting action.

Best Practices for Drag and Drop Action

- Use Drag and Drop Actions sparingly in web interfaces, as they are not as discoverable or expected.

- Provide alternate ways to accomplish the action. Use the Drag and Drop Action as a shortcut mechanism.

- Don't use drag and drop for setting simple attributes. Instead use a more direct approach to setting attributes on the object.

- Don't construct an artificial visual representation for the sole purpose of implementing drag and drop. Drag and drop should follow the natural representation of the objects in the interface.

- Provide clear invitations on hover to indicate the associated action.

5 Drag and Drop Collection

Context: Collecting objects for purchase, bookmarking, or saving into a temporary area (e.g., a Shopping Cart).

Interaction Phases

- **Normal Display State:** The collection area (e.g., shopping cart) is docked on the screen.

- **Invitation to Drag:** You can add to the cart with a button or drag the item. If the button is used, the item flies to the cart; the cart bumps open and closed briefly to indicate entry.

- **Dragging:** The item gets a dragging treatment.

- **Dropped:** The cart is populated with the new item.

Best Practices for Drag and Drop Collection

- Use as an alternate way to collect items (e.g., a shopping cart).

- When a drag gets initiated, highlight the valid drop area to hint where drop is available.

- Provide alternate cues that drag and drop into collections is available.

6 General Best Practices for Drag and Drop

- **Minimize Jitter:** Keep page jitter to a minimum while dragging objects.

- **Initiation Thresholds:** Initiate dragging if the user presses the mouse down and moves the mouse three pixels, or if she holds the mouse down for at least half a second.

- **Direct Actions:** Use drag and drop for performing direct actions as an alternate method to more direct mechanisms in the interface.

- **Hints:** Hint at the availability of drag and drop when using alternatives to drag and drop.

- **Interesting Moments:** Pay attention to all of the interesting moments during drag and drop. Remember, you must keep the user informed throughout the process.

- **Invitations:** Use Invitations to cue the user that drag and drop is available.