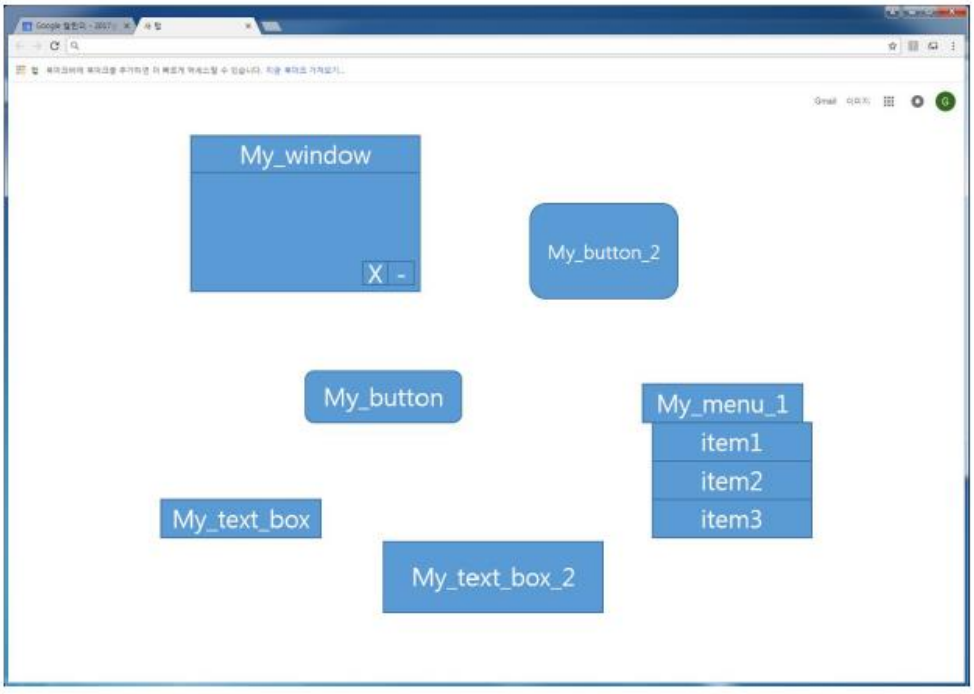
Human Computer Interaction, 2018 Fall

Homework 4 Due Nov 13, 23:59

1-1. **Due Nov 13, 23:59** Construct and implement the following GUI elements using the HTML/Javascript and Canvas 2D graphics elements (all displayable on the web browser canvas screen space):

- Resizable rectangular window with a title and "X" (remove), and "-" (hide) buttons Resizable text box with a label and other simple properties (e.g. font, size of text, …)
- Resizable button with a label and other simple properties (e.g. font, size of text, …) Pull down menu with simple and basic properties (e.g. menu title, menu item list, size, …)

For instance, you must define a set of GUI APIs such as "create_window (ID, position_x, position_y, width, height, title)" that can be called from the script to display a simple GUI window. Use the simple API to create a content such as shown below. Objects may not be interactable at this point. Just draw them.

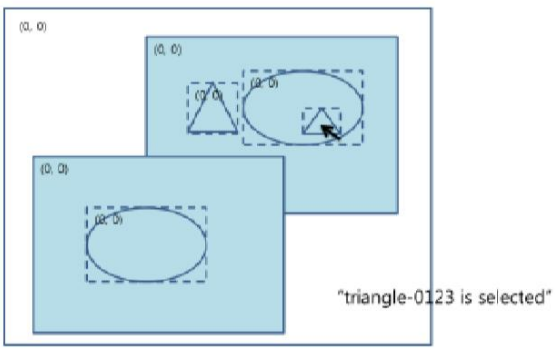


1-2. **Due Nov 20, 23:59** Implement a tree data structure using Javascript.

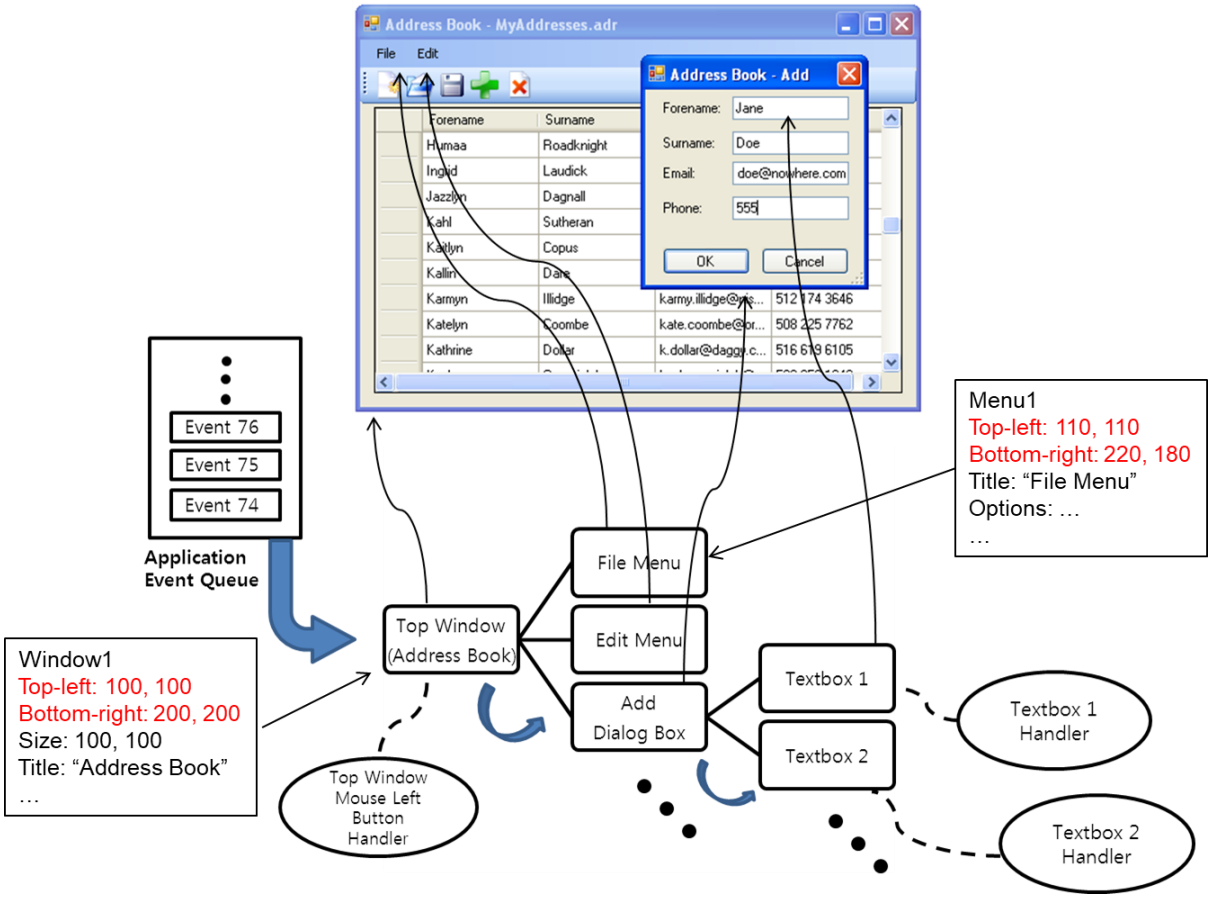
A. Tree data structure should be a tree of simple nodes with id number, arbitrary number of children.
B. Set of basic methods/procedures such as: create_root, add_node, delete_node, search_node, etc.
C. Extend the node structure to contain a graphic element like a window, line, label, rectangle, point, etc. We will call these "graphic nodes. Different graphic elements will need different attributes (only include the very basic ones).
    A. Modify the tree ADT so that the graphic nodes can be managed and one can create/add/delete/search different types of graphic nodes.
    B. Be able to render the graphic elements in the whole tree.
    C. Write a short program to demonstrate you can construct a tree with graphic nodes and render them on the web browser canvas.

1.3. **Due Dec 4, 23:59** Further extend the tree-graphics program in the following way. Write and demonstrate a routine that takes a mouse input and identifies the object that is clicked (e.g. print message or highlight the object, see below). If there are multiple objects that correspond to the location of the mouse click, the lowest in the tree must be identified. In order to do this, one will have to define the rectangular areal dimension of the GUI object (see figure next page). When there are multiple overlapping GUI objects, the lowest level object should be the one selected. Also note that the objects are now interactable.

the one selected.



Example run of the program.



2. HCI Design Due Nov 16, 23:59

A. Refine your project proposal.

A. Update and refine the user analysis/research.

B. Update and refine the functional and UI requirements

C. Update and refine the scenarios.

D. Update and refine the task model.

B. Design the interface for your proposal (considering the new materials we learned about HCI interface design since the proposal presentation).

A. A. Use wire-framing tools (e.g. fluidui.com, Adobe XD, etc.) or just simple drawing tools (e.g. Powerpoint) to design and sketch out the interface for your proposal application.

3. Evaluation Due Dec 6

Write two peer interface evaluations. The your classmate's site/URL information (which contains the description of one's interface design) will be provided later.

4. Implementation of your Photo Organizer design Due Dec 14

Submission

1. **Expected minimum total length for HCI Design (5-6 pages), Evaluation (3-4 pages total) including figures/pictures.**
2. **Submit to KULMS AND/OR put all materials up on your personal web site.**