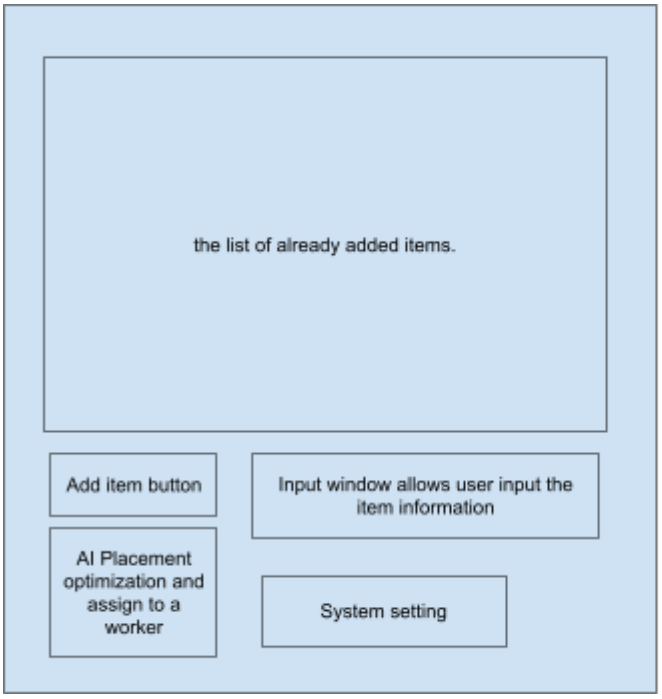
We need to build a Website that allows two types of login, Manager and individual worker.

1. Once open the website, display two options, manager login or worker login

Manager Console

1. Manager will need to input the item information, like the dimensions of the item and placing constraints for the item.
2. There are two types of placing constraints, (1) face up, (2) fragile (so the algorithm will put it on the top layers)
3. There is a list showing the items added. The list should display the item ID (auto-assigned e.g., “item0001”, the dimension and the placement constraint if applies)
4. Once finished inputting all the item information, the manager will click a button to run the AI algorithm to generate the optimal placement plan. Then the manager can assign it to a worker (as identified by their usernames)
5. Also, user can click system setting to set configuration parameters like the space of the container



The AI optimization algorithm

1. The input of AI algorithm is a list of items and their dimensions and their pose constraints as well as the space size
   Item = {ItemID, dimension [x,y,z], pose_constraint = {}}
2. The output of AI algorithm is a list of items and their coordinates
   Item={ItemID, position= [x0,y0,z0,l,h,w]}

The worker console

1. The worker console has two windows, one displays the top view of the current layer of placement, another displays the 3D view of the already placed items
2. Those two windows start with empty items.
3. On the left, showing a list of next to-be-placed items, user can scroll down to see all the item, once the item is clicked, it can be highlighted in the window if it has already been placed or to be placed in the current layer
4. Once click “next item”, show the position of the next to-be-placed item in the two windows. The information about the item will be displayed in a window next to the button.
5. Add “previous item” button to let user check previous action