

CHAPTER 7

Lists

starting out with >>> **APP INVENTOR**
FOR ANDROID



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Topics

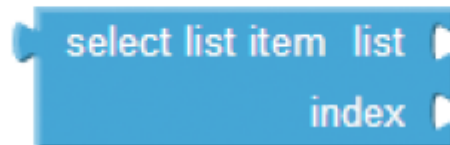
- Creating a list
- Iterating over a list with the `for each` loop
- Selecting an item
- Inserting and appending items
- Removing items
- Replacing items
- Searching for an item
- Other list operations

Selecting an Item

If you would like to choose a particular item in the list to work with, you can use the `select list item` block.

The first item is at index 1.

Figure 7-26 `select list item` Block (Source: MIT App Inventor 2)



Selecting an Item

- If you only have 10 items in a list and you try to select the item at position 11, your app will crash.
- To avoid this, use the list's length of list function then use if/then logic to stop the attempt if it is out of range.

Selecting an Item

To demonstrate the out of range concept we are going to modify the Contact List app.

We will:

1. Add a number to the left of each name to show the index or place in the list.
2. Add a label and text box for the user to select a contact by entering the index of the person they would like to select.
3. Add a select button to the design and create an event trigger to do the selection.

Selecting an Item

4. Display back to the user the contact they selected.
5. Add logic to check the length of the list before trying to select an item so that we can avoid a crash if the selection is out of range.

Inserting and Appending Items

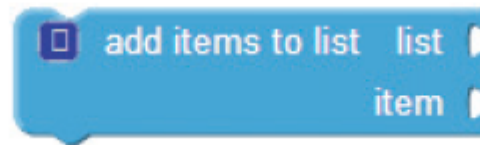
Adding items to a list comes into different forms, adding and inserting.

- ***Appending*** – you can add items to the bottom of the list.
- ***Inserting*** – you can add items somewhere in the middle of the list.

Inserting and Appending Items

Use the `add items to list` block to add a single item at a time.

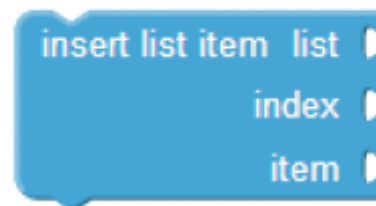
Figure 7-45 `add items to list` Block (Source: MIT App Inventor 2)



Inserting and Appending Items

The insert list item block requires you specify the list to insert into, the index (or position) of where you want to insert, and the new item you want to insert.

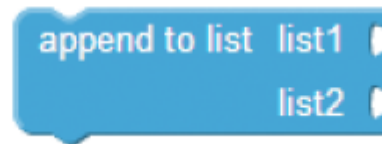
Figure 7-46 insert list item Block (Source: MIT App Inventor 2)



Inserting and Appending Items

To append an entire list to the end of a list, use the `append to list` function.

Figure 7-47 `append to list` Block (Source: MIT App Inventor 2)

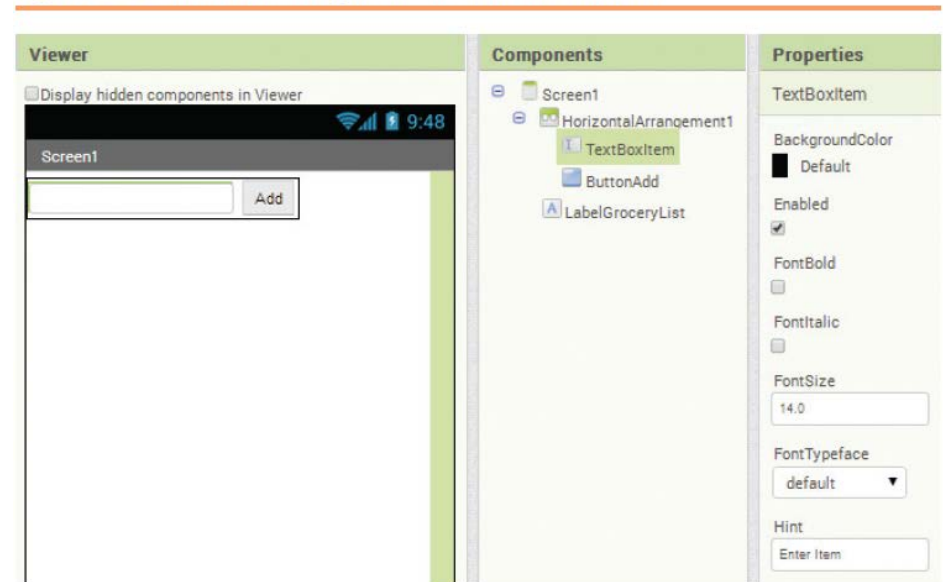


Inserting and Appending Items

Consider an app that allows the user to enter grocery items to a list.

In Figure 7-48 there is a Textbox for the grocery item, an Add Button, and a label (LabelGroceryList) to output the list.

Figure 7-48 Add Item Design Screen (Source: MIT App Inventor 2)



Inserting and Appending Items

Figure 7-49 Add Item Blocks Editor (Source: MIT App Inventor 2)

```
initialize global groceryList to create empty list  
when ButtonAdd .Click  
do  
  add items to list list  
  list get global groceryList  
  item TextBoxItem . Text  
  set TextBoxItem . Text to ""  
  set LabelGroceryList . Text to get global groceryList
```

The image shows a sequence of code blocks in a Scratch-style editor. The first block is an orange 'initialize global' block for 'groceryList' with a 'create empty list' sub-block. This is followed by a yellow 'when ButtonAdd .Click' block. Inside a 'do' loop, there are four blocks: a blue 'add items to list' block with 'list' as the list and 'TextBoxItem . Text' as the item; an orange 'get global groceryList' block; a green 'set TextBoxItem . Text' block with an empty string as the value; and another orange 'set LabelGroceryList . Text' block with a 'get global groceryList' sub-block.

Inserting and Appending Items

1. Create a global variable, `groceryList`, and plug in the `create empty list` block.
2. Next, use the `when ButtonAdd.Click do event handler` to call the `add items to list` function.
3. Plug `get global groceryList` and `TextBoxItem.Text` (this is what the user typed in) into the `add items to list` arguments slots.
4. Clear out the `TextBoxItem.Text` property so the user can add another time if they choose.