

# CS 120: Object-Oriented Software Development(Spring 2022)

## Project Feature: Buildable Items

Due Date: **Wednesday, May 4, 2022**

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A *buildable item* is one which is constructed by combining other items in the game. For example, a player may need to collect 5 items in a game that will be constructed into something more useful. Buildable items are constructed using a *build* command and they are taken apart using the *dismantle* command.

### Implementation

1. Like the `ComplexItem`, a `BuildableItem` is-a item and should extend the `Item` class with the addition of the following fields:
  - (a) a field to hold the collection of items needed to build the buildable item
  - (b) a field to indicate whether the building item is complete. The value of this field should be `true` if the item has been built, and `false` otherwise.
2. Add appropriate methods for buildable items.
3. In the `World` class, store all buildable items in a `HashMap` and provide methods so the `Game` class can have easy access to them as necessary.
4. Write GWTs and implement a BUILD command. To BUILD a buildable item, get the buildable item from the `World` class. The items that are needed for the construction of this buildable item must be in the player's inventory (or current room). The BUILD command will remove the items required from the player's inventory (or current room) and change the flag to indicate that this item was built. If the player does not have all the items, he cannot build this item. The completed buildable item is added to the player's inventory (or to the current room).
5. Write GWTs and implement a DISMANTLE command. To DISMANTLE this buildable item, this buildable item is removed from the player's inventory (or the current room) and all of the items that are in the collection are copied into the player's inventory (or to the current room). Do not remove them from the buildable item since it should be possible for the player to build the item again.
6. To make a buildable item so that it can not be dismantled (or built), add a flag indicating that this item cannot be dismantled (or built) and check the flag as necessary.
7. Be sure to test your project thoroughly and check your changes into Github.