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Assignment: Homework 2 Part I

**Part b solution:**

The most immediate and obvious application of a bag that comes to mind is a shopping cart on a website. Another could be a container that holds contest entries, like raffle tickets or some other format that allows multiple entries from the same person.

**Part c solution:**

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| --- | --- | --- | --- |
| **Method** | | **Primitive or Composite** | **Implementing Methods** |
| public void | **add** (Element element, int quantity) | Primitive |  |
| public void | **remove** (Element element, int quantity) | Primitive |  |
| public Iterator <Element> | **iterator** () | Primitive |  |
| public boolean | **isMember** (Element element) | Primitive |  |
| public int | **size** () | Primitive |  |
| public UnboundedBag <Element> | **newBag** () | Primitive |  |
| public String | **toString** () | Composite | [**iterator**](#iterator) () |
| public void | **emptyBag** () | Composite | [**newBag**](#newBag) () |
| public boolean | **isEmpty** () | Composite | [**size**](#size) () |
| public void | **add** (Element element) | Composite | [**add**](#add) (Element element, int quantity) |
| public void | **remove** (Element element) | Composite | [**remove**](#remove) (Element element, int quantity) |
| public void | **removeAll** (Element element) | Composite | [**remove**](#remove) (Element element, int quantity)  [**elementCount**](#count) () |
| public boolean | **equals** (Object obj) | Composite | [**contains**](#contains) (UnboundedBag <Element> otherUnboundedBag) |
| public boolean | **contains** (UnboundedBag <Element> otherBag) | Composite | [**isMember**](#isMember) (Element element)  [**elementCount**](#count) () |
| public int | **elementCount** (Element element) | Composite | [**isMember**](#isMember) (Element element)  [**iterator**](#iterator) () |
| public UnboundedBag <Element> | **union** (UnboundedBag <Element> otherUnboundedBag) | Composite | [**copy**](#copy) ()  [**add**](#add) (Element element, int quantity)  [**iterator**](#iterator) () |
| public UnboundedBag <Element> | **intersection** (UnboundedBag <Element> otherUnboundedBag) | Composite | [**newBag**](#newBag) ()  [**add**](#add) (Element element, int quantity)  [**iterator**](#iterator) () |
| public UnboundedBag <Element> | **copy** () | Composite | [**newBag**](#newBag) ()  [**add**](#add) (Element element, int quantity)  [**iterator**](#iterator) () |
| public UnboundedBag <Element> | **difference** (UnboundedBag <Element> otherUnboundedBag) | Composite | [**copy**](#copy) ()  [**intersection**](#intersection) (UnboundedBag <Element> otherUnboundedBag)  [**remove**](#remove) (Element element, int quantity) |