

```
public class Mailbox {  
  
    private List folders;  
  
    public Mailbox() {  
  
        folders = new ArrayList();  
  
    }  
    /*optional*/  
    public void addFolder(Folder f) {  
  
        if (!folders.contains(f)) {  
  
            folders.add(f);  
  
            f.setBox(this);  
  
        }  
  
    }  
  
    /*optional*/  
    public void removeFolder(Folder f) {  
  
        if (folders.contains(f)) {  
  
            folders.remove(f);  
  
            f.setBox(this);  
  
        }  
  
    }  
  
}
```

```
public class Folder {  
  
    private Mailbox box;  
  
    private List messages;  
  
    public Folder() {  
  
        messages = new ArrayList();  
  
    }  
  
}
```

```
}

/*optional*/
public void setBox(Mailbox newBox) {

    if (box != newBox) {

        Mailbox old = box;

        box = newBox;

        if (newBox != null)

            newBox.addFolder(this);

        if (old != null)

            old.removeFolder(this);

    }

}

/*optional*/
public void addMessage(Message m) {

    if (!messages.contains(m)) {

        messages.add(m);

        m.setFolder(this);

    }

}

/*optional*/
public void removeMessage(Message m) {

    if (messages.contains(m)) {

        messages.remove(m);

        f.setFolder(this);

    }

}

}
```

```
}
```

```
public class Message {
```

```
    private Folder folder;
```

```
    /*optional*/
```

```
    public void setFolder(Folder newFolder) {
```

```
        if (box != newFolder) {
```

```
            Folder old = folder;
```

```
            folder = newFolder;
```

```
            if (newFolder != null)
```

```
                newFolder.addMessage(this);
```

```
            if (old != null)
```

```
                old.removeMessage(this);
```

```
        }
```

```
    }
```

```
}
```