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# **Lecture 14**

CPSC 110

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## Lecture 14

### Clicker questions

- The reference rule applies when a list contains **non-primitive data**, i.e. data defined by the user

### Function composition

**Function composition rule:** if you're doing at least 2 independent task on a list of items, you must use **function composition**

```
1         arrange-people
2       /         \
3   layout-people   sort
4   /               \
5 draw-person        ?
```

- Because the composite functions already test the base cases, we do NOT need the base case in the parent function
  - In today's example, `layout-people` and `sort` already test the base cases, so `arrange-people` does not need to test them
- Because the composite functions are consuming a list, `ListOfPerson`, which contains non-primitive data, we can't forget about the **reference rule**! We have to write helper functions.