Grouping Data
Opening Discussion

- Interclass problem solutions.
- Do you have any questions about the assignment?
- Minute essay comments:
  - Flush
  - Purpose of PrintWriter
  - Will you always be importing things in your code?
  - Practice makes perfect
  - Fun? GUls and Graphics?
Motivation

- Consider things like a Point, a Student, a CD, or a Room in a text game.
- We can use a tuple to group pieces of data together, but this doesn't carry much meaning and leads to ugly, bug-prone code.
- We want a better way to express these groupings that carries more information.
The general way we do this is to define our own types.

For now we will just use these types to collect data together in a case class.

This allows us to give meaning to the data with meaningful names.

- case class TypeName(field1:Type1,field2:Type2,...)

Example:

- case class NBAPlayer(name:String, team:String, mins:List[Int], points:List[Int], rebounds:List[Int])
Once we have defined a case class we can make new objects of that type in one of two ways.

- TypeName(expr1, expr2, ...)
- Or
- new TypeName(expr1, expr2, ...)

Example:

- var td=NBAPlayer(“Tim Duncan”, ”Spurs”, List(23,13), List(15,17), List(6,8))
We can pull out values using dot notation and the name of the field.

Example:

```plaintext
println(td.name+" averages "+td.points.sum/td.points.length+" ppg")
```

The fields are vals so you can't change what they reference. You can only change their values if they are mutable.
Copy Method

- There is a copy method on case classes that does what the name implies.
- It can take named arguments to change certain fields in the copy.
- Example:
  - `td=td.copy(mins=17::td.mins, points=15::td.points, rebounds=4::td.rebounds)`
Putting it Together

- In the book I am building an example application of a grade book. I'd like to do something different in class so you see variety.
- Do you have any suggestions or do you want me to come up with something?
Minute Essay

- Write the case class you might use for a driver/driver's license.
- Interclass Problem:
  - Make a case class to represent a song. Try writing songs to a file and loading them back in.