

Grouping Data

3-4-2011

Opening Discussion

- Minute essay comments:
 - Diverse examples.
 - Commenting in-class code.
 - Running through code in more detail. (Should I stop asking for assistance? That takes a lot of time, but gives me feedback.)
 - Motivation for ICPs and potential embarrassment.
- EC essays due today. You can do two. Each is worth 5 points.

Flush

- To make certain contents have been written to the file use `flush()`.
- Doing `close()` will also flush and you should definitely remember to close all files you are writing when done with them.

Command Line Arguments

- In a script, the command line arguments are put in `args:Array[String]`.
- You can do anything with them that you would do with a normal array.

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.

User Defined Types

- 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])

Instantiation

- 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))`

Usage

- We can pull out values using dot notation and the name of the field.
- Example:
 - `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? (CPI handling, player stats, ...)

Minute Essay

- Write the case class you might use for a driver/driver's license.