

To: Jason^2

From: Jason Hemann

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Subject: Spreadsheet

For the interface of the spreadsheet project, I have the following implementation requirements. The spreadsheet should be a 2D-array of Cell objects and will only have to do addition and multiplication between 2 values.

First, we will need a Cell class to represent cells within the spreadsheet. A Cell will have either a String, a Formula object, or a Point object referencing another Cell. The x-value of the Point object represents row and the y-value represents column. This class should have an evaluation function that either returns the String or returns the evaluation of the Formula or Cell being pointed to. Next, we need a Formula class. If there's no operation, the Formula is a Double constant; evaluation returns this constant. Otherwise, the Formula has 2 Formulas and a boolean representing whether the operation is addition or multiplication. This evaluation should recursively evaluate each Formula with the given operation. Be sure that your implementation follows the order of operations.

We also require that arrow-key functionality be implemented so that a user of the product is able to move about a spreadsheet in a rectangular fashion, one cell at a time. We will need the following 3 functions:

- *void addCell(Cell c):* adds given Cell, *c*, to the current location
- *String or double getValueAt(Point position):* calls the evaluation function of the Cell at the given position
- *void addCell(Point position, Cell c):* adds *c* to given position

Please don't hesitate to reach out with any questions or concerns. Thank you for the work that you're doing for us.

Best,

Jason Hemann

