

To: Matthias^2  
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Re: spreadsheet

The desired module should provide the services of a basic spreadsheet. The spreadsheet will consist of a rectangular grid of formulas. It should be implemented in Python 3.6 and named `spreadsheet.py`. Users import a `Spreadsheet` class, which has the following methods:

`__init__(rectangle)`

Given a 2D list of formulae, create the `Spreadsheet` object.

`get_value(x, y)`

Return the value of the cell at `x` and `y` coordinates.

`update(x, y, formula)`

Update the formula at cell `x` and `y` coordinates with given formula.

The argument ‘formula’ should be a `Formula` class that supports at least constants, references to different cells, addition and multiplication. Users pass in a string formula with references to different cells, for example, ‘(1, 2) + 3’. Spreadsheets that contain these formulae can extract the references from each formula via an interface method and feed it their corresponding values. The interface for `Formula` is as follows:

`__init__(string_formula)`

Initialize itself with given string formula

`get_references()`

Return all the cell references in this formula

`evaluate(dict)`

Evaluate formula with given mappings from references to values