Auto-grading for *Coding the Matrix*, Edition One (beta version)

Make sure you have Python 3.x on your computer. In the following, I will assume that `python3` is the command used to invoke Python. (On Windows, it might be just `python`.)

Create a single directory, called `matrix`, in which you will put all your code.

Download the submission script, `submit.py`, to the `matrix` directory.

To get your work graded,

- download the appropriate stencil file into the `matrix` directory,
- edit it to include answers to whichever problems you choose,
- make sure you can import it into Python without error,
- test your solutions, and
- finally submit problems from a given stencil by using the following command from a console or shell or Command Prompt:

  `python3 submit.py` <stencil filename>

For example, to submit solutions to problems appearing in the chapter *The Function*, edit `The_Function.py`, and then use the command

```
python3 submit.py The_Function.py
```

Note that these commands are executed not from within the Python REPL, but within a console or shell or Command Prompt.

More about `submit`

The `submit` script asks for your username. This can be anything you like. When you submit a correct answer, the script stores a "receipt" in a subdirectory `receipts` of your `matrix` directory, specifying your username, the data, and the identifier of the problem you solved.

To avoid having to give your username each time you run the `submit` script, you can create a file `profile.txt` in your `matrix` directory with the following line in it:

```
USERNAME philipklein
```

where "philipklein" is replaced with your chosen username. Later I will write about other features of the `submit` script. In particular, we plan to have a leaderboard; you will be able to request that your successful submits be reported to the leaderboard.

The Stencil files

More stencil files will be added as I complete them. Note that these are still rough and should be considered beta versions. Contact me at info@codingthematrix.com if you have questions or bug reports.

The Function

The_Function_problems.py

python_lab.py

inverse_index_lab.py (includes most of the problems in Lab 0.6)

dictutil.py (Includes several of the problems in Lab 0.6)

The Field

The_Field_problems.py

The Vector

The_Vector_problems.py

politics_lab.py

vec.py (implementation of the Vec class)

The Vector Space

The_Vector_Space_problems.py

The Matrix

The_Matrix_problems.py

mat.py (implementation of the Mat class)

ecc_lab.py

geometry_lab.py

The Basis

The_Basis_problems.py

perspective_lab.py

Dimension

Dimension_problems.py

Gaussian Elimination

Gaussian_Elimination_problems.py

secret_sharing_lab.py

factoring_lab.py

The Inner Product

The_Inner_Product_problems.py

machine_learning_lab.py

Orthogonalization

Orthogonalization_problems.py

The Singular Value Decomposition

The_SVD_problems.py

digits_lab.py

eigenfaces_lab.py

The Eigenvector

The_Eigenvector_problems.py

pagerank_lab.py
