The Superhero Machine Learning Api

For your consideration, my take on a Superhero ML API.

Superheroapi.zip

In the enclosed zip-archive you will find:

- **Superheros_data.ipynb**
  a Jupyter Notebook detailing my investigation of the data, the selection of a classifier and the tuning of the feaure selector.
- **RestAPI/**
  - **Data.json**
    The 761 training examples from data.zip in a TinyDB-readable json-file
  - **SHPersistence.py**
    exposes the SuperHeroStore-class which provides an abstraction of the TinyDB persistence – ideally to be able to switch persistence layer
  - **SuperHeroModel.py**
    exposes the Model-class which provides two methods: "train" and "predict", thus encapsulating the objective – a Machine Learning model to predict Superhero Universe affiliation
  - **SuperHeroREST.py**
    the REST-Api implementation – implemented using Flask, exposes the required endpoints, /article, /train and /predict
  - **Html/**
    a folder containing 5 html-files to interact with the RESTApi
    - index.html – index
    - create_hero.html – upload a new hero to the API
    - update_hero.html – update an existing hero in the API
    - delete_hero.html – delete an existing hero in the API
    - predict_universe.html – make a prediction from a hero article

Disclaimer

The enclosed code is a working prototype, not ready for production

Installation

To "install", simply extract contents of superheroapi.zip to a folder

The python code depends on **tinydb, flask, scikit-learn, numpy, scipy** (and cython for speed?). Install using pip or conda. The notebook requires Jupyter (+ everything), scipy, scikit-learn, matplotlib.

Switch working dir to RestAPI

Execute "python SuperHeroREST.py" to start the webserver on 127.0.0.1:5000 (configurable in file)

Optionally point a browser to http://127.0.0.1:5000/html to play around with it