week01_pa

February 4, 2020

1 Programming assignment (Linear models, Optimization)

In this programming assignment you will implement a linear classifier and train it using stochastic gradient descent modifications and numpy.

```
In [1]: import numpy as np
        %matplotlib inline
        import matplotlib.pyplot as plt
```

```
In [2]: import sys
        sys.path.append("..")
        import grading
        grader = grading.Grader(assignment_key="UaHtvpEFEee0XQ6wjK-hZg",
                                all_parts=["xU7U4", "HyTF6", "uNidL", "ToK7N", "GBdgZ", "dLdHG"])
```

```
In [65]: # token expires every 30 min
         COURSERA_TOKEN = 'JWbhasvVPi0j3Y1a'
         COURSERA_EMAIL = 'saneklyudov@edu.hse.ru'
```

1.1 Two-dimensional classification

To make things more intuitive, let's solve a 2D classification problem with synthetic data.

```
In [4]: with open('train.npy', 'rb') as fin:
            X = np.load(fin)

        with open('target.npy', 'rb') as fin:
            y = np.load(fin)

        plt.scatter(X[:, 0], X[:, 1], c=y, cmap=plt.cm.Paired, s=20)
        plt.show()
```