Machine Learning and Computational Statistics
Homework 0: LyX With Program Listings

1 NOTE

Please see other files in the corresponding zip for examples and guidance on how to typeset with LaTeX and Jupyter notebooks.

2 Listings Package

While the minted package works nicely with plain LaTeX, with LyX the listings package tends to work better.

3 Including Python Code from Python File

Here we're extracting lines 4 through 13 from the file code.py.

```python
def dotProduct(d1, d2):
    """
    @param dict d1: a feature vector represented by a mapping from a feature (string) to
    a weight (float).
    @param dict d2: same as d1
    @return float: the dot product between d1 and d2
    """
    if len(d1) < len(d2):
        return dotProduct(d2, d1)
    else:
        return sum(d1.get(f, 0) * v for f, v in d2.items())
```

4 Python Code Inline

```python
def increment(d1, scale, d2):
    """
    Implements d1 += scale * d2 for sparse vectors.
    @param dict d1: the feature vector which is mutated.
    @param float scale
    @param dict d2: a feature vector.

    NOTE: This function does not return anything, but rather
    increments d1 in place. We do this because it is much faster to
    change elements of d1 in place than to build a new dictionary and
    return it.
    """
    for f, v in d2.items():
        d1[f] = d1.get(f, 0) + v * scale
```