



```
1  # -*- coding: utf-8 -*-
2
3  """ Calculator program from
4  https://physicalmodelingwithpython.blogspot.com/2015/09/speeding-up-python-part-1-p
5
6  """
7
8  # -----
9  # calculator.py
10 # -----
11
12 #storage is numpy, but calculations use loops
13 # not efficient, mean to illustrate the issues
14
15 import numpy as np
16
17 def add(x, y):
18     """
19     Add two arrays using NumPy's vectorized operation.
20     x and y must be two-dimensional arrays of the same shape.
21     """
22     return x + y
23
24 def multiply(x, y):
25     """
26     Multiply two arrays using NumPy's vectorized operation.
27     x and y must be two-dimensional arrays of the same shape.
28     """
29     return x * y
30
31 def sqrt(x):
32     """
33     Take the square root of the elements of an array using NumPy.
34     """
```