Problem YE

Source Filename: examples/publishing.py

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# Here Is a Top-Level Heading

And here is some text. An equation:

And whatnot.

import numpy as np

# Introduction

This program defines several mathematical functions as vectorized functions that can handle NumPy array inputs.

def f(x: np.ndarray) -> np.ndarray:  
 return x\*\*2 + 3 \* x + 9

def g(x: np.ndarray) -> np.ndarray:  
 return 1 + np.sin(x) \*\* 2

def h(x: np.ndarray, y: np.ndarray) -> np.ndarray:  
 return np.exp(-3 \* x) + np.log(y)

def F(x: np.ndarray, y: np.ndarray) -> np.ndarray:  
 return np.floor(x / y)

def G(x: np.ndarray, y: np.ndarray) -> np.ndarray:  
 return np.where(x > y, x\*\*2 + y\*\*2, 2 \* x)

# Call Functions and Print

functions\_args = (  
 (f, 1),  
 (g, 1),  
 (h, 2),  
 (F, 2),  
 (G, 2),  
) # (fun, nargs)  
x = np.array([1, 5, 10, 20, 30])  
y = np.array([2, 7, 5, 10, 30])  
print(f"x = {x}\ny = {y}")  
  
for function\_args in functions\_args:  
 if function\_args[1] == 1:  
 printable = np.array2string(function\_args[0](x), precision=3)  
 print(f"{function\_args[0].\_\_name\_\_}(x) =", printable)  
 elif function\_args[1] == 2:  
 printable = np.array2string(function\_args[0](x, y), precision=3)  
 print(f"{function\_args[0].\_\_name\_\_}(x, y) =", printable)

x = [ 1 5 10 20 30]  
y = [ 2 7 5 10 30]  
f(x) = [ 13 49 139 469 999]  
g(x) = [1.708 1.92 1.296 1.833 1.976]  
h(x, y) = [0.743 1.946 1.609 2.303 3.401]  
F(x, y) = [0. 0. 2. 2. 1.]  
G(x, y) = [ 2 10 125 500 60]