MATLAB Programming NYCU Fall 2024 LAB#7 2024/11/14

This is a lab for you to design a MATLAB class. We will handle only scalars of this class. We will extend the lab to handle arrays in next assignment.

The MATLAB class to be implement here is called **`Vec3`**. Below are the tasks in this lab:

- The three properties are **`x`**, **`y`**, and **`z`**.
- The constructor: It should accept the following types of inputs:
  - No input argument (as a default constructor): A single object for point **`(0,0,0)`** is created.
  - Three input arguments (numerical scalars for now) for **`x`**, **`y`**, and **`z`** elements. The output is an object of **`Vec3`**.
- The **`norm`** function (for computing the L2-norm of the **`Vec3`** object).
- The **`inner_prod`** function. It takes two inputs of class **`Vec3`** and return their inner product as a scalar double.
- The **`disp`** function: Show the object in the form **`(x,y,z)`**.
- Operator overloading functions: **`plus`** and **`minus`**, which does addition and subtraction of two **`Vec3`** objects, respectively.

Keep what you do in this lab as you are going to reuse the code in the following assignment.

The following is a sequence of operations using the **`Vec3`** class.

```
>> v1=Vec3(1,2,3)
v1 =
(1,2,3)
>> v2=Vec3
v2 =
(0,0,0)
>> v3=v1+v1
v3 =
(2,4,6)
>> norm(v3)
ans =
    7.4833
>> v3-v1
ans =
(1,2,3)
>> inner_prod(v1,v2)
ans =
     0
>> inner_prod(v1,v3)
ans =
    28
```