HOMEWORK 18

CS 125

due at 12:45pm (classtime) on Thursday, October 29

This assignment requires you to add some new methods to the Point class defined in Chapter 17 of the online text. Prepare your solutions in a single Python file or Colab notebook. Use comments to clearly label your work. Provide test cases to show that your methods produce the desired output. Submit your file or Colab notebook link to the Homework 18 assignment on Moodle.

1. **Origin**: Add a method `isOrigin` that returns `True` if the `Point` object has coordinates (0,0) and `False` otherwise. For example, your function header will be:

   ```
   def isOrigin(self):
   ```

2. **Slope from origin:** Add a method `slopeFromOrigin` that returns the slope of the line joining the origin with the point. For example, `Point(4,6).slopeFromOrigin()` returns 1.5.

3. **Reflection**: Add a `reflect_x` method that reflects a point across the x-axis, returning a new `Point` object. For example, `Point(4,7).reflect_x()` returns a `Point` object with coordinates (4,-7).

4. **Move by**: Add a method `movdBy(dx, dy)` that takes two parameters `dx` and `dy`. The method will modify the properties of the point so that the point moves by the given distances in the x and y directions. For example, consider the following code:

   ```
   p = Point(1, 6)
   p.moveBy(3,2)
   ```

   After these lines of code have run, `p` will have coordinates (4,8).