**Iteration 3**

**Requirement**

determine distances between locations and create a list sorted by location also give option to get closest distance as well as centre distance and get a list of location within a specified range

**Objectives**

**Add a method to the MapCoordinate class to calculate distances**

The distance should implement a haversine calculation for distance.

**Add a method to the LocationTrigger class to determine distance to the centre from a point**

The method should be virtual to allow the user to override it with a different method to determine distance

**Add a method to the LocationTrigger class to determine the closest distance from a point to a location**

This should use the closest point method and then determine the distance between that point and the specified point.

**Add a method to the LocationTriggerCollection Class to create a list of the closest locations and sort them by distance.**

The sorting should be generic and have the option for the user to define their own.

**Add a method to the LocationTriggerCollection Class to create a list of locations within the specified distance**

The method should calculate the distance between the centre and the specified point and add them to the list if it is less than the specified distance

**Completion criteria**

1. The library is able to determine distances between locations across the world including over the poles and date line.
2. The library can create a list of locations within a fixed range from a point worldwide.
3. The library can get a sorted list of the nearest locations.