# Data Structures and Algorithms

# Assignment 8

Please complete all problems described below. This assignment forms part of the assessment for this module and you are required to upload a copy of your solution to Moodle on or before the given date.

**Question 1 (4 marks)**

A class Point that represents a point in the Cartesian plane is given. Re-write this class so that it meets the requirements for storage in our HashList<E> container. Test your class by creating a hash list of Point instances and running relevant queries on your list. The list should contain at least 10000 point instances. Part of your test should experiment with the number of lists in the table (the value of n passed to the constructor) to try to optimize the performance so that you don’t get a large number of empty buffers and no buffer contains a large number of elements.

**Question 2 (6 marks)**

Write the following methods for the MyHashList<E> class given in the assignment code. You should test these new methods by creating a hash list of integer values.

|  |  |
| --- | --- |
| public LinkedList<E> getList(E x) | Returns a copy of the list of elements matching values whose hash code match that of x |
| public void remove(List<E> ls) | Remove elements in ls from table |
| List<E> get(Predicate<E> pr) | Returns the list of values that satisfy the predicate pr. |