CpSc 2120 — Goddard — Fall'17

**Assignment 2**

**Due 6pm Sunday 22 October**

Convex Hulls and Graham's Scan. Calculate a series of classes to store, manipulate and calculate the convex hull of a set of points.

## Task One

In Point.cpp provide the implementation code for class Point. The header file is provided and should not be changed. This class stores a point as a pair of int's.

## Task Two

In PointStack.cpp provide the implementation code for class PointStack. The header file is provided and should not be changed. This class stores a stack of Point's using a linked list. Add suitable error checking.

## Task Three

Header file and partial implementation for GrahamScan is provided. Create a separate driver in file Driver.cpp. This
✶ reads from standard input an integer count, and then that many points, each entered as two integers;
✶ calls the convexHull function and prints the result; and then
✶ calls shellIt.

## Task Four

Complete the code in GrahamScan files. (You may revise header if desired.)

- The function convexHull function calculates the convex hull of a collection of Point's, passed using the standard library vector. It uses Graham's scan and the PointStack class from above. You may assume that: no two points have the same x-coordinate, and no three points lie on a line.
- The function shellIt computes the hull, prints out the result, discards those points, and repeats until no points are left.

An example run is printed out on the reverse.

## Submission via handin