**Vicon Algorithm Software Engineering Test**

In C++, implement the RANSAC algorithm to robustly estimate a line from noisy 2d points.

Tools: can use STL, boost, and C++ using a modern C++ compiler (up to C++ 11).

Input : a set of 2d points with unknown uncertainties, and any required algorithm parameters.

A file containing a set of test points will be provided.

Outputs : the line parameterized as two points, and which input points are inliers.

Consider how the code might be organised to be easy to test, for others to read, and to improve later. Emphasis will be placed on a correct and well-engineered solution.

Use of the internet is encouraged to become familiar with details the algorithm and its variants; copying/pasting directly from the internet is unlikely to be helpful. The Wikipedia page should be treated with particular scepticism.

Comments can be useful to explain design/implementation choices; there will also be an opportunity to explain these verbally.

Any reasonable extensions to the basic RANSAC algorithm would be welcome but please note in comments where these are made, and provide any relevant citations.

We have provided a simple command-line harness, including code to read and write the output.

Please feel free to remove the boost command line parser if you do not have access to boost.

*sample\_points.csv* is provided as input test data file, and *display\_points.py* is provided to visualise the results output by the test program.