**(1)provides a motivation of their topic:**

A convex is a shape in which no line segment between two points within the shape can cross the shapes boundary. The convex hull algorithm is then an algorithm over a set of points which calculates the smallest convex shape which can be used to contain all the points.

-Aid visualization of data

-reduce polygons to convex polygons for faster computation (i.e. physics simulation)

-generate shape from raw data for use in calculations (i.e 3d scan into 3d object)

**(2) explains the problems that have to be solved**

To calculate the convex hull a region must be calculated that contains each point provided by a complex point object which is passed into the convex hull function.

**(3) identifies data types (classes) and operations (methods) that have to be provided in their interface(s) (4) lists for each operation/method a semantics description (What does the method do?), the input data types, and the output data types, and**

Point Class:

methods:

BigNumber getXCoord() // returns a big number of the x coordinate

BigNumber getYCoord() // returns a big number of the y coordinate

Complex Point Class: for this class the manner in which the points are returned is crucial for the algorithm as to what ordering the points may have, an ordering could be used to speed up the computation

methods:

vector<Point> getPoints() // returns all the points of the Complex Point object (can be unordered)

LargeNumber Class: this class is used to hold all calculation results and point information

methods:

LargeNumber operator-(const LargeNumber &input)

LargeNumber operator+(const LargeNumber &input)

bool operator>(const LargeNumber)

bool operator<(constLargeNumber)

Region Class: the convex hull computation will may return a Region Object after calculating the correct set of points

methods: Region(ComplexPoint cp)

**(5) formulates interface requirements from other groups.**

For the interface requirements these classes and methods must be defined in a agreed upon header file. Such a file could be named “Topic#.h” to simplify which header file includes what.