Coders Inc Design Decisions – Milestone 2

# Distance Algorithms

* Decision was made to remove the base calculation for the distance between two values from the kNN function
  + This allows changes to be made to how the distance is calculated for different data types without having to change the kNN function
  + This also allows for easier testing of distance to help to isolate any bugs that may be present in either the distance or kNN functions

# Sole Distance Metric of Euclidean Distance

* The only function for calculating the net distance between two points that is present in the program is an Euclidean distance function
* Due to other issues and trouble tracking down troublesome bugs, the decision was made to forego the implementation of other distance functions for this Milestone
  + There are plans to include options for the user to pick from following distance metrics, on top of Euclidean
    - Minkowski Distance
    - Chebyshev Distance
    - Manhattan Distance

# Standardization using Normalization

* The decision was made to use normalization in order to standardize the points
* This is based on the assumption that the information that the user provides will approximately follow a normal distribution
  + We felt that this was a reasonable assumption to make based on the characteristics of normal distributions

# Use of Composite Design Pattern for Point Attributes

* The composite design pattern was used for the contents of a Point’s attribute
  + This allows the attributes to take simple, single-value attributes, as well as complex, multi-value attributes (such as a set of coordinates)