**Structures Pyramid Analysis Plan**

**SMART Goal: It is a goal that is specific, measurable, attainable, relevant and time based**

**Specific**: Determine Factors that influences algae’s to bloom

**Measurable**: I am ready to apply different multivariate analysis algorithm and within 5-6 weeks we will achieve our above goal

**Attainable**: I will first analyze the data properly understand what we have in our data and then we will understand each attributes relationship with another attribute and thus finally we will understand the different factors that has an effect on our algaes to bloom

**Relevant**: Identifying when the algae blooms will help to maintain the river water quality and also river ecosystem thus helping to take preventive measures so that algae does not bloom and make the above damage

**Time-based**: Within 6 weeks I will be apply to identify the factors that are responsible for algae to bloom in the river

The full defined Structured Pyramid Analysis Plan is as follows:

**S.M.A.R.T. Goal:**To determine the factors that influence the algae blooms.

**Specific Analysis and Visualization to be created:**

For the river size: Box and Whisker’s plot

For Season: Box and Whisker’s plot

For Speed: Box and Whisker’s Plot

Why Box and Whisker’s plot:

All the above variables are categorical/ordinal in nature and the dependent/Target Variable is numerical in nature, hence a Box and Whisker’s plot would be an ideal way of Visualization.

Chemical River Characteristics: Scatter Plot.

Why Scatter plot:

We wanted to see the range in which the maximum algae are blooming. Also we had to use two variables for doing it hence Scatter plot was the best choice.

**Specific Independent Variables:**

River Size: Large, Medium, Small

Speed: High, Medium, Low

All the Chemical River Characteristic Independent Variables are Numeric in nature.

Season: Autumn, Spring, Summer, Winter

**Independent Variable Categories:** We have divided the data set in 3 categories for the independent variables.

The categories are as follows:

1. Physical River Characteristics:

River Size, River Speed

1. Chemical River Characteristics:

mxPH, mnO2, Cl, NO3, NH4, oPO4, PO4, Chla

1. Season:

**Dependent Variable Definition:**All the 7 different types of Algae’s i.e. a1, a2, a3, a4, a5, a6,a7