1. ***What is the most suitable Artificial Intelligence Technique that can be used for the proposed system? Explain in detail your answer.***

Artificial Neural Networks (ANN) is suitable used to analyze meteorological data gathered from the Malaysian Meteorological Department (MMD) over the period of thirty years (1981 – 2012) which is consist seven attributes. Artificial Neural Networks can detect the relationships between the input variables and generate outputs based on the observed patterns inherent in the data without any need for programming or developing complex equations to model these relationships. Hence given enough data ANN’s can detect the relationships between weather parameter and use these to predict future weather conditions.

1. ***After a discussion with your development team, it is a need to reduce the number of attributes for the certain reasons. How do you reduce the attributes without jeopardizing the contract requirements, using Knowledge Discovery in Databases (KDD) technique? You must explain in detail how you plan to do it and show the data after the reduction process while the final data must be suitable for your data mining algorithm.***

The data used was collected from Malaysian Meteorological Department (MMD).The case data covered the period of thirty years (1981 – 2012). The following steps were adopted for this case: Data Selection, Data Cleaning, Data Transformation and Data Mining.

**Data Selection**

At this stage, data relevant to the analysis was decided on and retrieved from the dataset. The meteorological dataset had ten (7) attributes, their wind direction, precipitation, high and low temperature, dew point, wind speed and weather condition is presented in Table 4.1, while an analysis of the attributes information is presented in Table 4.2.

**Data Cleaning**

In this stage, a consistent format for the data model was developed which took care of missing data, finding duplicated data, and weeding out of bad data. Finally, the cleaned data were transformed into a format suitable for data mining.

**Data Transformation**

This is also known as data consolidation. It is the stage in which the selected data is transformed into forms appropriate for data mining.

**Data Mining Stage**

The data mining stage was divided into three phases. At each phase all the algorithms were used to analyze the meteorological datasets. The testing method adopted for this case was percentage split that train on a percentage of the dataset, cross validate on it and test on the remaining percentage. Thereafter interesting patterns representing knowledge were identified.