**Machine Learning Session # 1: Assignment**

**Date: 11/17/18**

**Problem Statements**

Q: What are the three stages to build the hypotheses or model in machine learning?

A: Machine learning 3 stages of building a model along with their details is as:

1. Data preparation: Collect, Explore, Cleanse, Prepare and Split
2. Data set generation and algorithm training: Pick learning, Engineer features, Select algorithms
3. Deployment and monitoring: Apply model to fresh data, monitor outcomes, and improve model

Q: What is the standard approach to supervised learning?

A: supervised learning algorithms receive a set of inputs along with the corresponding correct outputs, and the algorithm learns by comparing its actual output to find errors. It also uses patterns to predict the values of the level on additional unlabeled data. The main purpose of the supervised learning is commonly used in application where historically data predicts likely future events.

Q: What is training set and Test set?

A: Training set is a dataset used to train a model, while the test set is a dataset used to measure how well the model performs at making predictions on that test set.

Q: What is the general principle of an ensemble method and what is bagging and boosting in ensemble method?

A: Generally, ensemble method helps improve machine-learning results by combining several models. And they are like; meta-algorithms that combine many machine learning techniques into one predictive models in order to decrease variance, which is bagging. Boosting at this part, is being bias.

Q: How can you avoid over-fitting?

A: in order to avoid over-fitting, your data model should not be complex. Collecting more data and keeping your model simple also incorporates minimizing the chances of over-fitting. A few other helpful approaches are as enlarging your dataset syntactically, reducing the number of your independent parameters, and cross validation.