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|  | **Program Name: Data Science and Machine Learning Overview** | | |
|  | **Session** | **Objectives** | **Program Structure** |
| **Day 1** | **Introduction To Data Science**   1. What is Data Science ? 2. Data Science team structure 3. Data Science stages 4. Machine Learning and data science | Introduction to data science discipline as an approach to extract hidden patterns from data  Skills required in Data Science, Structure of data science team | Presentations, discussions |
| **Introduction to Machine Learning**   1. Patterns in data, what does it mean? 2. Representing reality in models 3. What is Machine Learning ? 4. Why Machine Learning 5. Supervised machine learning 6. Unsupervised machine learning 7. Challenges of machine learning 8. Generalization and model fit | To help participants understand what patterns in data mean  Introduce participants to machine learning concept  To familiarize participants with the two broad classification of machine learning styles, their applicability, requirements of each type  Concepts of over fitting / under fitting and generalization | Presentations and discussion on live case studies |
| **Basic statistical using R**   1. Mean, Median, Mode 2. Liner regression 3. Multiple regression | A thorough introduction to metrics about data such as mean, median, quantiles, mode, relation between variables | Presentations, discussions, hands on? |
| **Unsupervised Learning Methods**   1. Clustering | To explain concepts of unsupervised machine learning, their applications and how systems learn on their own | Presentations, discussions and demos |
| **Machine Learning Project**  To be decided | To explore the avenues for machine learning in current context | Student presentations |