Machine Learning Techniques

Course Synopsis:

Effective Machine Learning allows computers to learn and make accurate predictions based on data. This course acquaints course participants with analytics scenarios for different industries and focuses on the application of supervised and unsupervised learning techniques suited for large and complex datasets. It also covers methods to evaluate and improve machine learning models.

Learning Objectives:

Upon successful completion of this course, the learners will be able to:

1. Describe the various machine learning techniques that are used in solving real-world problems.
2. Apply the relevant supervised and unsupervised learning techniques on problem scenarios.
3. Interpret the results generated from machine learning techniques.
4. Apply methods to improve machine learning models.
5. Evaluate the machine learning models.

Course Duration:

4 days

Analytical Software:

- Knime, RapidMiner or SAS Viya

Course Fee:

This is a course under the SkillsFuture Series. The course fee and subsidy table as follows (exclude GST):

Course Name	Total Programme Fee	Singapore Citizen < 40 yrs old and Permanent Residents	Singapore Citizens ≥ 40 yrs old	Singapore Citizens and Permanent Residents under PR
Machine Learning Techniques	$840.00	$252.00	$84.00	$84.00

The course fee is inclusive of venue and course materials. Certificate of participation will be provided for participants who have attended 75% of the course.

Course Programme:

Day		Programme
1	AM	**Introduction to Business Analytics & Statistics** • Overview of Business Analytics **Foundation of Statistics** • Types of analytical techniques (descriptive, diagnostic, predictive, prescriptive, etc) • Lab 1: Simple Statistics with Excel
	PM	**Business Analytics Essentials** • Data Analytics Lifecycle (CRISP-DM) • Data Preparation I • Lab 2: Data Preparation using Excel • Lab 3: Data Preparation using Analytical Tool
2	AM	**Introduction to Machine Learning Techniques** • Machine Learning use cases • Machine Learning vs AI vs Deep Learning • Dimension Reduction Techniques & Feature Selection • Lab 4: Feature Selection
	PM	**Machine Learning Techniques I** • Predictive modelling: Unsupervised Learning • Unsupervised Learning: Clustering vs Association Rule Mining • Lab 5: Clustering & Association Rule Mining
3	AM	**Machine Learning Techniques II** • Predictive modelling: Supervised Learning • Supervised Learning: Regression • Lab 6: Linear Regression
	PM	**Machine Learning Techniques III** • Supervised Learning: Support Vector Machines (SVM) • Lab 7: Support Vector Machine
4	AM	**Machine Learning Techniques IV** • Supervised Learning: Decision Tree • Lab 8: Decision Tree
	PM	**Model Comparison** • Comparison of models: strength & weakness • Compare black box and white box approaches • Evaluate and improve on the models • Case Study using CRISP-DM • Lab 9: Model Comparison