

Preface

I have contributed to data breach analysis projects using Six Sigma and analytics methodologies, trained under Professor Murali Rao Garimella at the Indian Statistical Institute Hyderabad.

Currently developing a guide on applying Six Sigma and Business Analytics for data-driven problem-solving.

This repository contains resources, code snippets, and case studies related to my research on Six Sigma and Business Analytics methodologies.

Certificate



Figure 1: SSBB-BA-Certificate

| Six Sigma Black Belt with Business Analytics Curriculum | |
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| <p>Six Sigma DMAIC</p> <ul style="list-style-type: none"> An Introduction to Quality/Six Sigma / Business Excellence Six Sigma Architecture and DMAIC Methodology Define Phase : <ul style="list-style-type: none"> Voice of Customer (VOC), Kana Analysis & QFD Critical to Quality Characteristics (CTQ) and Big Y Process Mapping (SIPOC) and Project Charter Development Measure Phase : <ul style="list-style-type: none"> Understanding Data and its precautions/processing Descriptive Statistics, Probability & Probability Distributions Performance Evaluation - MSA, Stability & Capability, Sigma Level etc Analyze Phase : <ul style="list-style-type: none"> Benchmarking and Gap Analysis Detailed Process and Root Cause Analysis. Problem Solving Techniques Root Causes Validations - Inferential Statistics Improve Phase : <ul style="list-style-type: none"> Establishing Variable (Root Cause) Relationships, Regression Modelling Solution Generations – Design of Experiments Finding the optimal solution and validation Control Phase : <ul style="list-style-type: none"> Evaluation of the Improved Process Developing Control Plans – Full Proof and Process Control Systems Implementation of Controls and achieving Sustenance | <p>Business Analytics / Data Science</p> <ul style="list-style-type: none"> An Introduction to Business Analytics / Data Science / Machine Learning / Artificial Intelligence An Introduction to open-source programming tools (Python/R Programming) for Analytics Understanding multi-dimensional large volumes of data/big data. Data Preparation / Data Cleaning Methodologies Data Visualization – Understanding the underlying behaviour and interpretation through graphs and charts. Exploration of data using statistical methods – Data Mining Describing data and deriving meaningful information – Descriptive Analytics. Postulating existing/new theories and validation for drawing significant inference on the theories. Introduction to Machine Learning and Statistical Modelling Supervised Learning Methods – Machine Learning Algorithms <ul style="list-style-type: none"> Understanding Classification and Regression Methods/Models Ordinary Least Square (OLS) Methods/Models Model Diagnostics, Feature Engineering, Resampling Methods etc. Logistic, Discernment, KNN Methods/Models Tree Based Methods/Models – Decision Trees Ensembled Methods/Models – Random Forest, Bagging, Boosting. Text Mining, NLP, Sentiment Analysis etc. Association Rules and Market Basket Analysis. Time Series & Forecasting Models Unsupervised Learning Methods <ul style="list-style-type: none"> Clustering Methods Principal Component Analysis Discriminant Analysis Artificial Intelligence (introductory) <ul style="list-style-type: none"> Deep Learning Algorithms – Neural Networks etc. Generative AI/LLM Algorithms. |
| <p>Program Design: FOUR fundamental skill/knowledge dissemination modes. 1. Online Class Room Teaching 2. Online Hands-on Sessions 3. Assignments and 4. Project/Dissertation work. Datasets/Case Studies/Published Papers for Hands-on Sessions/assignments. Statistical Software/Tools : Minitab and Python.</p> | |
| <p>Schedule : Total duration of the program : Approximately 70 hours spread over two months (March & April 2024). Online during weekends (Saturdays & Sundays 4 hours per day 9.00 AM to 1.00 PM).</p> | |
| <p>Certification Criteria</p> <ul style="list-style-type: none"> Fully attending all the sessions of the course online. Submitting all the assignments on time Submitting a Six Sigma/Business Analytics/Data Science Project/Dissertation work Securing at least 70% Marks in the Overall Assessment (Periodic Evaluations/Assignments/Final Examination/Project/Dissertation work). | |

Figure 2: SSBB-BA-Syllabus

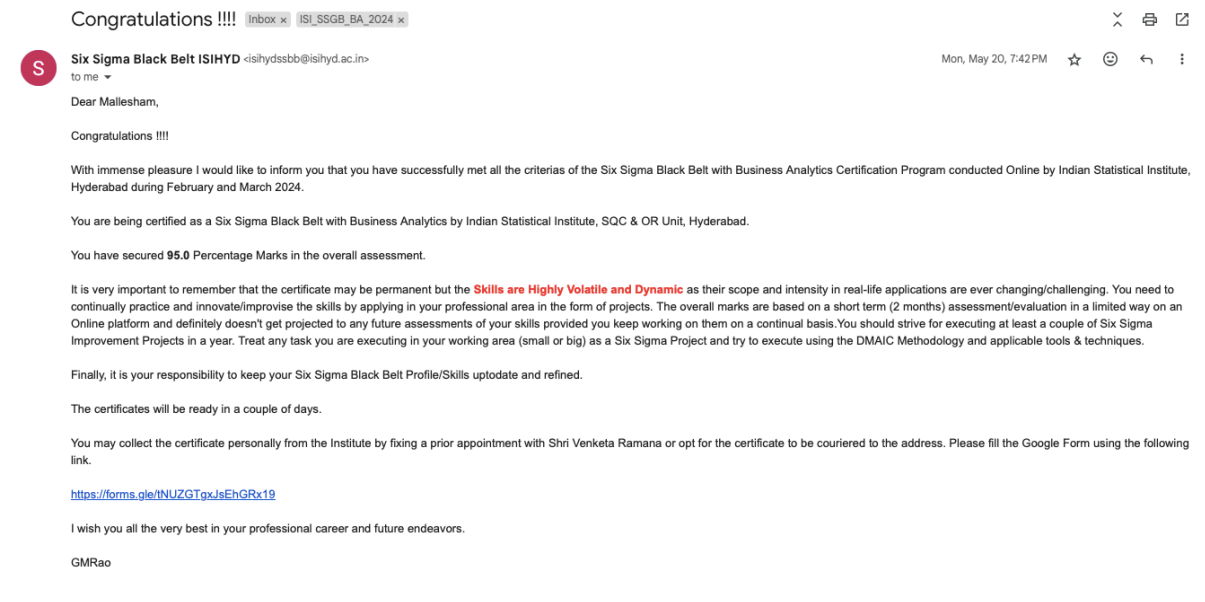


Figure 3: SSBB-BA-Result-Email