GENWARE COMPUTER SYSTEMS Inc

1700 Rte 23N Suite 120

Wayne

New Jersey 07470

PO Box 4447

Wayne

New Jersey 07474 - 4447

Tel (973) 633-6606

Fax (973) 633-6647

www.GenwareCS.com

Genware Computer Systems

Training Workshops

TIBCO® Connected Intelligence Technologies

Table of Contents

1. Introduction

Genware Computer Systems Inc. provides customized training in the field of Advanced Analytics using the TIBCO® Connected Intelligence technologies. We provide training to our customers at their site or remotely using screen sharing technologies. The Genware training philosophy is to teach our students how to leverage the technology to address a business need.

This document provides an overview of each of the training courses, the standard contents for each course, the level of customization that can be included, and the target audience for each course.

Venue and Schedule

Remote delivery

We leverage web-based technologies classroom sessions. The instructor shares their screen and students participate in group audio. We offer public training as well as private single customer training.

Private classroom

We provide Customer On-Site training.

Program

Our typical training day program is as follows:

09:00 – 10:30 Session 1 (1.5 Hours)
10:30 – 11:00 Break (30 min)
11:00 – 12:30 Session 2 (1.5 Hours)
12:30 – 13:30 Lunch (1 Hour)
13:30 – 15:00 Session 3 (1.5 Hours)
15:00 – 15:30 Break (30 min)
15:30 – 16:30 Session 4 (1 Hour)

Half day sessions end at 12:30pm.
Schedule can be modified to accommodate customer needs.

2. Workshop 1A: Visual Analytics using TIBCO Spotfire® Analyst

Description

This one day workshop is designed to equip the student with a full spectrum of analytic capabilities to empower novice and advanced users with fast and easy dashboard design and analytics delivery to provide built-in intelligence with suggestions for best-practice visualizations that supports multiple forms of data.

Objectives

Teaching students to:

- TIBCO Spotfire® as an analytics platform
- The TIBCO Spotfire® Interface to successfully launch and interact with the application
- Different charts and to have them interact with one another when drilling through data
- Working with data and multiple data sources within your analysis
- Save and export options available within the application
- Additional visualizations, properties and detailed visualizations
- Aggregations, custom expressions, and calculated columns.

Outcome

Students will leave the workshop with an excellent theoretical and practical understanding of Introductory Analytics using TIBCO Spotfire® and applying these in an operational and business context.

Duration

This is a 1 Day Workshop running from 9:00 am to 4:30 pm

Curriculum - Visual Analytics using TIBCO Spotfire® Analyst

1. Introduction
    a. TIBCO Spotfire® Overview
    b. Spotfire® Platform
    c. Licenses
2. Introduction to Spotfire® Interface
    a. Launch Application
    b. Server Login vs. Work Offline
    c. Spotfire® GUI Interface
3. Charts
    a. Authoring Panel/Visualization
    b. Recommended Visualization
    c. Introduction to Chart Types
    d. Axis selectors and Axis Drop Zones
    e. Visualization Properties
4. Working with Data
    a. Data Sources
    b. Open Data
    c. Capture and working with Bookmarks and Conversations
    d. Multiple Data Tables
    e. Filtering and Marking
    f. Tags and Lists
5. Save & Export
    a. Save As
    b. Export
6. More Visualizations
    a. Chart Types
    b. Working with Axis Selectors
    c. Visualization Properties
    d. Detailed Visualizations
7. Aggregation
    a. Aggregation Options
    b. Prepared Data Functions
    c. Expression Shortcuts
    d. Custom Expressions
    e. Calculated Columns

3. Workshop 1B: Visual Analytics using TIBCO Spotfire® Business Author

Description

This one day workshop is designed to equip the student with a full spectrum of analytic capabilities to empower novice and advanced users with fast and easy dashboard design and analytics delivery to provide built-in intelligence with suggestions for best-practice visualizations that supports multiple forms of data. Spotfire® Business Author is the web interface used to author visual analytics solutions in Spotfire.

Objectives

Teaching students to:

- TIBCO Spotfire® as an analytics platform
- The TIBCO Spotfire® Business Author Interface to successfully access and interact with the application
- Different charts and to have them interact with one another when drilling through data
- Working with data and multiple data sources within your analysis
- Save and export options available within the application
- Additional visualizations, properties and detailed visualizations
- Aggregations, custom expressions, and calculated columns.

Outcome

Students will leave the workshop with an excellent theoretical and practical understanding of Introductory Analytics using TIBCO Spotfire® and applying these in an operational and business context.

Duration

This is a 1 Day Workshop running from 9:00 am to 4:30 pm

Curriculum - Visual Analytics using TIBCO Spotfire® Business Author

1. Introduction
    a. TIBCO Spotfire® Overview
    b. Spotfire® Platform
    c. Licenses
2. Introduction to Spotfire® Interface
    a. Access Business Author Spotfire®
    b. Spotfire® GUI Interface
3. Charts
    a. Authoring Panel/Visualization
    b. Recommended Visualization
    c. Introduction to Chart Types
    d. Axis selectors and Axis Drop Zones
    e. Visualization Properties
4. Working with Data
    a. Data Sources
    b. Open Data
    c. Capture and working with Bookmarks and Conversations
    d. Multiple Data Tables
    e. Filtering and Marking
5. Save & Export
    a. Save As
    b. Export
6. More Visualizations
    a. Chart Types
    b. Working with Axis Selectors
    c. Visualization Properties
    d. Detailed Visualizations
7. Aggregation
    a. Aggregation Options
    b. Expression Shortcuts
    c. Custom Expressions

4. Workshop 2: Advanced Analytics using TIBCO Spotfire® Analyst

Description

This one day workshop is designed to extend a student's expertise in using advanced analytical concepts and extending visual analytics with the built-in tools for advanced analysis and statistical analysis and modeling available in the Spotfire Analyst. TIBCO Spotfire® Data Streams is used to showcase how to analyze streaming data in Spotfire®.

Objectives

Teaching students to extend their dashboards using:

- Advanced analytical concepts
    - Calculated columns and expressions within visualizations
    - Document properties, complex custom expressions
    - Advanced marking and filtering
- Built-in statistical tools for clustering, data relationships, and classification modeling
- Working with TIBCO Enterprise Runtime for R
- Using the Advanced Data Canvas
- Analyzing streaming data

Outcome

Students will leave the workshop with the tools necessary to build powerful analytical dashboards, perform data wrangling, and leverage Spotfire's built-in statistical tools to build models and identify unseen relationships within the data.

Duration

This is a 1 Day Workshop running from 9:00 am to 4:30 pm

Curriculum - Advanced Analytics using TIBCO Spotfire® Analyst

1. Spotfire® Advanced Technologies
    a. Expressions
        i. Functions
        ii. Expression Shortcuts
    b. Advanced Properties Controls
        i. Control types
        ii. Referencing Properties
        iii. Multi-select property controls and the “map” command
        iv. Centralizing maintenance and reducing development time using document properties
    c. Advanced Data Canvas
    d. Data Connections
    e. Data on Demand
    f. In-depth Marking and Filtering
        i. “Drill up, drill down, drill across” with multiple marking schemes
        ii. Filter by Data Limiting Expression
        iii. Filter within Custom Expressions
2. Built-in Analytics Tool
    a. Data Relationships
        i. Numerical vs Numerical
        ii. Numerical vs Categorical
        iii. Categorical vs Categorical
    b. Data Predictions
        i. Regression Modelling
        ii. Classification Modelling
    c. Lines & Curves
    d. Multivariate Data Analysis
        i. Line Similarity
        ii. K-Means Clustering
        iii. Hierarchical Clustering
3. Introduction to R/TERR
    a. Working with Data Functions
    b. TERR Tools
    c. TIBCO Data Science Statistica Data Function
4. Streaming Visualizations
    a. Connecting to Dynamic streams
    b. Streaming data
    c. Combining with static data
    d. Alerts

5. Workshop 3: Hands on Interactive Workshop using TIBCO Spotfire® Analyst

Description

The Hand on interactive workshop is a tailored workshop based on your specific business and analytic needs. This interactive workshop provides you with a Genware architect for day, working with your data and specific topics you need to master. The Genware architect will mentor the students in addressing questions and techniques supplied ahead of time.

Objectives

Working with attendees to:

- Create specific visualizations and dashboards using their data
- Master skills creating advanced dashboards
- Discuss and showcase best practices for architecture, design and deployment
- Implement best practices in visualizations and data discovery

Outcome

Students will leave the workshop with answers to their questions and solutions to their visualization needs.

Preparation

At least 2 weeks prior to workshop date, the following are required:

- business “points of pain” to be addressed
- Dashboard topics to addressed

Duration

This is a 1 Day Workshop running from 9:00 am to 4:30 pm

Curriculum – Hands on Interactive Workshop using TIBCO Spotfire® Analyst

This curriculum is based on the questions sent ahead of time and any specific topics that the students would like to explore.

6. Workshop 4: TIBCO Spotfire® Administration

Description

This one day workshop is designed to equip the student with administrative capabilities to empower administrators with knowledge of server, library and user administration. Advanced topics that are often performed by the Administrator will also be reviewed. A short introduction will be provided to the Genware Managed Service report that discusses key metrics to manage usage and usability of Spotfire content.

Objectives

Teaching students to conduct administration tasks including:

- TIBCO Spotfire® Server administration
- TIBCO Spotfire® Library administration
- TIBCO Spotfire® Administration Manager
- User and library access permissions

Outcome

Students will leave the workshop with an understanding of how to manage a Spotfire® server environment, how to perform common administration tasks including user creation and management, access permission allocations, and managing the Spotfire library. Students will be introduced to the Genware Managed Service

Duration

This is a 1 Day Workshop running from 9:00 am to 4:30 pm

Curriculum – TIBCO Spotfire® Administration

1. Spotfire® Management and Administration
    a. Security
    b. Library Administration
    c. Browse, Access, Full Control
    d. Scheduling and Routing
    e. Nodes and Services
    f. Deployment and Packages
    g. Monitoring and Diagnostics
    h. Automation Services
    i. Server Tools
2. Advanced Spotfire® Data Management
    a. Information Designer
    b. Spotfire® Connections
    c. Internal vs. External Data
    d. Data on Demand
3. Advanced Spotfire® Scripting
    a. Building JavaScript Visualizations
    b. Using Python and the Spotfire® API to automate dashboards.
    c. Employing HTML and JQuery in text boxes.
    d. Embedding Spotfire in 3rd party portals.
    e. Configuration Block
4. Genware Managed Service Metrics introduction

7. Workshop 5: Extending TIBCO Spotfire® with JSViz and IronPython

Description

The JavaScript Visualization Framework, or JSViz, is a Custom Extension for TIBCO Spotfire® that allows users to create their own visualizations using JavaScript libraries such as d3 but still allow them to seamlessly integrate with the Spotfire® platform. With IronPython scripts it is possible to add behaviors to your dashboards without creating and deploying extensions. IronPython scripts can access the capabilities available in the Spotfire Analyst API.

Through a combination of lecture and detailed demonstration, this workshop is designed to introduce students to the process required to extend Spotfire® dashboards by using JSViz and adding custom visualizations, and to leverage IronPython data functions to extend the user experience.

Objectives

Teaching students to extend dashboards using:

- JSViz
- IronPython Data Functions

Outcome

Students will leave the workshop understanding the basics of working on their own in the Spotfire® Data Function framework and understand how to integrate an IronPython Data Function into Spotfire® for deeper analysis. A student will be able to register a new data function or integrate a previously registered data function into Spotfire®. Additional chart types can be added to a dashboard using JSViz.

Duration

This is a 1/2 Day Workshop running from 9:00 am to 12:00 pm

Curriculum – Extending TIBCO Spotfire® with JSViz and IronPython

1. Introduction – JSViz
    a. JavaScript Overview
    b. Spotfire® Platform
    c. Pros and Cons
2. JavaScript Visualization Development
    a. System Requirements
    b. Components and Configuration
    c. Step-by-step Building a Sample Visualization
    d. Demonstration of Examples
3. Introduction - IronPython
    a. IronPython Scripting
        i. Spotfire® API
        ii. Managing Scripts in Spotfire®
    b. IronPython use cases
4. IronPython Data Functions Integration Development
    a. System Requirements
    b. Components and Configuration
    c. Python Data Function Overview
        i. Register Data Functions
            1. Input Parameters
            2. Output Parameters
            3. Script
    d. Step-by-step integration of a Python Data Function into a sample dashboard
    e. Demonstration of Examples

8. Workshop 6: TIBCO Spotfire® Data Streams

Description

TIBCO Spotfire® Data Streams powers streaming data in Spotfire® analytics so you can analyze and visualize what's happening right now with real-time analytics. With an ultra-fast continuous query processing engine, Spotfire® Data Streams supports live real-time data from almost anywhere and can combine it with historical data through native or easy-to-build custom data connectors.

Through a combination of lecture and detailed demonstration, this workshop is designed to introduce students to building Spotfire® dashboards incorporating streaming and static data.

Objectives

Teaching students to:

- Understand the data flow process
- Build a data feed using Studio
- Work with data and adapters
- Create tables for streaming consumption
- Visualize streaming data using TIBCO Spotfire®
- Combining Streaming and Historic data in dashboards

Outcome

Students will leave the workshop understanding the value of Streaming data and how best to create dashboards that leverage real-time data. Best practices and techniques to combine real-time and historic data will be covered and practiced.

Duration

This is a 1 Day Workshop running from 9:00 am to 4:30 pm

Curriculum – Introduction to TIBCO Spotfire® Data Streams

1. Introduction to TIBCO® Spotfire® Data Streams
    a. Streambase
    b. LiveView
    c. Spotfire®
2. Streambase
    a. Data adapters
    b. Feed simulations
    c. Basic transformations
    d. Filters
    e. Aggregates
3. LiveView
    a. Creating Dynamic Tables
    b. Filters and Aggregations
    c. Populating data
    d. Running wokflows
4. Visualizations using TIBCO® Spotfire®
    a. Connect Spotfire to Dynamic streams
    b. Streaming data
    c. Combining with static data
    d. Alerts

9. Workshop 7: TIBCO® Streaming

Description

The TIBCO Streaming workshop introduces the TIBCO Streaming Event Processing platform. Students use the StreamBase Studio development environment to build streaming applications. Students gain experience in building applications using basic and advanced operators and functions. Students will use Data Science operators to gain experience in advanced concepts. LiveView tables are created and TIBCO Spotfire® is used to analyze streaming data.

Objectives

Teaching students to:

- Understand the Eventflow process
- Building applications using StreamBase Studio
- Working with data and adapters
- Using advanced operators and functions
- Data Science operators
- LiveView and near real-time analytics
- Visualize streaming data using TIBCO Spotfire®

Outcome

Students will leave the workshop with an understanding and an introductory level of hands-on experience to Analyze, continuously query, and act on IoT and other streaming data. Students will learn how to take real-time operations and analytics to the next level with intelligent applications that deploy quickly for taking action based on new decisions and models, all without extra overhead.

Duration

This is a 3 Day Workshop running from 9:00 am to 4:30 pm each day

Curriculum - TIBCO Streaming

1. Components of Streaming
    a. TIBCO® StreamBase®
    b. TIBCO® Live Data Mart
    c. TIBCO® LiveView™
    d. TIBCO® Artifact Management Server
2. EventFlow
    a. EventFlow concepts
    b. Schemas
    c. Input Streams
    d. Operators
    e. Running applications
3. Applications
    a. Connecting Sources and using adapters
    b. Aggregating Data at Authoring Time
    c. Saving and Reading Tables
    d. Tuples
4. Advanced operators and functions
    a. Using and converting XML files
    b. Data Science operators
    c. Applying Spotfire pre built model for predictions
    d. Decision Tables
5. LiveView
    a. Overview and using the Project Viewer
    b. Creating Dynamic Tables
    c. Filters and Aggregations
    d. Populating data
    e. Running wokflows
6. Visualizations using TIBCO® Spotfire®
    a. Connect Spotfire to Dynamic streams
    b. Streaming data
    c. Combining with static data
    d. Alerts

10. Workshop 8: TIBCO® Data Virtualization

Description

The TIBCO Data Virtualization workshop introduces the TIBCO Data Virtualization platform. Students use the TDV Studio development environment to model data, design data services, build transformations, optimize queries, manage resources, and more. The four-tier best practice methodology is followed to provide students with the recommended approach to building governed data sources. Students will learn how to connect to different source data stores and how to optimize the data retrieval process through techniques such as cached API calls and Split Historic-Current data views. Provisioned data stores are viewed in TIBCO Spotfire®.

Objectives

Teaching students to:

- Use the TDV Interface to create the four tier model framework
- Connect to different data sources including relational data, Web based api accessible data, xls, and more
- Provide a business readable source by extending data using metadata
- Create data relationships
- Use advanced techniques to optimize data retrieval and how to use the cache for in memory speed
- Connect to the data using TIBCO Spotfire®

Outcome

Students will leave the workshop with an understanding and an introductory level of hands-on experience to build an enterprise data virtualization solution that orchestrates access to multiple and varied data sources and delivers the datasets and IT-curated data services foundation for nearly any solution.

Duration

This is a 3 Day Workshop running from 9:00 am to 4:30 pm each day

Curriculum - TIBCO® Data Virtualization

1. Introduction to Data Virtualization
2. 4-Tier Modeling
3. TDV Studio interface
4. Introduction to Views
5. Physical Layer
    a. Relational Database
        i. Connection
        ii. Introspection
        iii. Data Discovery
    b. Web services (API)
        i. Connection
        ii. Authentication
        iii. Data preparation
    c. JSON and XML
    d. Physical views
        i. Historic, Short-Term, and Current combination view
        ii. Security based views
6. Business Layer
    a. Relationships and the use of Keys
    b. Relating multiple data sources
    c. Business metadata
    d. Calculations
    e. Aggregations
    f. Governance
7. Presentation Layer
    a. Pre-defined subject matter views
    b. Large column based view
    c. Subject Area view
    d. Business analyst creation of views
8. Performance considerations
    a. Caching
    b. Security (Authentication, Capability, Data)
    c. Transaction Handling
    d. Version Control
9. Spotfire Visualizations
    a. Integrated architecture
    b. Configuring Spotfire
    c. Cache strategy – TDV or Spotfire

11. Workshop 9: Natural Language Generation (Automated Insights Wordsmith)

Description

Natural language generation (NLG) transforms data into a written narrative in almost any language. NLG is used to communicate information to individuals for any industry and application. This course takes the student through the ins and outs of how to get the most out of NLG. We will use the Automated Insights Wordsmith platform to instruct the student how to write narratives and follow best practices. NLG for Visual analytics is shown using TIBCO Spotfire®.

Objectives

Teaching students to:

- Understand the process for creating narratives
- Use the Wordsmith platform to create structured narratives
- Use advanced techniques to structure a narrative and produce variable outputs
- Use the narrative to produce a formatted communication
- Use the narrative in a dashboard using TIBCO Spotfire®

Outcome

Students will leave the workshop with an understanding and an introductory level of hands-on experience to build a Natural Language solution for use in communications or embedded into a dashboard for narratives.

Duration

This is a 1 Day Workshop running from 9:00 am to 4:30 pm each day. There is an option to split this training into four 2 hour sessions.

Curriculum - Natural Language Generation using Automated Insights Wordsmith

1. Session 1
    a. Introduction to how Natural Language Generation works
    b. Using data structures
    c. Introduction to Template design
2. Session 2 - Branch Best Practices
    a. Data Type Review
    b. Formulas for different types
    c. Introduction to Branches
        i. Waterfall Method
        ii. Random Method
        iii. Select All Method
        iv. Default Text
    d. Common Branches
3. Session 3 – Advanced Branch Techniques
    a. Nested Branches
    b. Multiple-Rule Branches
    c. Multi-Variable Branches
    d. Topic-Level Branches
4. Session 4 – Template Best Practices
    a. True / False Formulas
    b. Shared Templates
    c. Synonyms
    d. Editor / Review Tools
    e. Tips & Tricks
    f. Project Plan
5. Session 5 – Dashboard narratives in TIBCO Spotfire®
    a. Integrating NLG and Spotfire
    b. Best practices
    c. Build a sample template
    d. Adding dynamic elements to your template

12. Workshop DS 1: Introductory Analytics using TIBCO® Data Science

Description

This two-day workshop is designed to instruct the student on how to take advantage of the various analytical techniques to characterize data and subsequently explore relations between continuous and categorical data.

Objectives

Using your own data, introduce students to:

- Asking Analytical Questions from Data
- Aligning Analytical & Data Questions to Business Objectives
- Essential concepts in analytics which are the foundation of most statistical tests
- Descriptive analytics and how to describe data
- Quantifying relations between continuous and categorical variables

Outcome

Students will leave the workshop with an excellent theoretical and practical understanding of Introductory Analytics and applying these in an operational and business context.

Preparation

At least 2 weeks prior to workshop date:

- Business questions / “points of pain” to be addressed
- Clean data to confirm applicability

Duration

This is a 2 Day Workshop running from 9:00 am to 4:30 pm each day

Curriculum – Introductory Analytics

1. Analytical Questions & Business Alignment
2. Essential concepts in analytics
3. Descriptive analytics for continuous variables
    a. Measures of location
    b. Measures of variation
    c. Measures of distribution shape
    d. Measures of ranges
    e. Assessing normality
4. Relations between continuous variables
    a. Correlations
5. Relations between categorical variables
    a. Frequency tables
    b. Cross tabulation
    c. Chi-square test
6. Relations between continuous and categorical variables
    a. T-test
    b. Breakdown tables
    c. One-way ANOVA
7. Analysis of non-normal data (nonparametric methods)
    a. Nonparametric descriptive analytics
    b. Comparing 2 independent samples
    c. Comparing 2 dependent samples

13. Workshop DS 2: Intermediate Analytics using TIBCO® Data Science

Description

This two-day workshop will enable students to undertake analyses that seek to establish relations between variables, using ANOVA and/or multiple linear regression. These are essential building blocks to understand the incredibly powerful and useful optimization technique of “design of experiments” (DOE).

Objectives

Using your own data, introduce students to:

- Analysis of variance (ANOVA), and provide a good understanding of the two most commonly used types of ANOVA
- Multiple linear regression and the techniques of stepwise regression
- Design of experiments (DOE), and demonstrate the incredible power of structured experiments for efficient process optimization

Prerequisite

Workshop DS 1: Introductory Analytics using TIBCO® Data Science

Outcome

Students will leave the workshop with an excellent understanding of theory and practice of Intermediate Analytics Techniques used in industry to describe, analyze, model and optimize operational processes. DOE is used extensively in process optimization methodologies (e.g. 6σ DMAIC) to enable the rapid and efficient attainment of optimal settings for processes, in order to deliver on-target outputs.

Preparation

At least 2 weeks prior to workshop date:

- Business questions / “points of pain” to be addressed
- Clean data to confirm applicability

Duration

This is a 2 Day Workshop running from 9:00 am to 4:30 pm each day

Curriculum – Intermediate Analytics

1. Differences between multiple groups
    a. Objective and applications
    b. Types of ANOVA
    c. 1-way ANOVA
    d. Main effects and interactions
    e. Multi-way ANOVA
    f. Repeated measures ANOVA
2. Correlational models using continuous predictors
    a. Objective and applications
    b. Multiple linear regression
    c. All effects
    d. Forward stepwise regression
    e. Backward stepwise regression
3. Cause-and-effect modelling & optimization
    a. Design of Experiments (DOE)
    b. Concepts and terminology
    c. Types of DOE
    d. Full factorial designs (2-level & 3-level)
    e. Main effects, interactions & curvature
    f. Central composite designs (CCD's)

14. Workshop DS 3: Advanced Analytics using TIBCO® Data Science

Description

This two-day workshop significantly extends the “Intermediate analytics” workshop, and is designed to instruct the students on how to undertake complex analyses that seek to establish relations between variables, using advanced ANOVA and/or multiple non-linear regression. These are essential building blocks to understand the incredibly powerful and useful technique of “design of experiments” (DOE).

DOE is used extensively in process optimization methodologies (e.g. 6σ DMAIC) to enable the rapid and efficient attainment of optimal settings for processes, in order to deliver on-target outputs.

Once you understand DOE, you will never look back, and the road to optimally tuned processes will be that much smoother.

Objectives

Using your own data, introduce students to:

- Analysis of variance (ANOVA), and an in-depth understanding of all the ANOVA methods
- Advanced non-linear regression techniques
- Sophisticated design of experiments (DOE) techniques, and demonstrate the incredible power of structured experiments for efficient process optimization

Prerequisites

Workshop DS 2: Intermediate Analytics using TIBCO® Data Science

Outcome

Students will leave the workshop with an excellent theoretical and practical understanding of Advanced Analytics Techniques to apply immediately back into the business and their own operational processes.

Preparation

At least 2 weeks prior to workshop date:

- Business questions / “points of pain” to be addressed
- Clean data to confirm applicability

Duration

This is a 2 Day Workshop running from 9:00 am to 4:30 pm each day

Curriculum – Advanced Analytics

1. Differences between multiple groups
    a. Recap of factorial & repeated measures ANOVA
    b. Complex repeated measures ANOVA
    c. ANCOVA
    d. Nested designs
    e. MANOVA
    f. MANCOVA
2. Correlational models using continuous predictors
    a. Recap of multiple linear regression
    b. Multiple linear regression using “best subsets”
    c. Multiple non-linear regression
3. Advanced Design of Experiments (DOE)
    a. Recap of full factorial & CCD DOE’s
    b. Fractional factorial screening designs
    c. Multiple response optimization
    d. Mixture designs

15. Workshop DS 4: Industrial Analytics using TIBCO® Data Science

Description

This two-day workshop will empower students to assess measurement systems, putting an end to debates around the validity of data.

Students will understand the effectiveness and productiveness of utilizing quality control charts to monitor processes real-time, providing early warnings of potential problems.

Lastly, students will be able to objectively assess processes as to their capability in meeting specification requirements.

Objectives

Using your own data, introduce students to:

- Quality control charts, and how to use them to effectively monitor & control your processes to provide early feedback of potential problems
- Methods to objectively assess process capability
- Measurement system analysis (“MSA”) – can you trust your data?

Prerequisites

Workshop DS 2: Intermediate Analytics using TIBCO® Data Science

Outcome

Students will leave the workshop with an excellent theoretical and practical understanding of Industrial Analytics Techniques and their immediate application back into their own operational environment.

Preparation

At least 2 weeks prior to workshop date:

- Business questions / “points of pain” to be addressed
- Clean data to confirm applicability

Duration

This is a 2 Day Workshop running from 9:00 am to 4:30 pm each day

Curriculum – Industrial Analytics

1. Statistical process control (“SPC”) & Quality control (“QC”) charts
    a. Control, specification & warning limits
    b. Runs tests
    c. Assigning causes & actions
    d. Operation Characteristic (OC) curves
    e. Working with sets
    f. QC charts for attribute data
    g. Specialized QC charts
    h. Charts for short production runs
2. Process capability analysis
    a. Capability vs. performance
    b. Process capability terminology
    c. Process capability graphs and analysis
    d. 6σ process capability indices
3. Measurement system analysis (“MSA”)
    a. Why perform MSA?
    b. Continuous (“variable”) vs. discrete (“attribute”) MSA
    c. Essential elements of an MSA
    d. Components of variation
    e. MSA terminology
    f. Gauge R&R
    g. Guard bands
    h. Destructive vs. non-destructive MSA

16. Workshop DS 5: Big Data Analytics using TIBCO® Data Science

Description

This three-day workshop opens the incredibly rich world of data mining. Too often, we have huge data resources but make little use of that data. Data mining enables one to tap into this wealth of data and derive useful, actionable insights that can be used to drive decision making in your business.

Objectives

Using your own data, introduce students to:

- The objectives and benefits of data mining
- Methods related to unsupervised learning, where dependent variables are not known/used
- Methods related to supervised learning, where the dependent variables are known

Prerequisites

Workshop DS 2: Intermediate Analytics using TIBCO® Data Science

Outcome

Students will leave the workshop with an excellent understanding of Big Data & Data Mining Techniques and how they are applied across operational environments to solve complex problems with large data sets.

Preparation

At least 2 weeks prior to workshop date:

- Business questions / “points of pain” to be addressed
- Clean data to confirm applicability

Duration

This is a 3 Day Workshop running from 9:00 am to 4:30 pm each day

Curriculum – Big Data Analytics

1. Introduction to data mining
    a. What is data analysis and data mining?
    b. Asking the right questions from data
    c. How are analytics and data mining used?
    d. Case studies
2. Unsupervised learning
    a. Cluster analysis
    b. Principal components analysis
    c. Correspondence analysis
    d. Association analysis
    e. Text mining
3. Supervised learning
    a. Discriminant analysis
    b. Logistic regression
    c. Classification and regression trees
    d. Improving weak predictors
    e. Multivariate adaptive regression splines
    f. Support vector machines
    g. Neural network models

17. About our Partners

TIBCO

TIBCO Software unlocks the potential of real-time data for making faster, smarter decisions. Our Connected Intelligence Platform seamlessly connects any application or data source; intelligently unifies data for greater access, trust, and control; and confidently predicts outcomes in real-time and at scale. Learn how solutions to our customers' most critical business challenges are made possible by TIBCO at www.tibco.com.

The Data Shack LTD

The Data Shack LTD is a Genware joint venture that brings extensive Data Science experience to our customers. The Data Shack specializes in the field of Data Science and provides an extensive world class training curriculum presented by Data Scientists that are recognized in the industry for delivering advanced Data Science and analytic solutions that yield business results.