Predictive Analytics & Data Mining: Strategic Implementation

Course Summary

Description

This comprehensive work-along exposure to the full modeling process development methodology provides leaders and practitioners with the combined strategic and tactical orientations to predictive analytics. Live demonstrations follow short lecture segments. Participants then proceed to build an overarching project in stages with the autonomy to directly experience the natural messiness of data mining. No other training in the market provides such an immersive, skill-reinforcing and complete view of the practice – particularly with a real-world focus and vendor-neutral perspective. If you are a business or public sector leader or practitioner looking to propel your organization's analytic maturity and put predictive analytics to work for measurable gain, then this course is designed for you.

The Business Challenge

Traditionally, organizations use data retrospectively – to view what has already happened. Leading organizations use data prospectively – to anticipate behavior and automate prescriptive decisioning that targets the allocation of resources and grows the business while minimizing risk and loss. The mining of data for predictive indicators creates information assets from big data or small, which an organization can leverage to achieve specific strategic objectives.

Predictive analytics is a data-driven extension to an enterprise’s decision support system and big data architecture. It complements and interlocks with other IT and big data capabilities such as query and reporting, on-line analytical processing (OLAP), data visualization, and traditional statistical analysis. The predictive aspect of data mining may be defined as “the data-driven discovery and modeling of hidden patterns in large volumes of data.” Predictive analytics differs from the retrospective technologies above because it produces models — models that capture and represent hidden patterns and interactions in the data.

The resulting models are both descriptive and prospective. They address why things happened and what is likely to happen next. A user can pose “what-if” questions to a data-mining model that cannot be queried directly from a data store. Examples include: “What is the expected lifetime value of every customer account,” “Which customers are likely to open a money market account,” “Which cases should be audited first for the highest propensity of fraud”, or “How will production quality be affected if various resources are changed?”

The organizations that effectively transform their big data liability into information assets and automate decision-making for measurable gains will be the first to realize substantial returns on their big data and analytic investments.

What Makes This Course Unique

For today's organizations to transform from their current big data challenges into leveraging their growing mass of data prospectively for measurable and sustainable gains, they will have to first take a more methodical and holistic approach to predictive analytics.

This will require a purposeful and balanced approach to strategy and tactics. Most organizations jump directly into data and tools that tend to produce good models… and fail at the project level for a host of strategic reasons. Those who make the investment to fully assess their environment, situation, resources and objectives across all team members will produce project designs that result in analytic projects that are measurable, accountable, actionable and impactful.

Unlike any other course on the market, Strategic Implementation steps through a full 6-Phase Model Development Methodology giving equal emphasis to strategic and tactical issues. Leaders who take this comprehensive course will interact more effectively with their teams at the tactical level, while analytic practitioners will complement their existing algorithmic background with a more strategic focus.

In the end, the organization will be greatly strengthened with team members who run from a common platform that insists on making predictive analytics purposeful and impactful. This course is intended for those willing to invest in developing skills for superior project design and incremental development to overcome chronic analytic failings. Those who complete this course will be capable of guiding their organization to stand up a thriving internal analytic practice with measurable and residual gains.
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Course Summary (cont’d)

Objectives
At the end of this course, students will be able to:

- Understand the purpose, function and impact of the 6-Phase Model Development Methodology
- Define and prioritize primary business objectives and detail the criteria for a successful project results
- Establish a Three-Step Experimental Design for predictive model development
- Recognize pitfalls and avoid misleading approaches that cause analytic projects to fall short of their potential
- Realize that model-building for actionable production need not be highly technical or complex
- Construct a valid data set and transform data for superior model performance
- Select appropriate methods for each of the Four Core Analytic Project Types
- Assess the degree to which a model meets a predefined performance objective
- Leave with resources, contacts and plans to substantially reduce your project preparation time, costs and risks

Topics

- Core Concepts
- Plan Phase
- Prepare and Build Phases
- Confirm Phase
- Adopt Phase
- Replace Phase
- Special Topics
- Extended Modeling Topics
- Wrap-up and Next Steps

Audience

- **It Executives And Big Data Directors**: CIOs, CAOs, CTOs, Stakeholders, Functional Officers, Technical Directors and Project Managers who desire to transform their deluge of inert data to actionable assets
- **Data Scientists**: Who recognize the importance of complementing their tactical proficiency with a strategic planning and design approach to advanced analytics
- **Technology Planners**: Who survey emerging technologies in order to prioritize corporate investment
- **Consultants**: Whose competitive environment is intensifying and whose success requires competency with data mining and related emerging information technologies

Prerequisites

Registrants will be required to view a four-hour asynchronous “Core Concepts” orientation prior to attending this event. (ProTech PT0276). Access details for the Core Concepts orientation will be shared with participants prior to the start of the course. Prior education or experience in data analytics or statistics is helpful, but not required.

Duration

Five days
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Course Outline

I. Core Concepts
   A. Prerequisite four-hour preparatory orientation

II. Plan Phase
   A. Project Planning Course
   B. Strategic Implementation includes the Project Planning course

III. Prepare and Build Phases
   A. Model Development Course
   B. Strategic Implementation includes the Model Development course

IV. Confirm Phase
   A. Test: Business Evaluation of Alternative Models
   B. Selecting a Challenger Model
   C. Lab: Model Selection
   D. Validate: Estimating Performance of Challenger Model
   E. Lab: Performance Estimation
   F. Rounding Threshold Analysis
   G. Lab: Rounding Threshold

V. Adopt Phase
   A. Lab: Predictive Dashboard
   B. Confirm Future State Decision Process
   C. Confirming Implementation Strategy
   D. Organizational Adoption Issues

VI. Replace Phase
   A. Model Monitoring Considerations
   B. Model Maintenance
   C. Identifying Domain Insights
   D. Threats from Environmental Change
   E. Estimating Future Analytic Potential
   F. Opportunities in Business Environment Evolution
   G. Estimating Future Performance Enhancement Potential

VII. Special Topics
   A. Opportunities in Time Series
   B. Simplifying Big Data
   C. Opportunities in Emerging Data Types
   D. Variations on Basic Model Types
   E. Overview and Demonstration of Selected Software Tools

VIII. Extended Modeling Topics

IX. Wrap-up and Next Steps
   A. Certification Exam
   B. Supplementary materials and resources
   C. Conferences and communities
   D. Get started on a project!
   E. Strategic Oversight and Collaborative Development

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