ZEMENTIS

Accelerating Your Decision Process

ADAPA®

Easy Execution of Data Mining Models through PMML

Zementis, Inc.

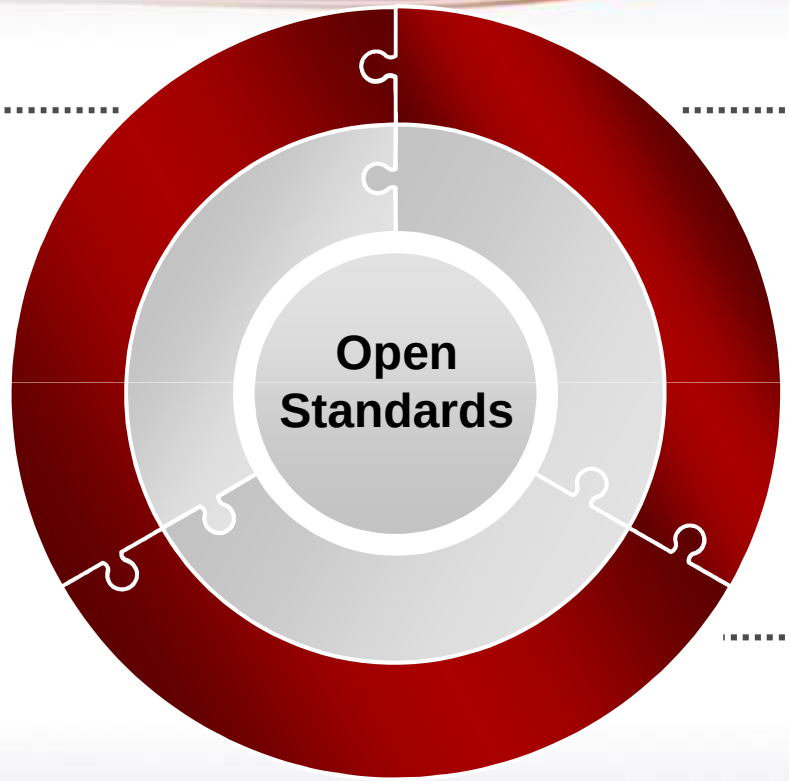
UseR! 2009

Development, Deployment, and Execution

of Predictive Models

Development

R allows for reliable data manipulation and model building



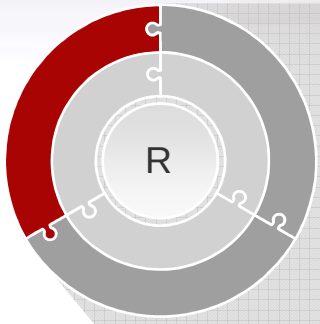
Deployment

PMML allows for easy expression and deployment of data transformations and data-mining models

Execution

Real-time execution of models via web-services calls

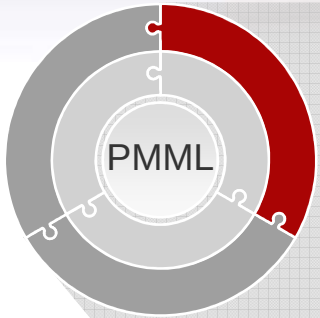
Model Development



The R Project

- R is an integrated suite of software facilities for data manipulation, calculation and graphical display.
- R provides a wide variety of statistical techniques and is highly extensible.
- R is similar to the S language and environment developed at Bell Labs.
- It is Open Source and a GNU project.
- R is available for free at http://www.r-project.org/

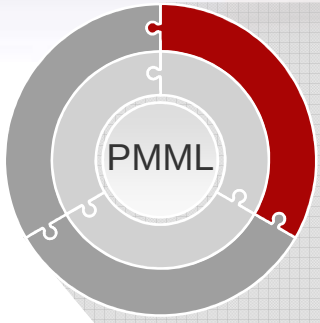
Model Deployment



Predictive Model Markup Language (PMML)

- PMML is an XML-based language to
  - Define statistical and data mining models
  - Share models between compliant applications
- Standard for exchange of models to
  - Avoid proprietary issues and incompatibilities
  - Deploy models in operational infrastructure
- Clear separation of tasks
  - Model development vs. model deployment
  - Scientists focus on building the best model
  - Eliminates need for custom model deployment
  - Ensures scalability and reliability

PMML
Industry Support

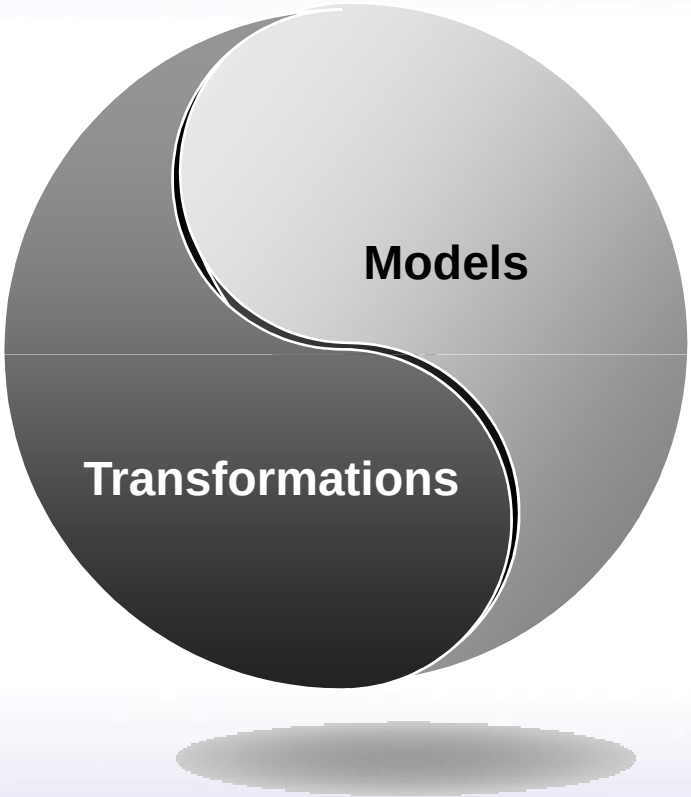


Matured and Supported by Industry

- Data Mining Group http://www.dmg.org
- Mature standard
  - Current version 4.0 (just released)
  - Active group and constant enhancements
- Vendor independent consortium
- Industry supporters
  - Major Players: IBM, Oracle, SAP, Microsoft
  - Analytics: SAS, SPSS, KXEN, Zementis
  - Business Intelligence: Microstrategy, Teradata
  - Open Source: R, KNIME

PMML

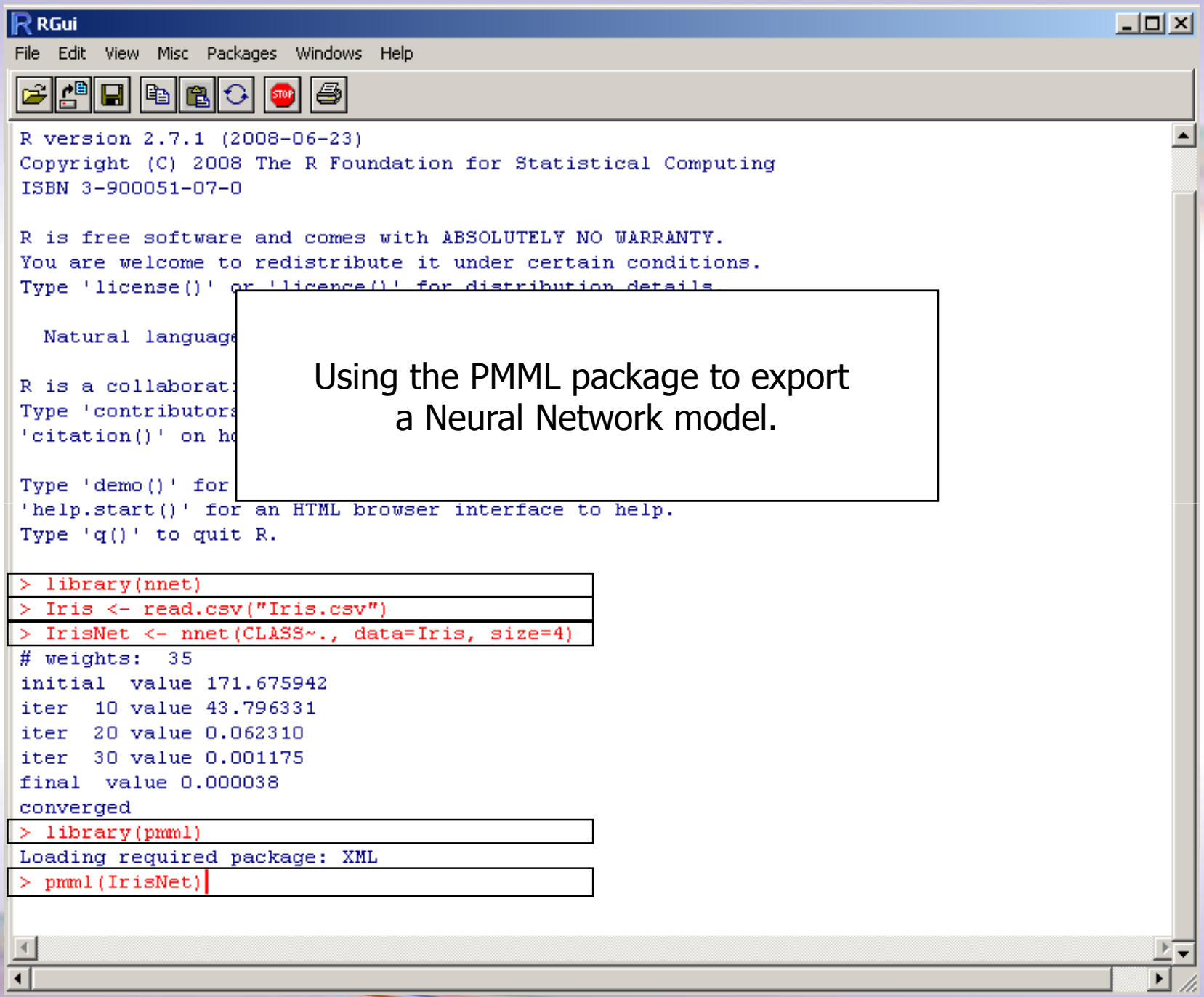
Bringing data and Models Together



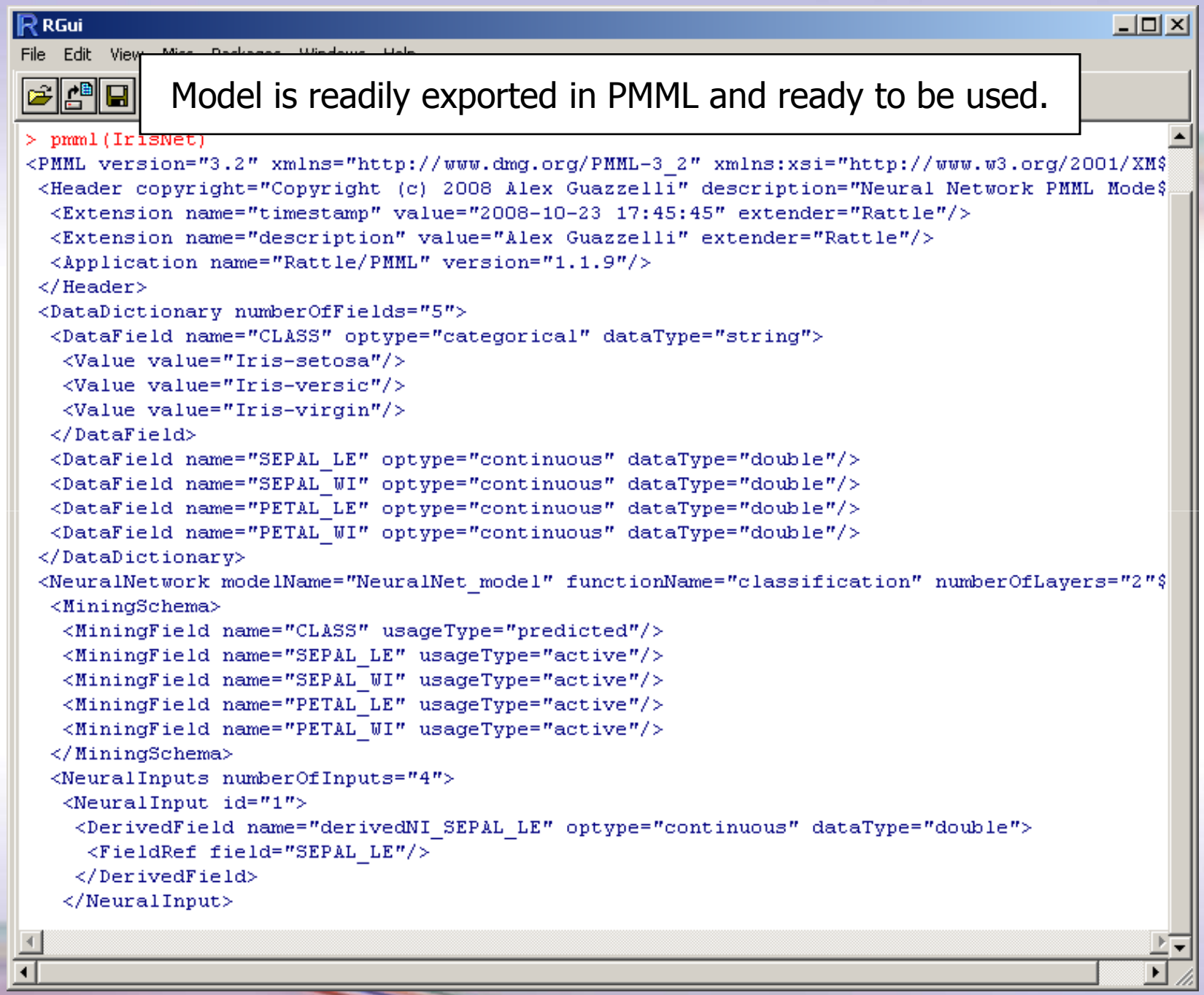
Data Transformations and Data-Mining Models come together in PMML.

Predictive Model Markup Language

- A **Data Dictionary** defines all the raw data fields (including missing value strategy and outlier treatment).
- Several **Data Transformations** strategies allow for intelligent extraction of feature detectors from raw data (“data massaging”).
- A comprehensive list of **Data-Mining Models** offers power and flexibility.
- Post-processing of results allow for tailored decisions



Using the PMML package to export a Neural Network model.


RGui
File Edit View
Model is readily exported in PMML and ready to be used.
> pmml(IrisNet)
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</DerivedField>
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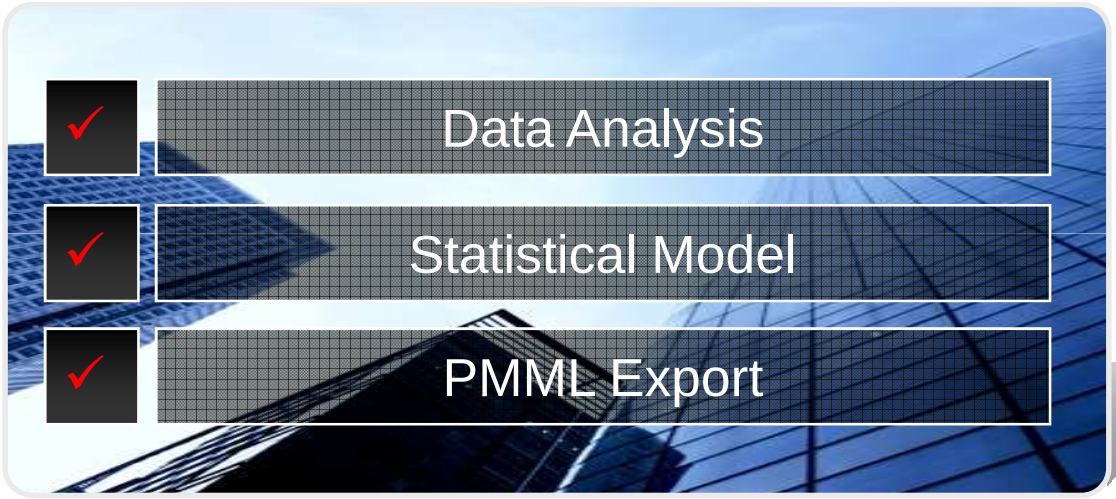
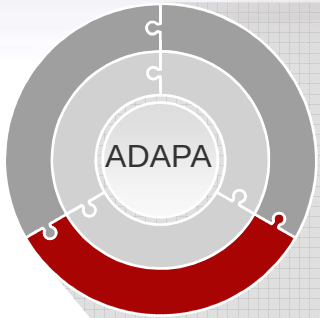
Got Models…



What Now?

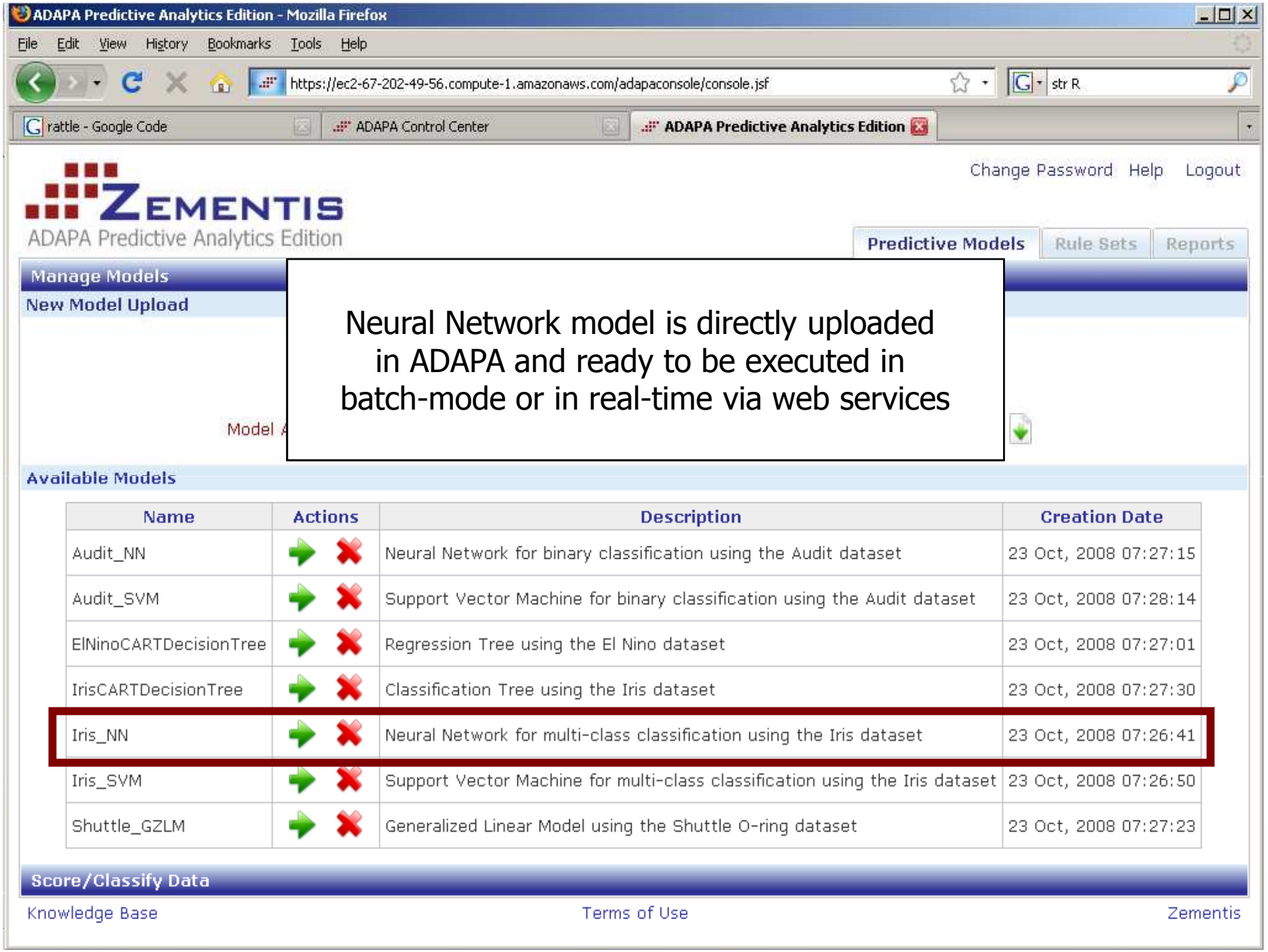
Model Deployment and Execution

The ADAPA Example



Predictive Analytics Scoring Engine

- Data transformations and model execution in real-time (via web-services calls) or batch-mode.
- Environment to manage and deploy many predictive models.
- Framework for SOA-based IT integration
  - Completely standards based and easily integrated with any existing infrastructure.
- Not a model building environment.
- Available as a Service in the Amazon Cloud (EC2).


ADAPA Predictive Analytics Edition - Mozilla Firefox
File Edit View History Bookmarks Tools Help
https://ec2-67-202-49-56.compute-1.amazonaws.com/adapaconsole/console.jsf
str R
rattle - Google Code
ADAPA Control Center
ADAPA Predictive Analytics Edition
ZEMENTIS
ADAPA Predictive Analytics Edition
Change Password Help Logout
Predictive Models
Rule Sets
Reports
Manage Models
New Model Upload
Model A
Neural Network model is directly uploaded in ADAPA and ready to be executed in batch-mode or in real-time via web services
Available Models
Name
Actions
Description
Creation Date
Audit_NN
Neural Network for binary classification using the Audit dataset
23 Oct, 2008 07:27:15
Audit_SVM
Support Vector Machine for binary classification using the Audit dataset
23 Oct, 2008 07:28:14
ElNinoCARTDecisionTree
Regression Tree using the El Nino dataset
23 Oct, 2008 07:27:01
IrisCARTDecisionTree
Classification Tree using the Iris dataset
23 Oct, 2008 07:27:30
Iris_NN
Neural Network for multi-class classification using the Iris dataset
23 Oct, 2008 07:26:41
Iris_SVM
Support Vector Machine for multi-class classification using the Iris dataset
23 Oct, 2008 07:26:50
Shuttle_GZLM
Generalized Linear Model using the Shuttle O-ring dataset
23 Oct, 2008 07:27:23
Score/Classify Data
Knowledge Base
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Thank You!

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