

Requirements Tools

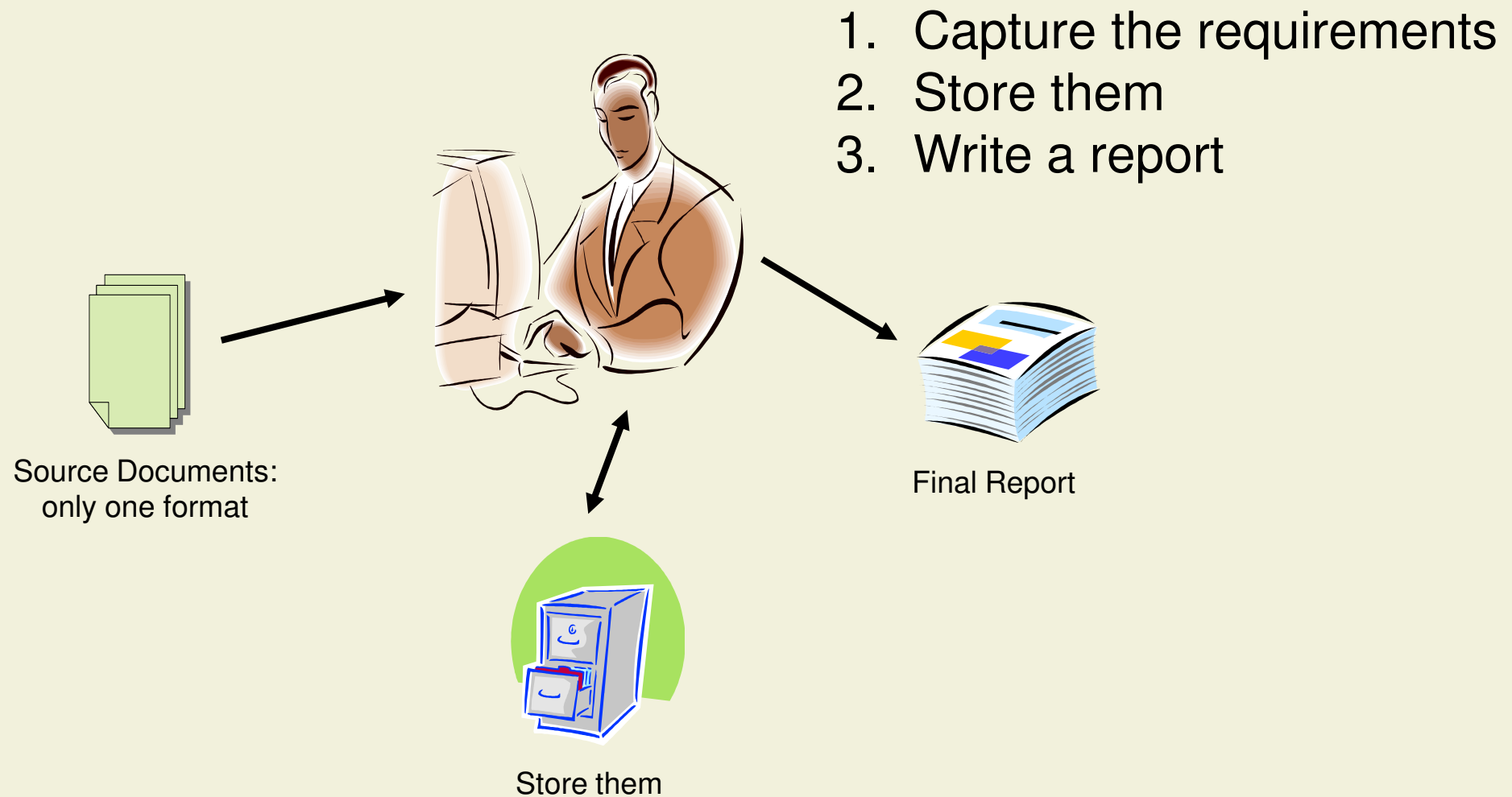
Your friendly assistant

Chair of Programming Methodology

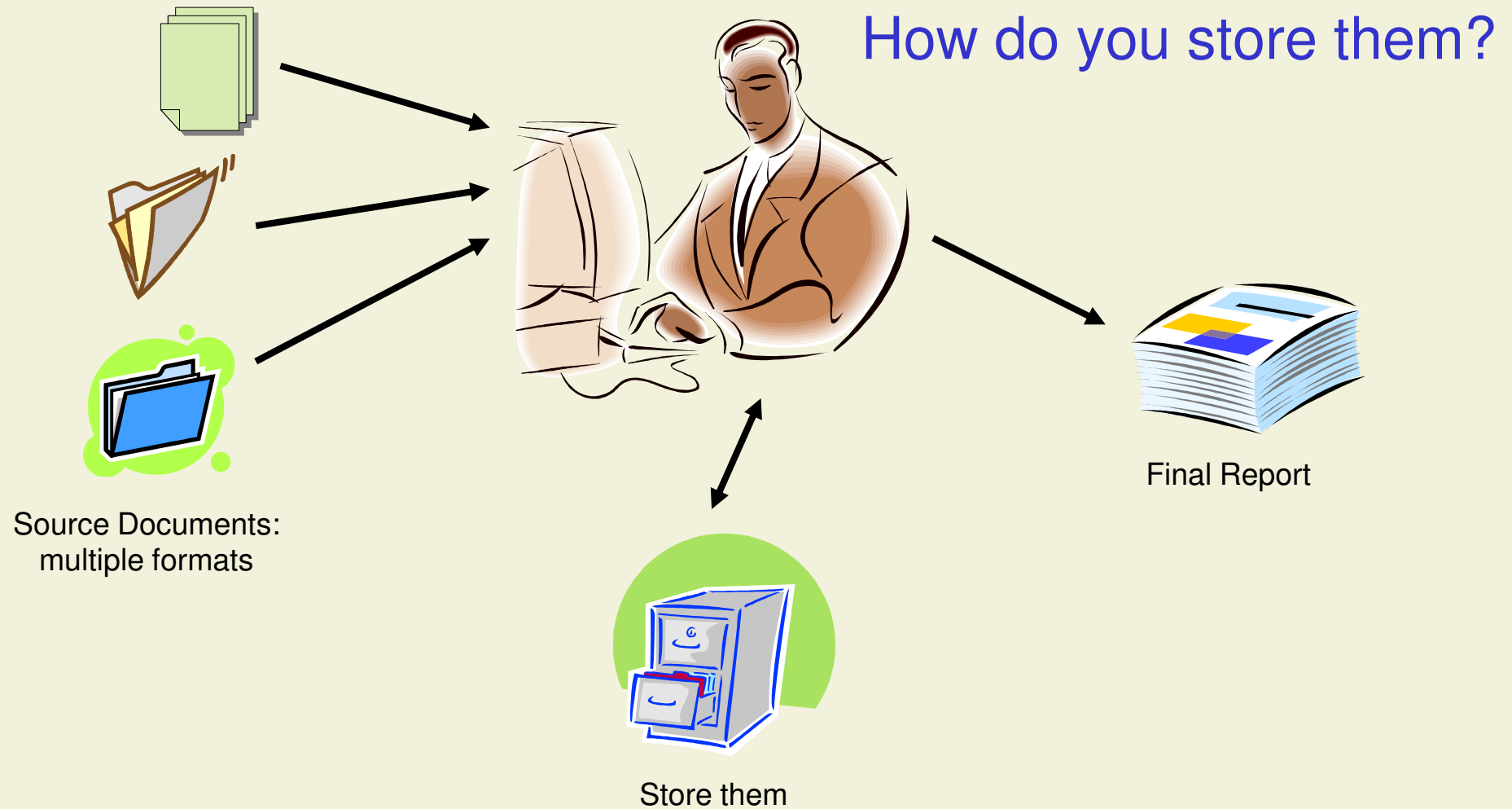
Agenda for Today

1. Problem
2. Tasks of Requirements Management tool
3. Tool Presentation: **Rational RequisitePro**
4. Discussion

Problem

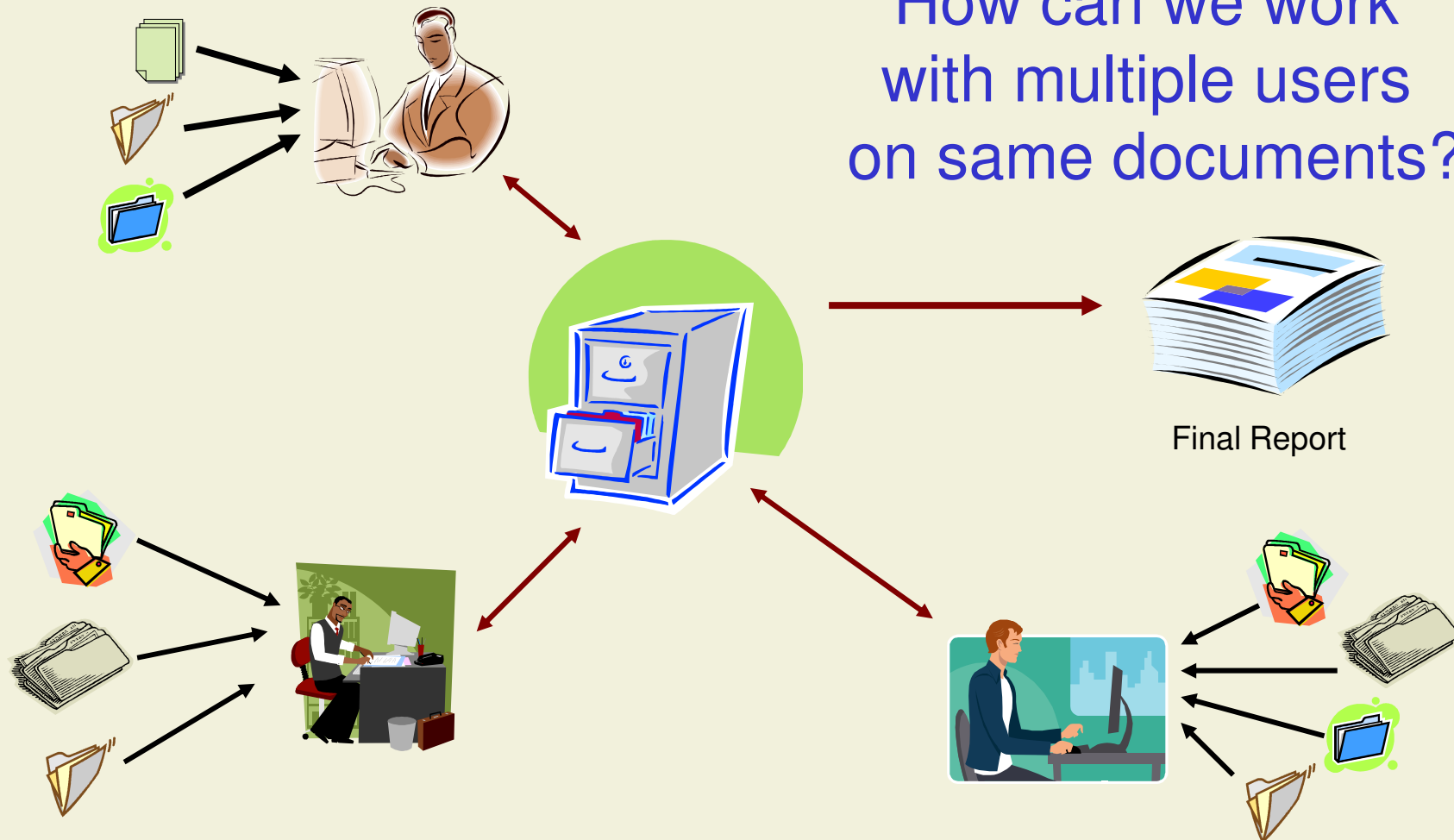


Problem (cont)

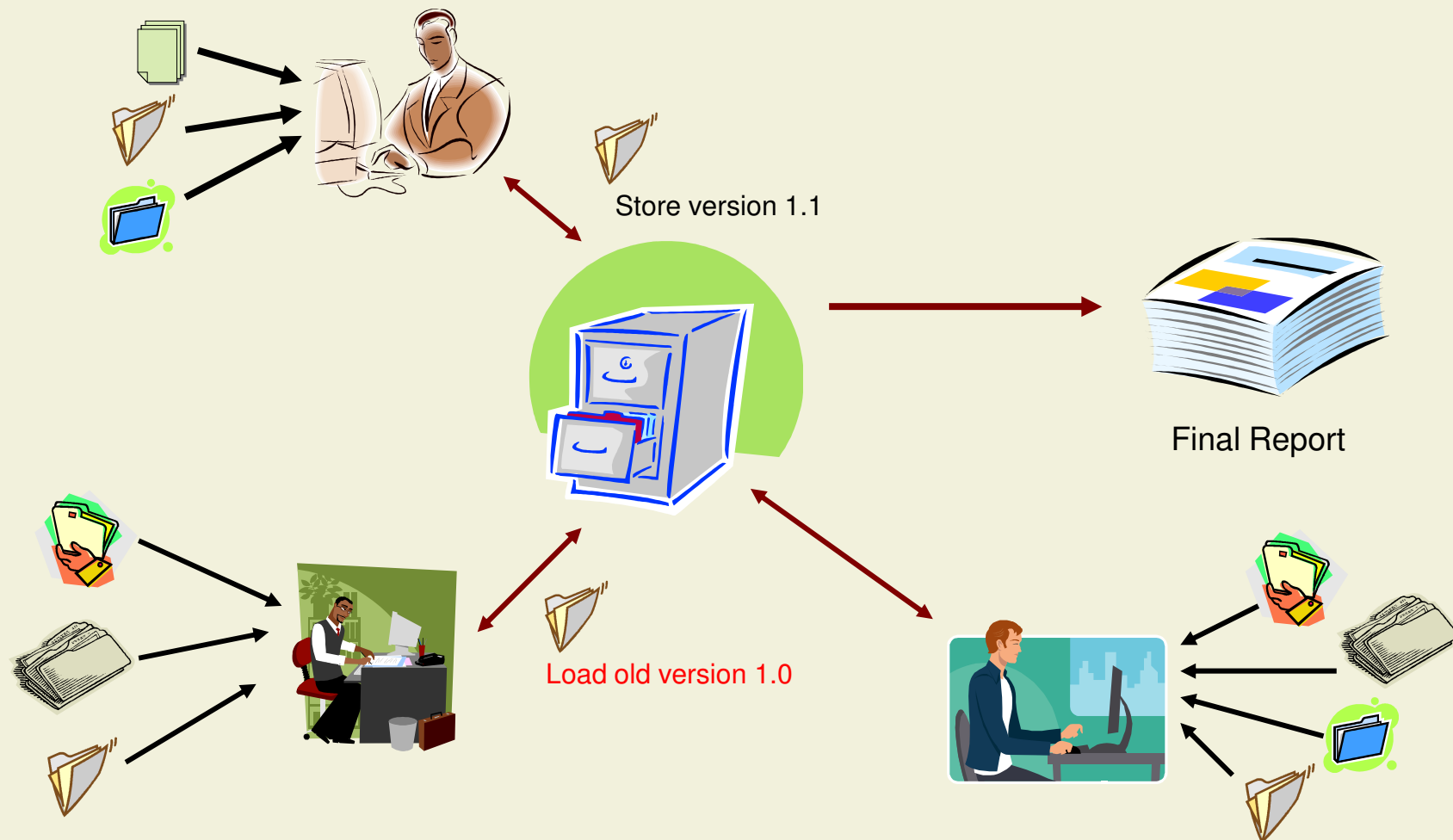


Problem (cont)

How can we work
with multiple users
on same documents?

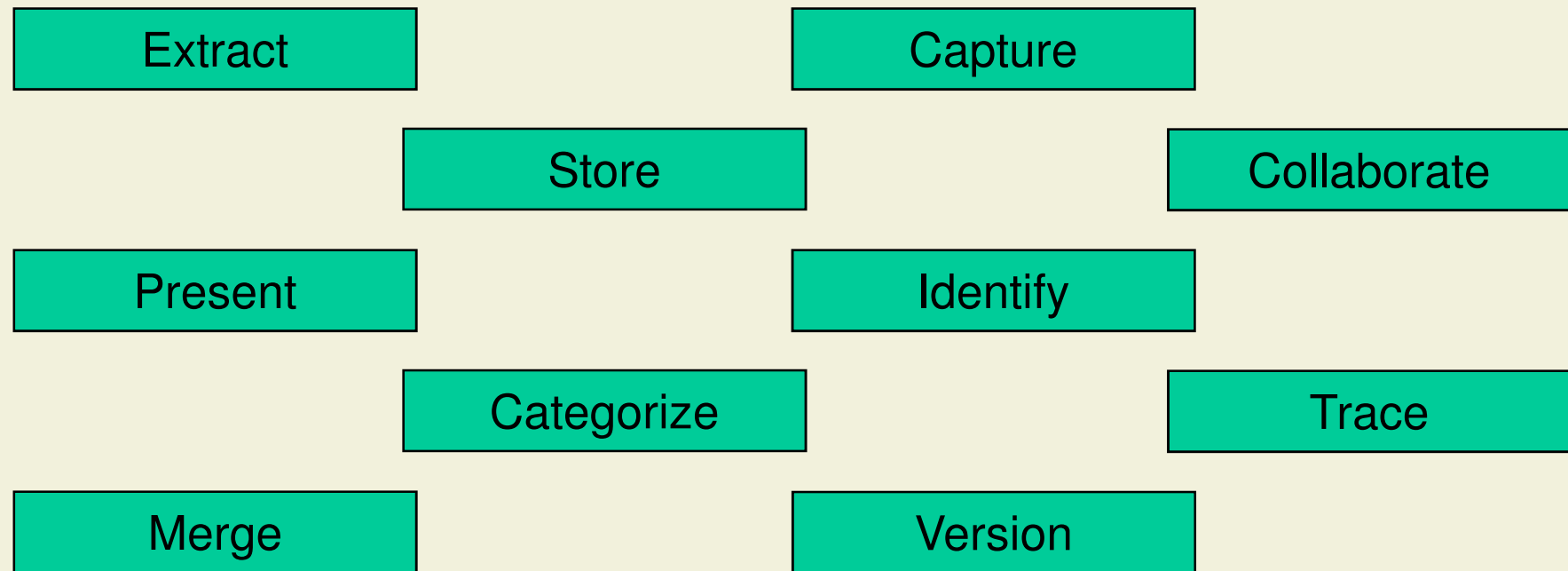


Problem (cont)



Tools for software requirement

- We need tools
- Task of Requirement Tools:



Extract

- **Sources** for requirements come in different forms
 - Word Documents
 - PDF Documents
 - Diagrams
 - E-Mails
 - Photos, Video, Audio, ...
- Requirements have to be **extracted** from these documents
- Any extracted requirement has to be **linked** to its source
- Sometimes it is difficult to “link into the source”.

Capture

- Are requirements always plain text ?
 - “A picture can say more than a thousand words.”
 - Technical applications are often specified with mathematical equations.

Store

- More or less a **database** issue.
- For large and long-term projects, the database with requirements can become **very large**.
- We need fast retrieval of data.

Collaborate

- If there are many people working on the same requirement data:
 - How can they all **access** the data ?
 - How is tracked “**Who changes what ?**”
 - **Collision** detection

Present

- The final requirements document has to
 - form the contractual basis between client and supplier.
 - be well **sorted**.
 - **readable**.
 - **understandable**.

- The tools should be able to **automatically generate** a current version of the requirements document at any time.

Other tasks

- Version

- Documents are constantly changed.
- The tool must keep the version of the documents

- Identify

- Every requirement needs an **identification**
- This identification has to be **unique** and **stable** over time and space

Other tasks (cont)

■ Categorize

- Categorization is the basic approach to organize data.
- Standard techniques:
 - hierarchical structure
 - tags (labels)
 - numbering

■ Trace

- During the requirements process we identify:
 - Requirements that complement other requirements
 - Requirements that contradict other requirements
 - Requirements that are derived from other requirements

Other tasks of RMT (cont)

- Merge
 - Many sources for requirements
 - At least one for every stakeholder
 - A **single document** should be produced.
 - A tool can support this process:
 - Showing **differences** between documents.
 - Identifying **similarities** between documents.

Tools

- There are a lot of requirement tools:

Accept 360° Active Focus Agility AnalystPro Caliber CARE Cradle CRW DocuBurst Doors Focal Point GMARC iRise IRqA Jalsoft Leap SE MKS MockupScreens Objectiver Open Process Framework Rally RDT Reconcile Reqtify RequireIT RequisitePro Rhapsody Serena RTM Slate SpeedEV Statestep Steeltrace Team-Trace Truereq Vital-Link WIBNI XTie

- List of requirement tools and links to web pages:

<http://easyweb.easynet.co.uk/~iany/other/vendors.htm>

Rational RequisitePro



- **Developed by IBM**
- **Enables the creation, analysis and management of requirements and use cases**
- **Incorporates a database infrastructure**
- **Provides detailed traceability views**
- **Integrates with other tools (in the IBM Software Development Platform)**

Exploring the tool

File Edit View Requirement Traceability Tools Window Help

Main menus and tools bar

Left sidebar (Project Structure):

- High Priority Features Not L...
- Full Coverage Report
- Features and Vision
 - Web Shop Administrative Sy...
 - Web Shop System
 - Vision Document
 - All Features
- Glossary
- Impact Analysis
- Supplementary Requirements
- Use Cases
- README
- Requirements Management Plan

Central pane (Requirements List):

Requirement ID	Description	Functional	Web Shop System	Should	Proposed	Medium	High	Help Desk
FEAT3: Search by multiple criteria	Ability to search for CDs by multiple criteria	Functional	Web Shop System	Must	Approved	Medium	Medium	Help Desk
FEAT4: Ability to check status of an order	Ability to check the status of an order	Functional	Web Shop System	Should	Validated	Low	Medium	Partners
FEAT5: E-mail notification of new titles of interest	E-mail notification for Shoppers when new titles that may interest them are added to the collection.	Functional	Web Shop System	Could	Proposed	Medium	Low	Help Desk
FEAT6: Highly scalable	Highly scalable to include many titles and effective searching through those titles	Non-Functional	Web Shop System	Must	Proposed	High	Medium	Customer visits
FEAT7: Ability to customize the Web site	Shoppers should be able to customize the Web site.	Functional	Web Shop System	Should	Proposed	Low	High	Help Desk
FEAT8: User registration good for future purchases	Shoppers should be able to register once for all purchases; they should not be asked to re-enter personal information.	Functional	Web Shop System	Should	Incorporated	Low	Low	Customer visits
FEAT9: Shipping Status	Shoppers should be able track any package that has been shipped to them.	Functional	Web Shop System	Should	Approved	Medium	Medium	Help Desk
FEAT10: Ability to add/remove offerings	Ability to add/remove CDs available for sale	Functional	Web Shop Administrative System	Should	Proposed	Low	High	Help Desk
FEAT11: Ability to check on customer orders	Ability to check on Shopper orders	Functional	Web Shop Administrative System	Must	Incorporated	High	Medium	Partners
FEAT12: Maintain customer information	Maintain Shopper information	Functional	Web Shop Administrative System	Must	Proposed	Medium	Low	Help Desk
FEAT13: Generate reports	Generate reports	Functional	Web Shop Administrative System	Should	Incorporated	Low	Medium	Customer visits
FEAT14: Use Legacy System	Use existing legacy Warehouse System for shipping orders.	Functional	Web Shop System	Must	Proposed	Medium	Medium	Help Desk
FEAT15: Interactive guide to site through online...	The Web site will include an interactive guide in the form of online Help.	Functional	Web Shop System	Could	Proposed	Medium	High	Competitors
		None		Should	Proposed	Medium	Medium	Help Desk

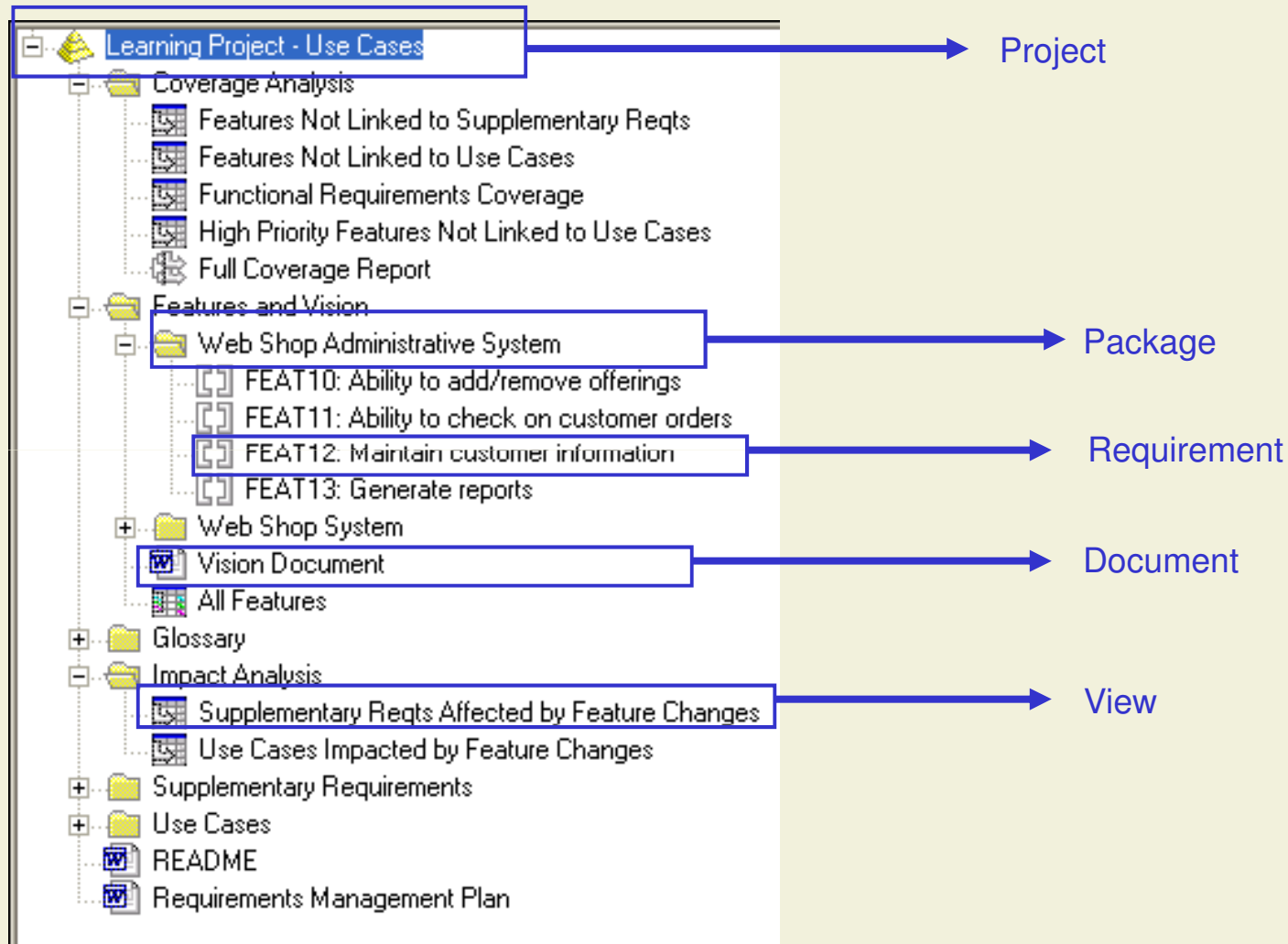
Bottom status bar:

This Learning Project is a simple example of how to use Rational RequisitePro when using use cases.

We recommend you first open the README document, then the Requirements Management Plan, then the Vision document.

FEAT4: Ability to check status of an order
Ability to check the status of an order

Exploring the tool (cont)



Requirements View

Requirements:	Type	Package	Priority	Status	Difficulty	Stability	Origin
FEAT1: Secure payment method Secure payment method	Functional	Web Shop System	Must	Incorporated	Low	Medium	Partners
FEAT2: Easy browsing Easy browsing for available titles	Functional	Web Shop System	Should	Proposed	Medium	Medium	Help Desk
FEAT3: Search by multiple criteria Ability to search for CDs by multiple criteria		Web Shop System	Must	Approved	Medium	Medium	Help Desk
FEAT4: Ability to check status of an order Ability to check the status of an order	Functional	Web Shop System	Should	Validated	Low	Medium	Partners
FEAT5: E-mail notification of new titles of interest E-mail notification for Shoppers when new titles that may interest them are added to the collection.	Functional	Web Shop System	Could	Proposed	Medium	Low	Help Desk
FEAT6: Highly scalable Highly scalable to include many titles and effective searching through those titles	Non-Functional	Web Shop System	Must	Proposed	High	Medium	Customer visits

Link between requirement and its source

FEAT4: Ability to check status of an order Ability to check the status of an order	Functional	Web Shop System	Should	Validated	Low	Medium	Partners
FEAT5: E-mail notification of new titles of interest E-mail notification for Shoppers when new titles that may interest them are added to the collection.	Functional	Web Shop System	Could	Proposed	Medium	Low	Help Desk
FEAT6: Highly scalable	Non-Functional	Web Shop System	Must	Proposed	High	Medium	Customer visits

Source
document
in Word format

FEAT4: Ability to check the status of an order

After Shoppers make a purchase, they will want to have access to the status of their order.

FEAT5: E-mail notification for Shoppers when new titles that may interest them are added to the collection.

Shoppers have requested the ability to be notified when new titles are added to our collection.

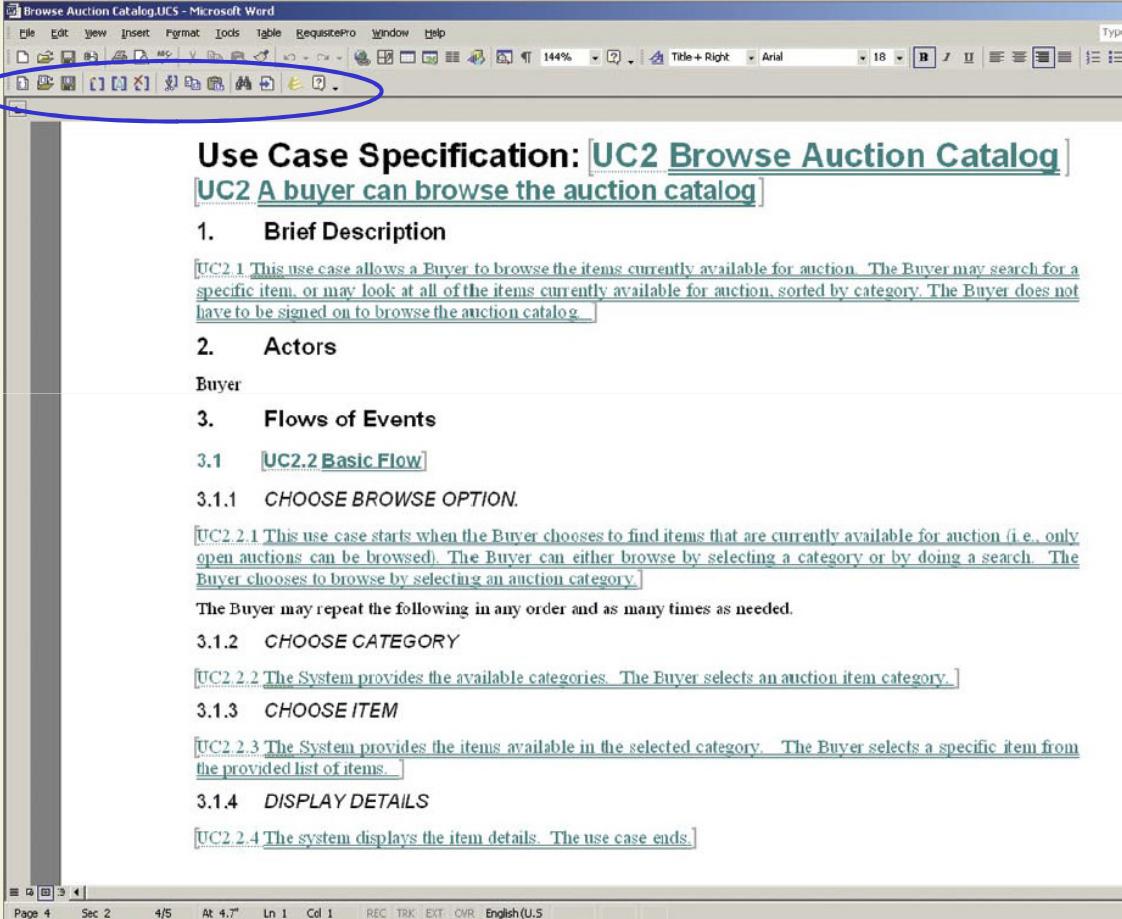
FEAT6: Highly scalable to include many titles and effective searching through those titles

We anticipate a minimum of 1,000,000 titles to be available at ClassicsCD.com, so we must ensure that browsing of CD titles is not too painful.

Microsoft Word integration

tool bar

Source document in Word format



Use Case Specification: UC2 Browse Auction Catalog

UC2 A buyer can browse the auction catalog

- Brief Description**

UC2.1 This use case allows a Buyer to browse the items currently available for auction. The Buyer may search for a specific item, or may look at all of the items currently available for auction, sorted by category. The Buyer does not have to be signed on to browse the auction catalog.
- Actors**

Buyer
- Flows of Events**
 - UC2.2 Basic Flow**
 - CHOOSE BROWSE OPTION.**

UC2.2.1 This use case starts when the Buyer chooses to find items that are currently available for auction (i.e., only open auctions can be browsed). The Buyer can either browse by selecting a category or by doing a search. The Buyer chooses to browse by selecting an auction category.

The Buyer may repeat the following in any order and as many times as needed.
 - CHOOSE CATEGORY**

UC2.2.2 The System provides the available categories. The Buyer selects an auction item category.
 - CHOOSE ITEM**

UC2.2.3 The System provides the items available in the selected category. The Buyer selects a specific item from the provided list of items.
 - DISPLAY DETAILS**

UC2.2.4 The system displays the item details. The use case ends.

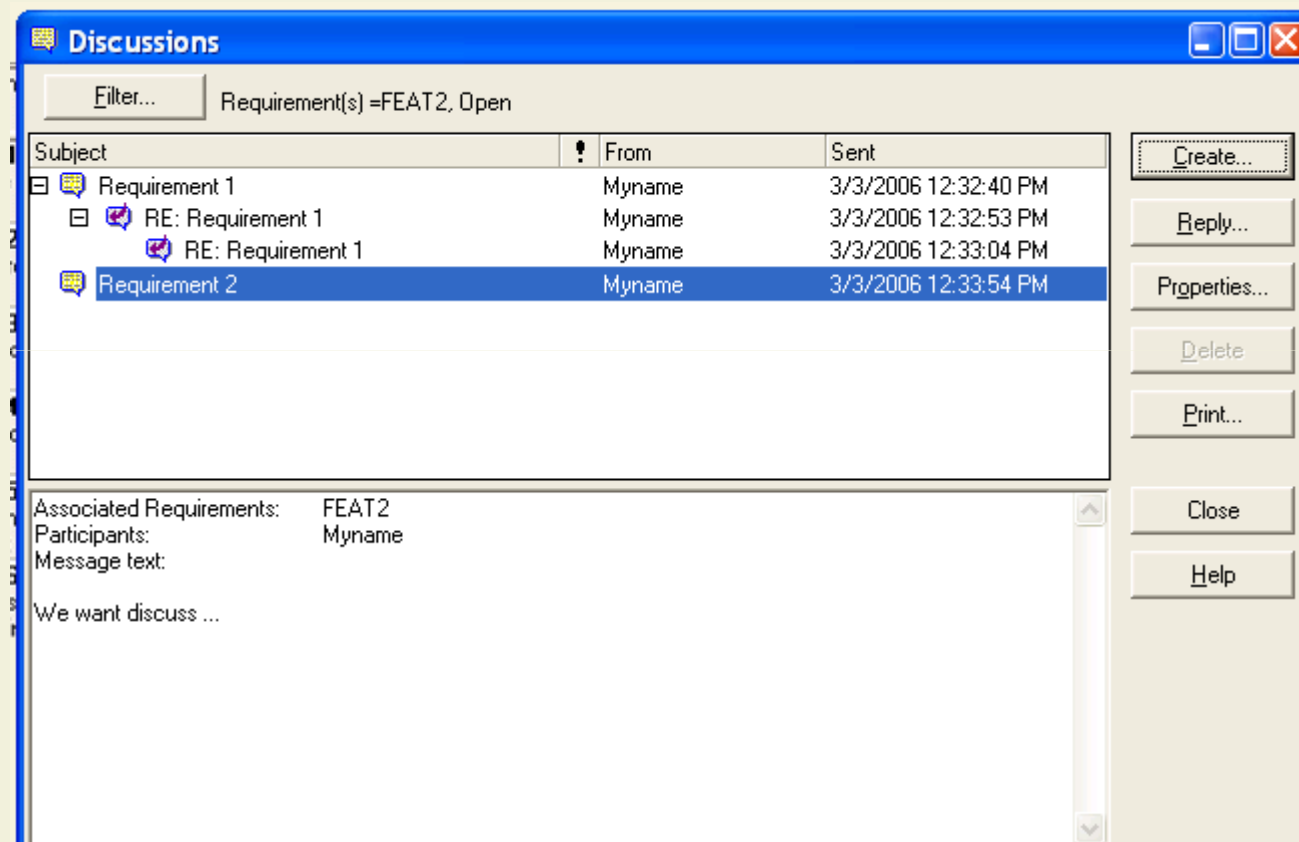
Microsoft Word integration (cont)

UC3.5: Postcondition: ACCOUNT NOT CREATED This occurs when the Buyer fails to enter valid Buyer information values or the Buyer chooses to cancel the...	Post Condition	Medium	Validated	Medium	Medium	False	1.0005
UC3.6: Postcondition: ACCOUNT NOT... This occurs when the Buyer fails to activate his/her account because the Buyer never attempted activation,...	Post Condition	Medium	Validated	Medium	Medium	False	1.0005
UC4: Sell Item A Seller can create a new online auction.	Name	Medium	Incorporated	Medium	High	False	1.0010



UC2.1 This use case allows a Buyer to browse the items currently available for auction. The Buyer may search for a specific item, or may look at all of the items currently available for auction, sorted by category. The Buyer does not have to be signed on to browse the auction catalog.

Forum for Discussions



Web interface

The screenshot shows the Rational RequisiteWeb web interface in Microsoft Internet Explorer. The browser title is "RequisiteWeb: Attribute Matrix View - Microsoft Internet Explorer". The address bar shows the URL: http://wco1jheumann/ReqWeb/ReqView_Frame.jsp?ViewKey=12&null&ViewPosRow=1. The page header includes "Rational RequisiteWeb" and navigation links: "Rational.com | RequisitePro Home | User Profile | About | Log Out".

The main content area displays a table of requirements under the heading "Requirements". The table has columns: "Requirements", "Priority", "Status", "Contact", and "Difficult". The requirements listed are:

Requirements	Priority	Status	Contact	Difficult
FEAT1 Secure Payment method.	Medium	Validated	Fran	Medium
FEAT2 Easy Browsing for available titles.	High	Proposed	Fran	Low
FEAT3 Search capabilities	Medium	Validated	Fran	Medium
FEAT4 Ability to check the status of an order.	High	Validated	Fran	Low
FEAT5 E-mail notification for customers when new titles are added that may be of interest to them.	Medium	Validated	Fran	Medium
FEAT6 Highly Scaleable to include many titles and effective searching through those titles.	Medium	Proposed	Fran	Medium
FEAT7 Customer should be able to customize the web site.	Medium	Validated	Fran	Medium
FEAT8 Customer should be able to register as a user for future purchases without needing to re-enter personal information.	Medium	Validated	Fran	Medium
FEAT9 Ability to add/remove offerings.	Medium	Validated	Sandy	High
FEAT10 Ability to check on customer orders.	Medium	Validated	Sandy	Medium

Below the table, the following information is displayed:

- Discussion Indicator: Off
- Hierarchical Format: Off
- Page Size: 10
- Requirements: 1 through 10 of 15

The footer of the page states: "Copyright ©1999-2003 Rational Software Corporation. All rights reserved." and "Local intranet".

Discussion

- Pros:

- Databases: Ms Access, Oracle, SQL Server, DB2
- Easy to use
- Good interfaces and views: Matrix and trees
- Link between requirements and the source that describes them
- A forum for discussions with filter tools
- Integrated into Microsoft Word

- Cons:

- It is only available for Windows
- It is not free

Discussion (cont)

- Current Version: 7.1
- Link:
 - <http://www.ibm.com/software/awdtools/reqpro/>