Requirements Tools

Your friendly assistant

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Chair of Programming Methodology

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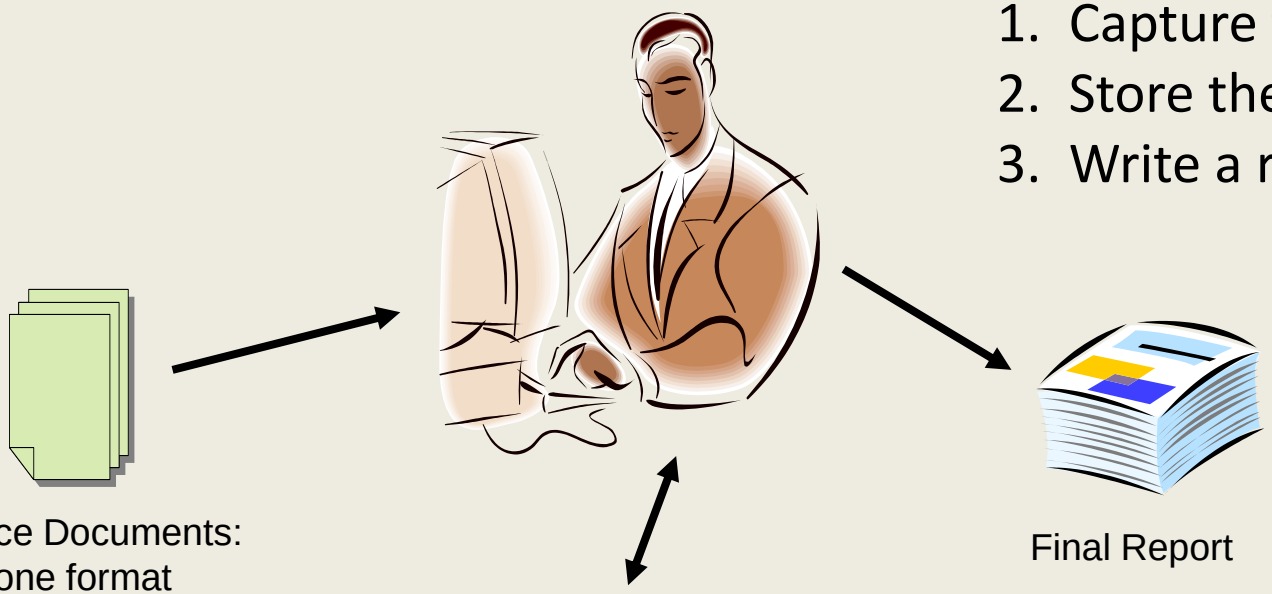
Agenda for today

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

Problem

1. Capture the requirements
2. Store them
3. Write a report

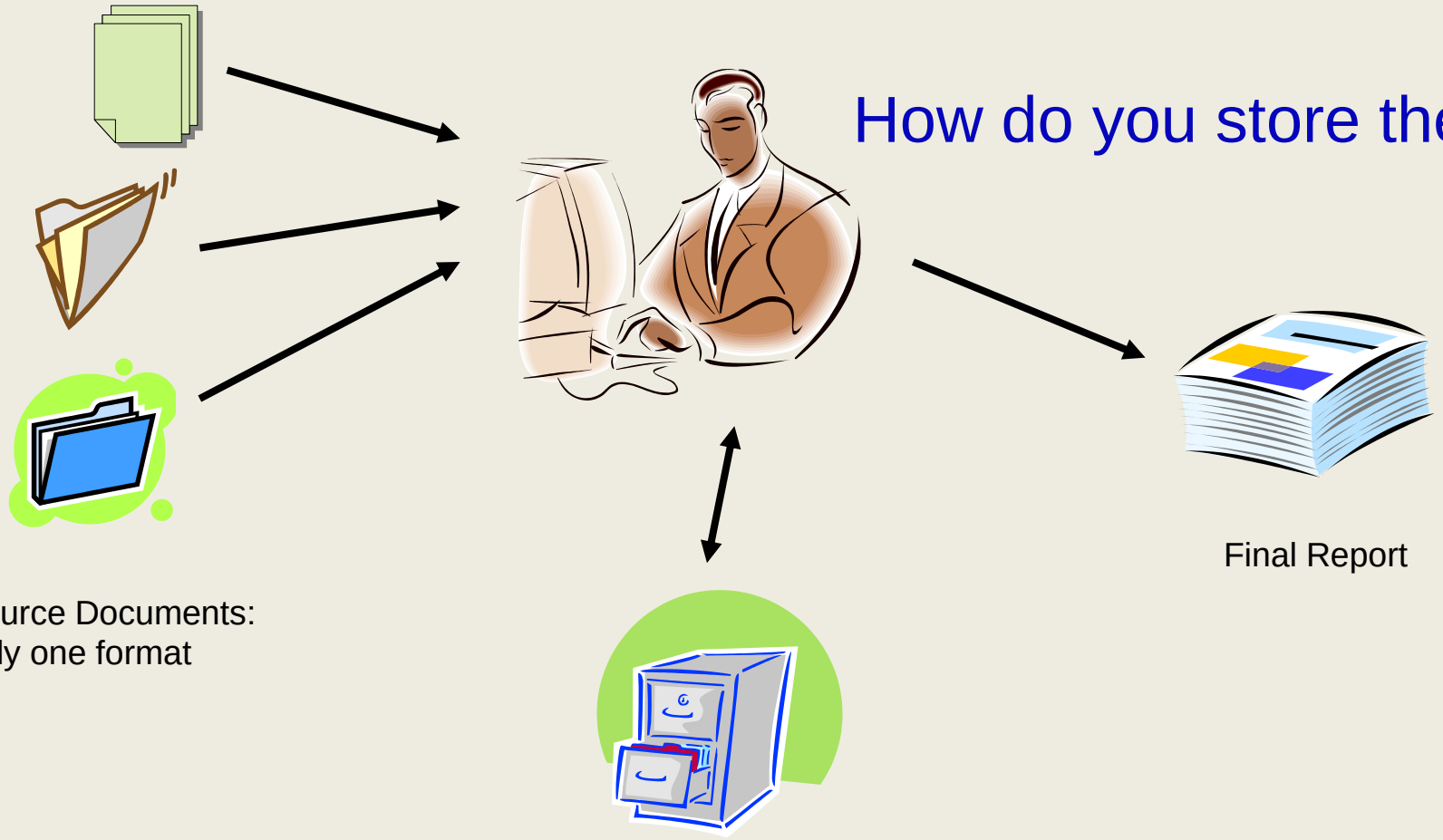


Source Documents:
only one format

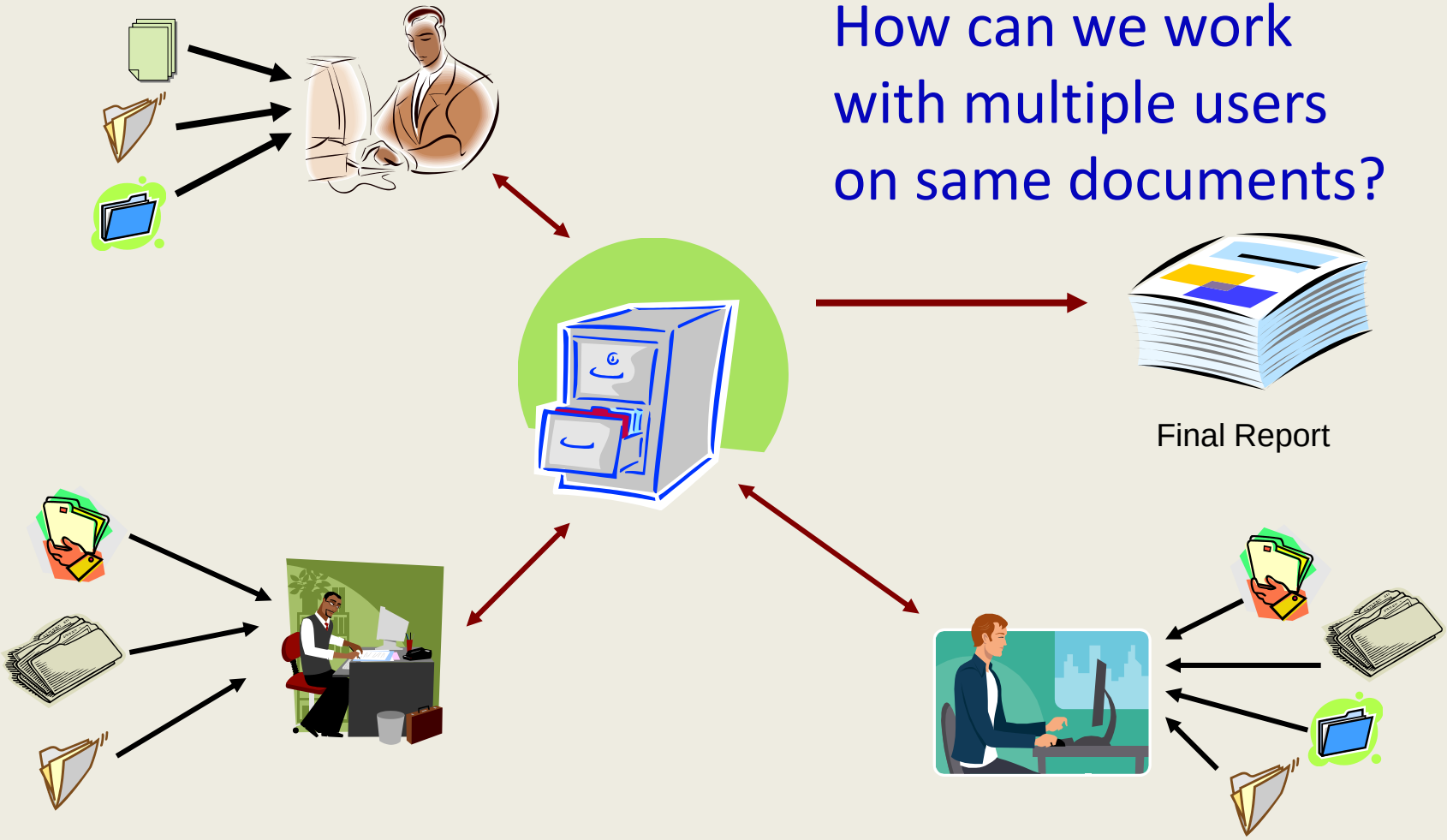
Final Report

Store them

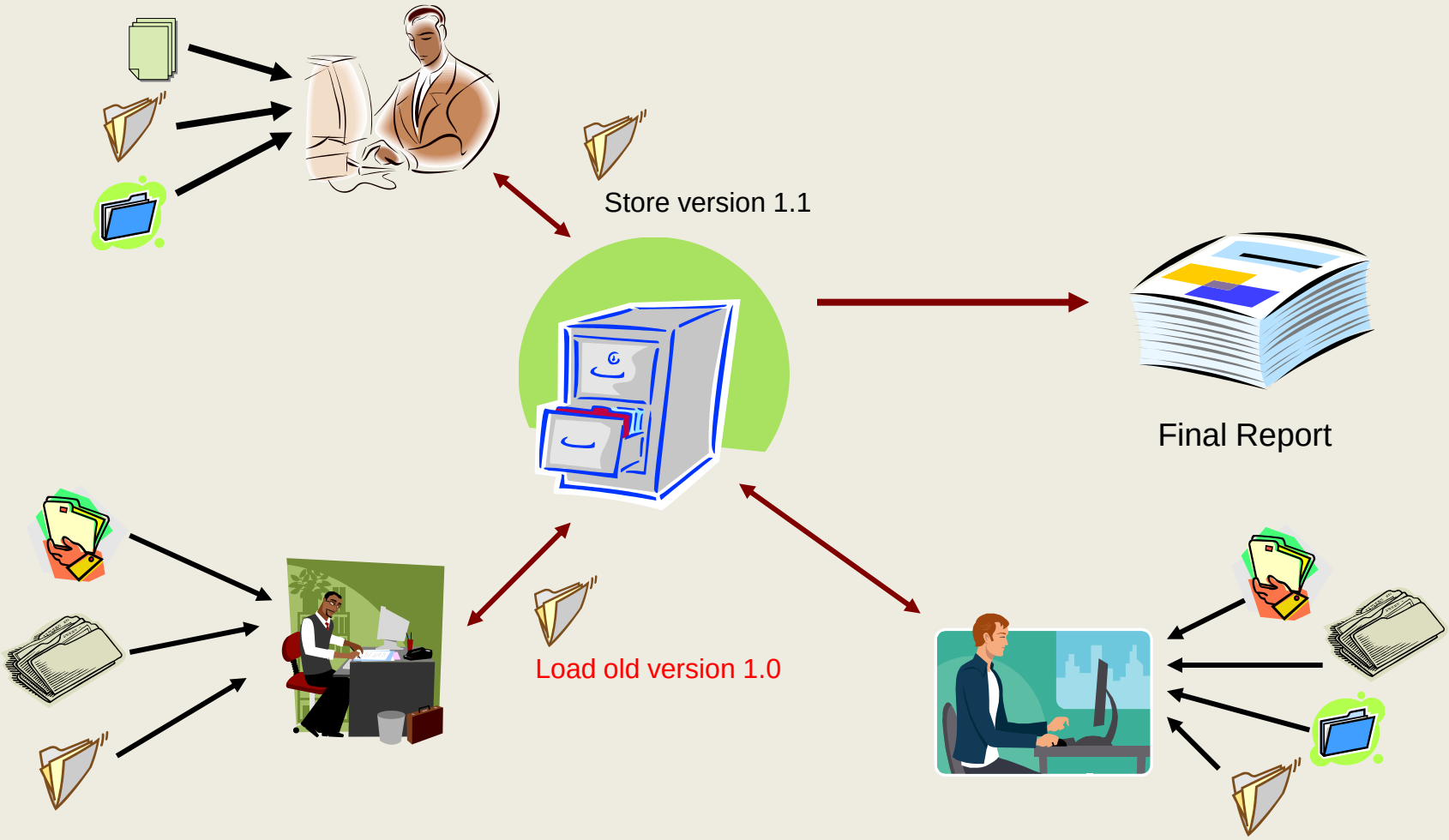
Problem (cont.)



Problem (cont.)

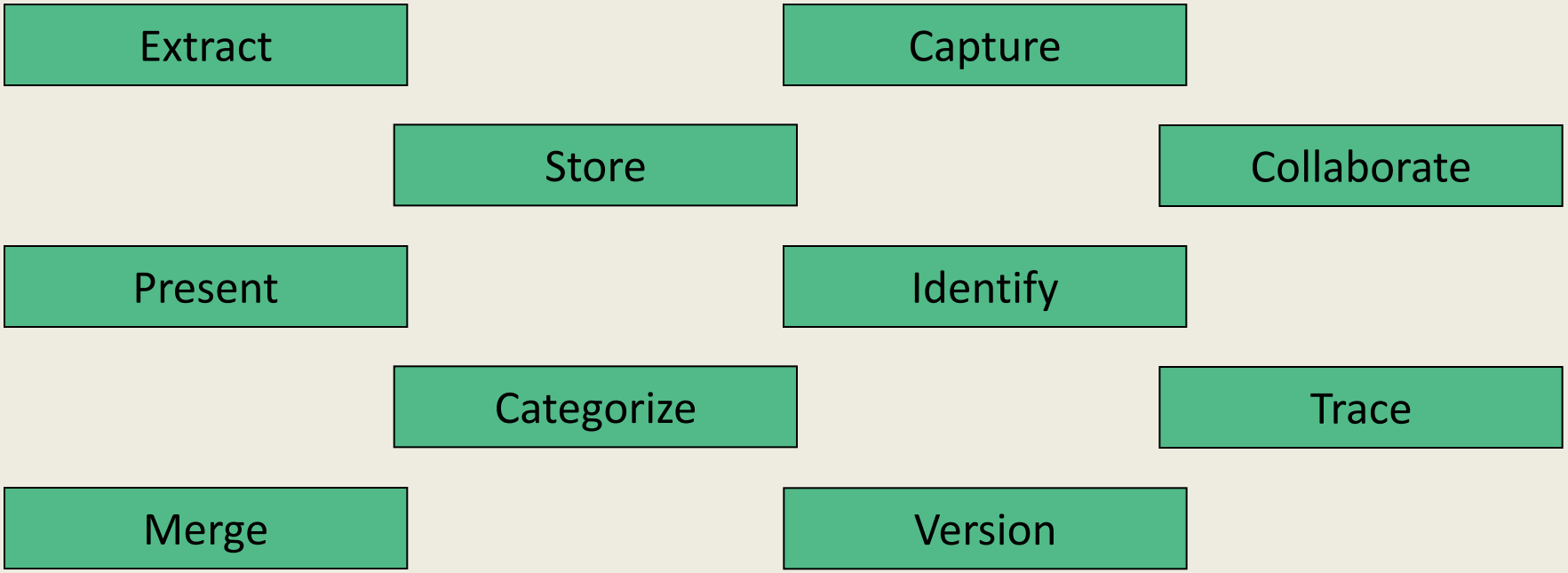


Problem (cont.)



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:

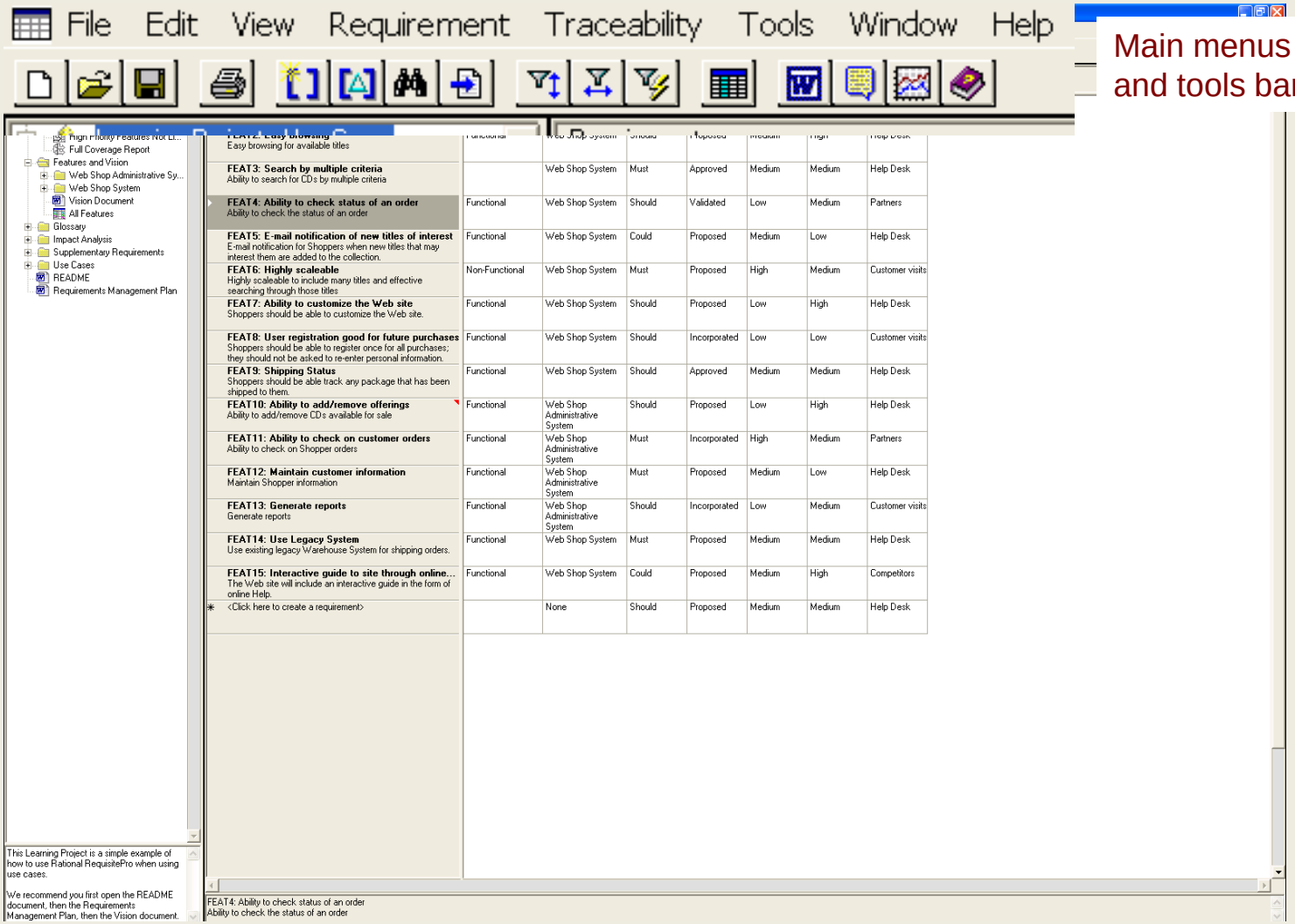
  Accept 360° Active Focus Agility AnalystPro Caliber CARE Cradle CRW DocuBurst Doors Focal Point GMARC iRise IRqA Jalsoft Leap SE MKS MockupScreens Objectiver Open Process Framework Rally RDT Reconcile Reqtify RequireIT RequisitePro Rhapsody Serena RTM Slate SpeeDEV Statestep Steeltrace Team-Trace Truereq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

- List of requirement tools and links to web pages: http://easyweb.easynet.co.uk/~iany/other/vendors.htm

Rational RequisitePro

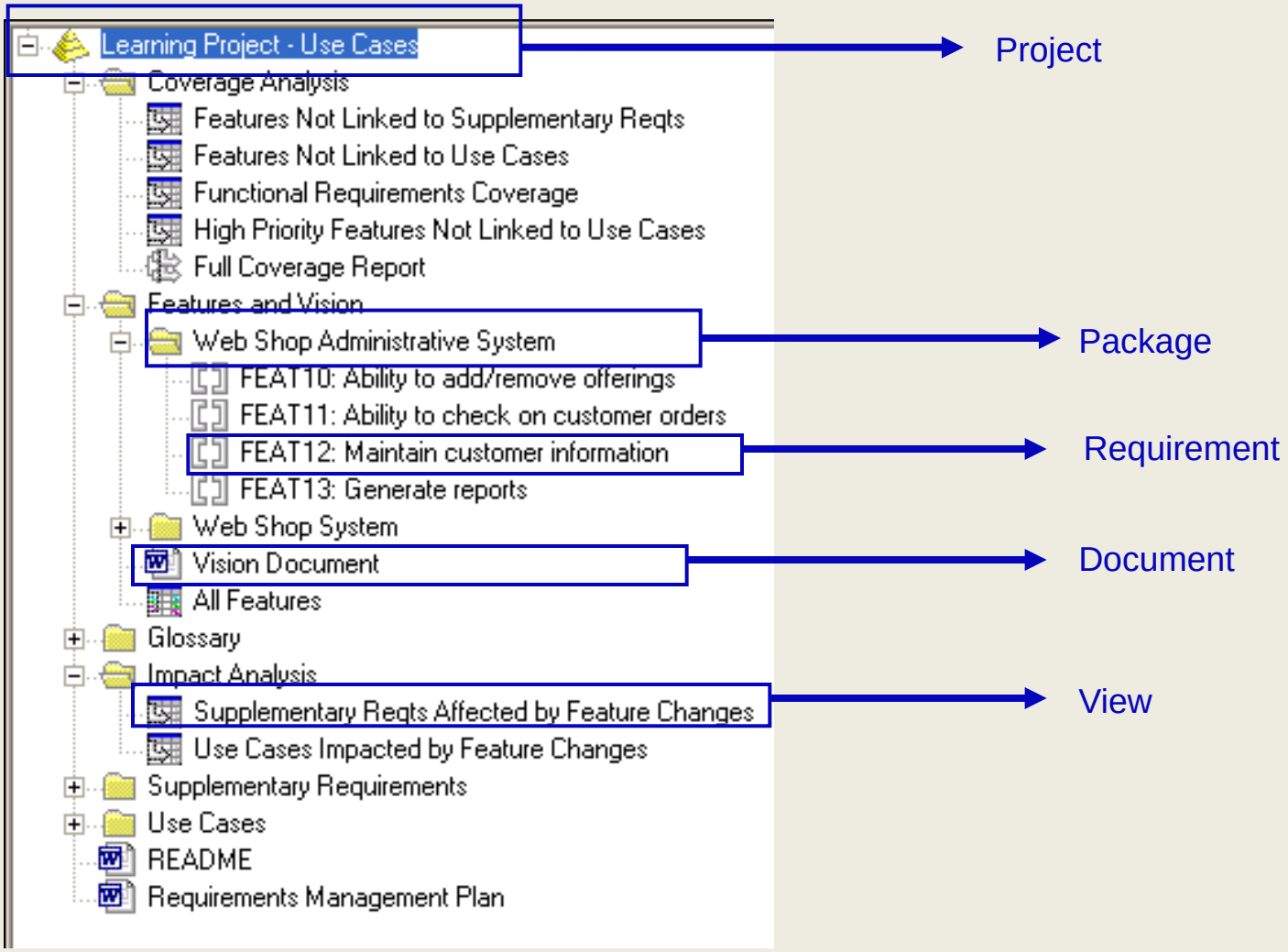
- Developed by IBM
- Enables the creation, analysis and management of requirements and use cases
- Incorporates a database infrastructure
- Provides detailed traceability views
- Integrates with other tools (in the IBM Software Development Platform)

Exploring the tool



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 scaleable Highly scaleable 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
<Click here to create a requirement>		None	Should	Proposed	Medium	Medium	Help Desk

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		Help Desk
FEAT3: Search by multiple criteria Ability to search for CDs by multiple criteria		Web Shop System	Must	Approved	Medium	Medium	Help Desk
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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 scaleable	Non-Functional	Web Shop System	Must	Proposed	High	Medium	Customer visits

Source document in Word format

searching capabilities.

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.

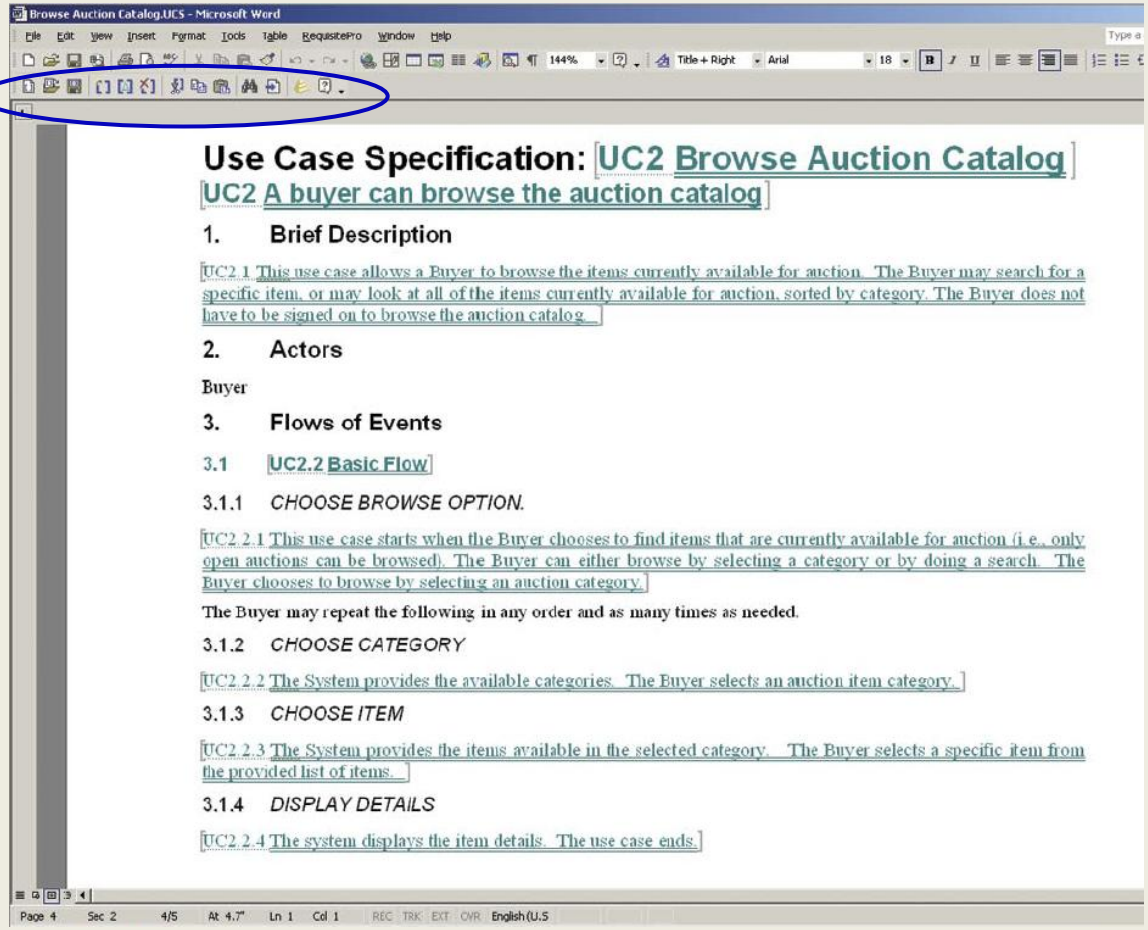
FEAT6 Highly scaleable to include many titles and effective searching through those titles

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

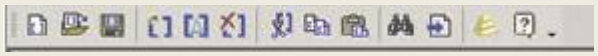
tool bar

Source document in Word format



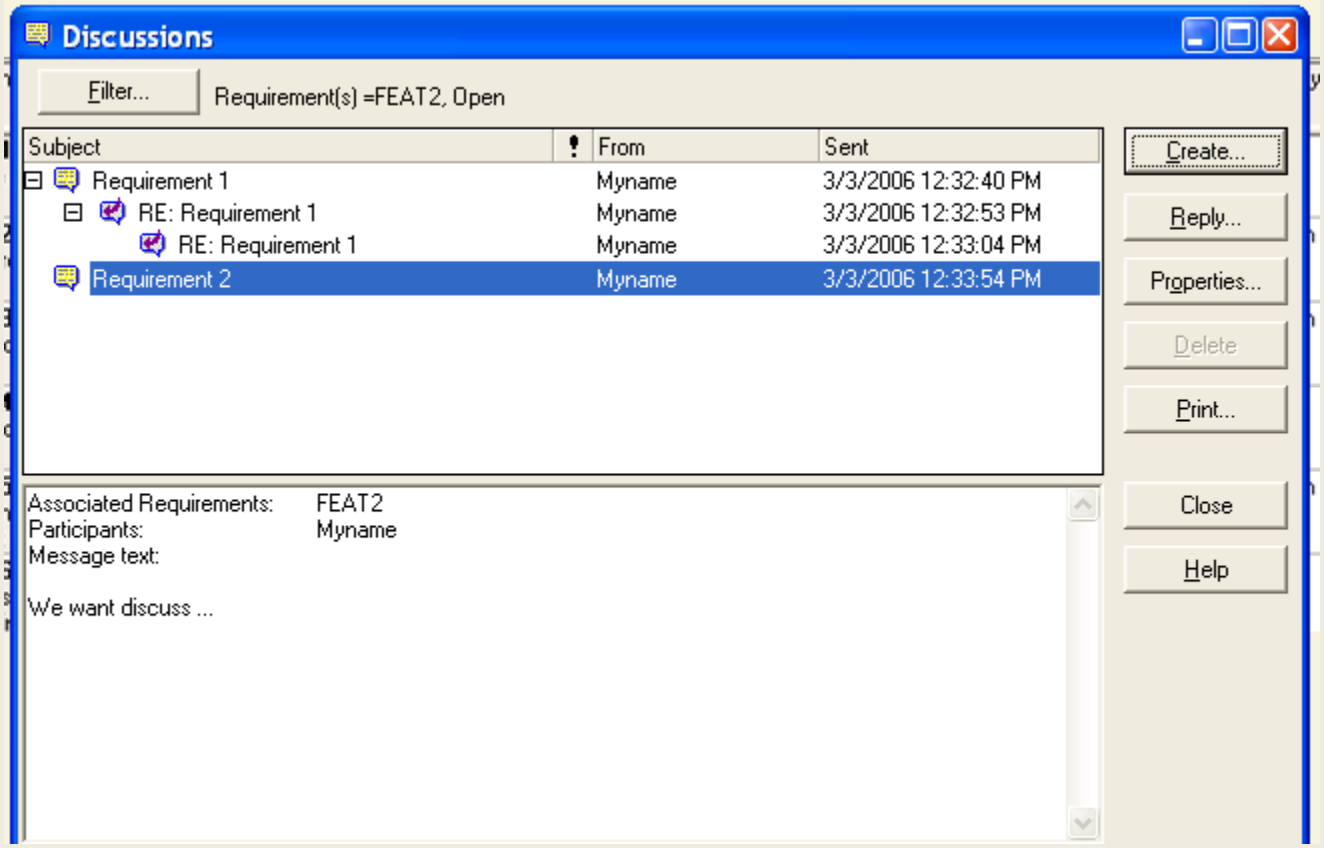
Microsoft Word integration (cont.)

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

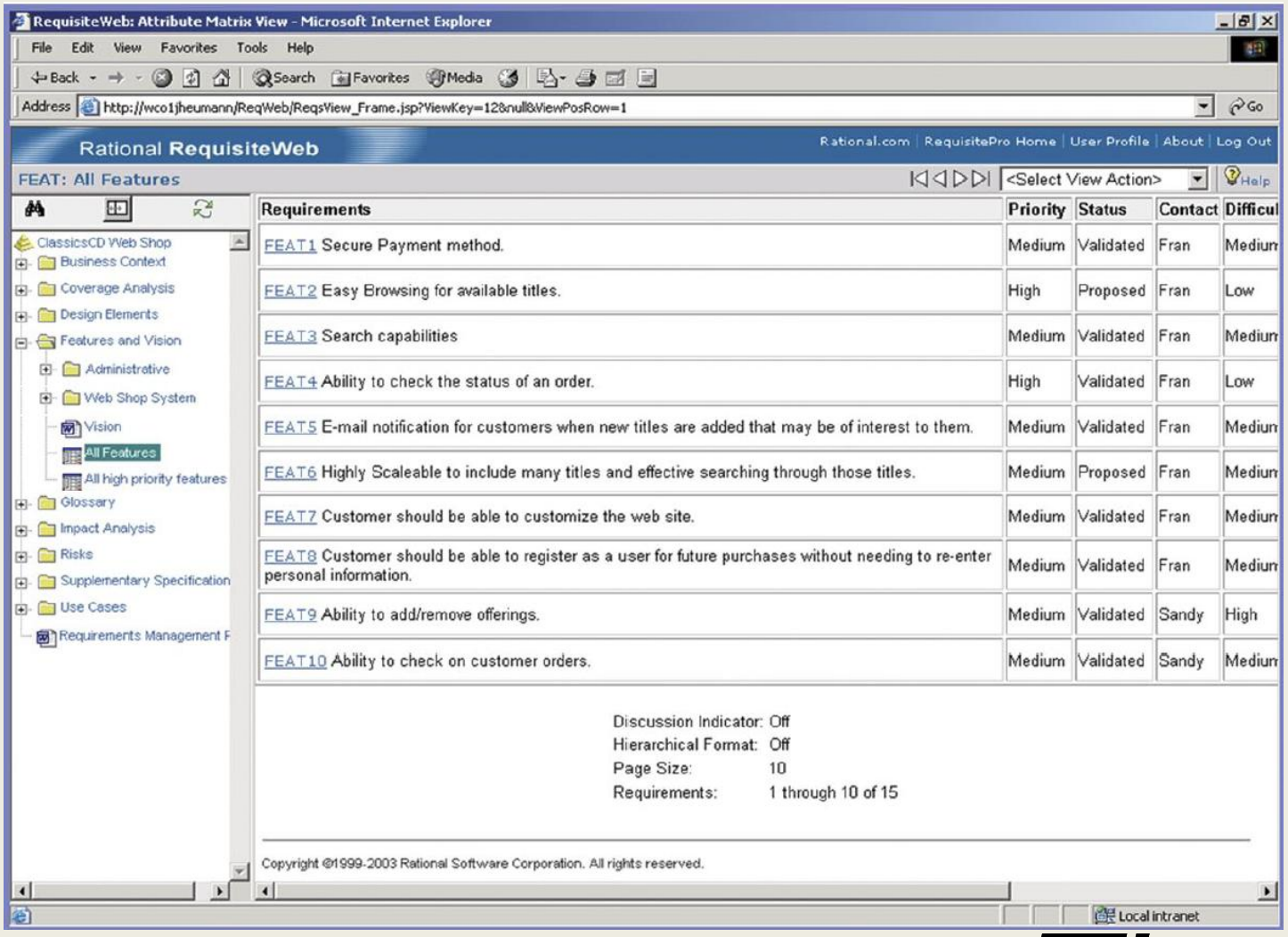


UC2.1 This use case allows a Buyer to browse the items currently available for auction. The Buyer may search for a specific item, or may look at all of the items currently available for auction, sorted by category. The Buyer does not have to be signed on to browse the auction catalog.

Forum for Discussions



Web Interface



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: 7.1.2
- http://www.ibm.com/software/awdtools/reqpro/

Next Week

- **Topic**: Requirements Elicitation and UML tools
- **Homework**:
  - Read through the slides from previous lectures .
  - Prepare questions regarding project (i.e. any ambiguities, concerns and doubts about the project description should be resolved).
  - Work on the project (team work!)
  - Bring a laptop to the next session with a StarUML installation.

Submission of the deliverables

- Each team should create an **SVN repository**
  - at e.g. svn.vis.ethz.ch, Google Code, SourceForge, …
- The file system should have the following structure
  - …\svn\trunk**Assignment** <{1,2,3,4,5}>
  - The name of the final file should be:

    [KSE-<team name>]Assignment<{1,2,3,4,5}>.pdf
- Send the link to the repository to your TA.
- The answers will be collected at **midnight** of the submission day.