

Rational Rose 2002 tutorial

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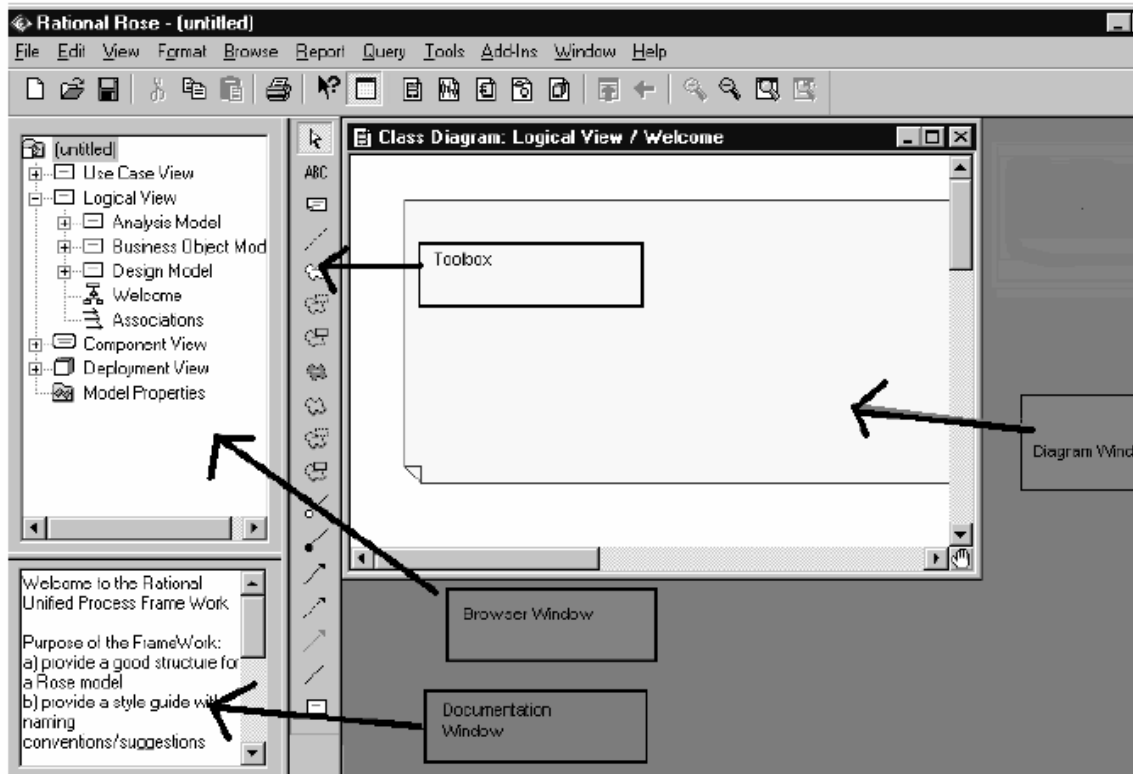
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Orientation Manual- Rational Rose 2002 Enterprise Edition – Booch version

Rational Rose is a CASE tool for object-oriented analysis, design and construction.

In this tutorial, we use 'Booch' notation for our modeling. At the end, we can convert 'Booch' notation to the standard notation of UML (Unified Modeling Language) or the OMT (Object Modeling Technique) notation.

1. Open Rational Rose Enterprise Edition from the Programs menu or from the short cut on the desktop. Open a new file by selecting File -> New -> select "rational unified process".
2. Rational Rose main window consists of three basic windows (the browser window, the diagram window and the documentation window) and the toolbox.



3. Set for the 'Booch' Notation by going to the View menu on top of the screen and selecting 'As Booch'. If the 'As Booch' menu item does not appear, the system is already set to Booch notation. You may need to do this each time you log-on.

4. Before creating classes, you need to identify classes. This is done from the Requirements/ Specification document of the product that you are building. State the product that you are building in a paragraph. Examine the paragraph for candidate classes. Any nouns may be evaluated as candidate classes. Evaluate each candidate class to determine whether to keep it as a class.

For our model, we are building a Registration System for SPSU and we have identified the following classes.

Regular Student, Non-Regular Student, Transcription, Registration Interface, Student Schedule, Curriculum, Course, Section.

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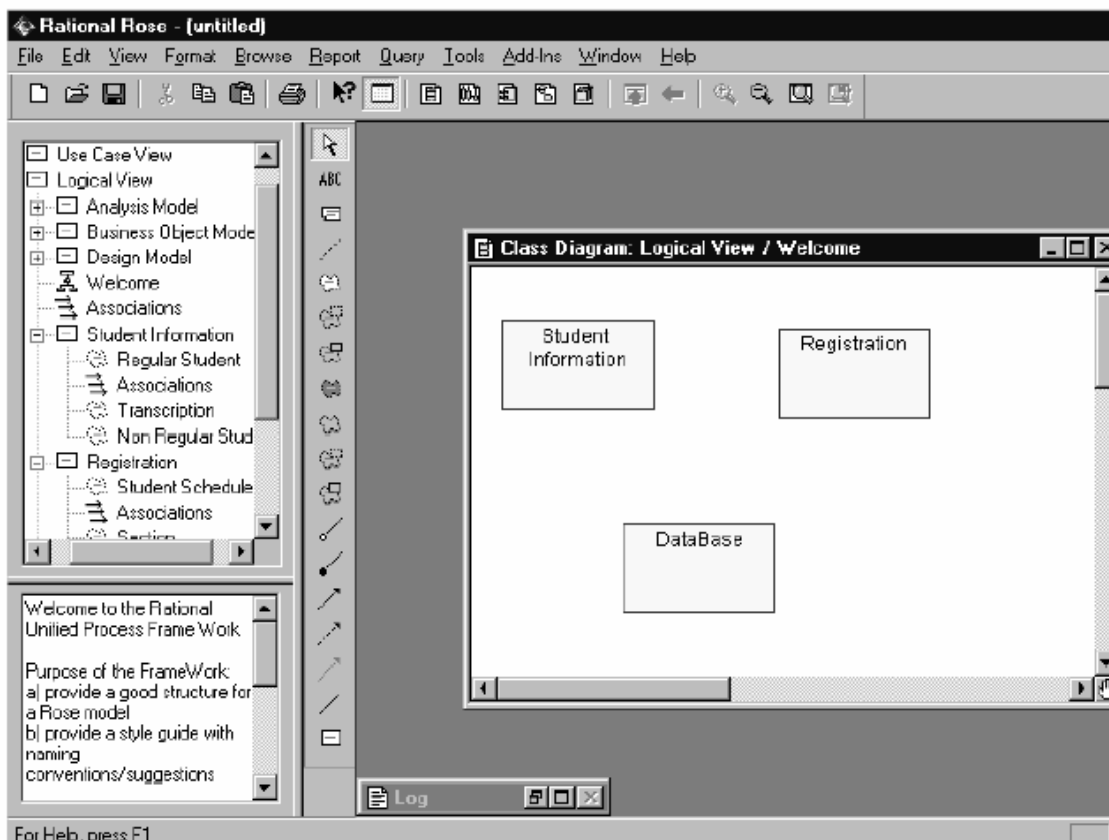
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5. Create classes in the browser window.

- Classes are created in the logical view in the browser window. The logical view contains categories (collection of classes that are strongly cohesive within the collection) and classes.
- Right click Logical View and select 'New', and 'Class' from the menu and then left click. Overwrite the highlighted box containing 'New Class' with the name Regular Student. Do the same for all the identified classes. You will see all the classes in the browser as you create them.
- Define the classes by right clicking the class and selecting Open Specification and enter the definition in the documentation text box. Click OK.

6. Create Categories

- To Create Categories, right click the Logical View in the browser window and select 'New', and 'Category' from the menu and then left click. Make three categories and name them Student Information Category, Registration Category and Database Category. (The Database Category can be excluded for this tutorial.)
- Open the Welcome class diagram by double clicking on Welcome in the logical view. (Note: This may already be open).
- Drag (Click and Drag) the categories from the logical view onto the Welcome class diagram. You will see a figure like the one shown below.



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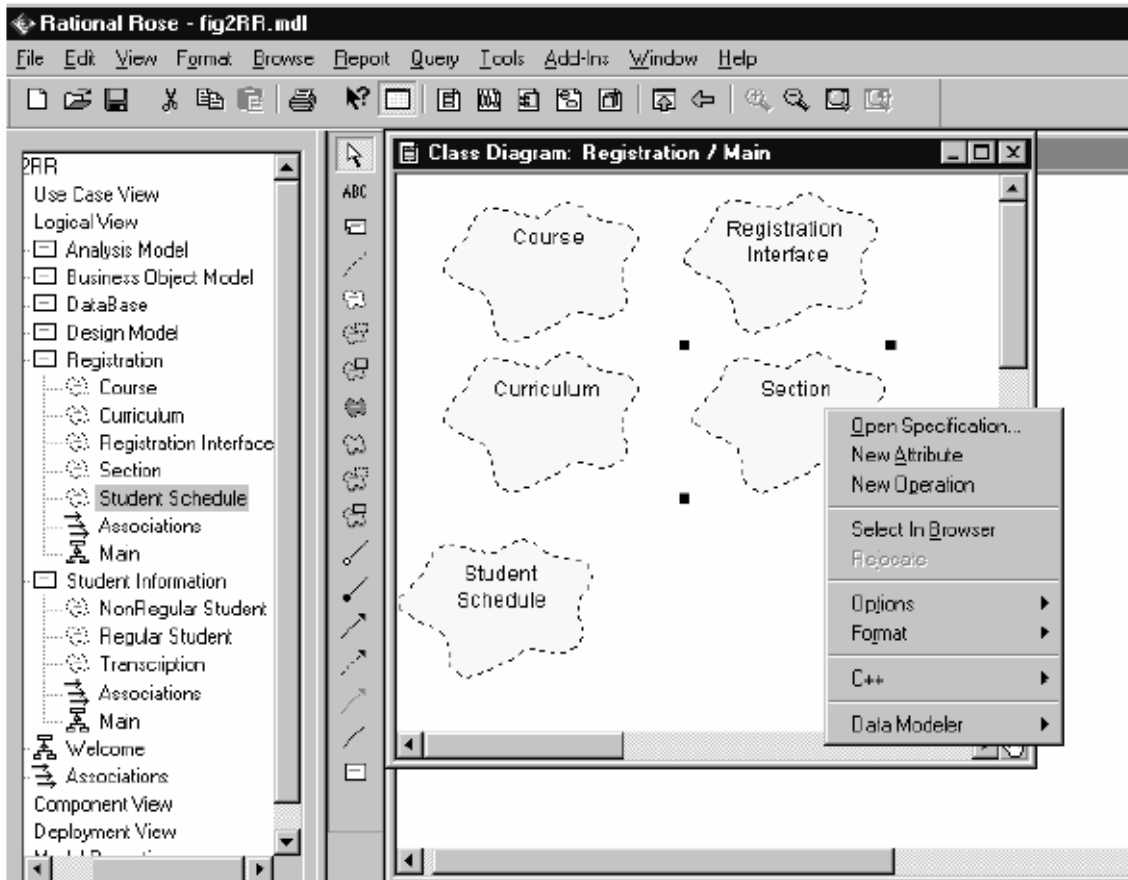
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7. Relocate classes to the appropriate category.

- In the browser window, drag each class to the appropriate category. (Click Transcription and drag it onto the Student Information Category. You will see the placement of the class as a sub menu item of the category now.)
- Do the above for all the classes as described for the two categories below.
Student Information category: Regular Student, Non- Regular Student, Transcription.
Registration Category: Registration Interface, Student Schedule, Curriculum, Course, Section.

8. With the same view in the Diagram Window (Main), double click the Student Information Box. A blank window will pop up - the Student Information category's Main Diagram Window.

- Drag Regular Student, Non-Regular Student, Transcription classes into the 'Student Information/Main' diagram window. You will see clouds with those class names on the diagram.
- Then double click the Registration category and drag its classes onto Registration/Main' diagram.



9. Add Attributes and Operations.

- Right click any of the class (cloud) in the diagram, say the section class.
- Select New Attribute from the menu and enter the following attributes: class_no, class_name, class_schedule, class_location, class_instructor.
- Right click and select New Operation from the menu and enter the following operations: find_class(), print_class(), grade_student(), set_section().
- Do the same with appropriate attributes and operations for all the other classes in both Student Information and Registration categories.

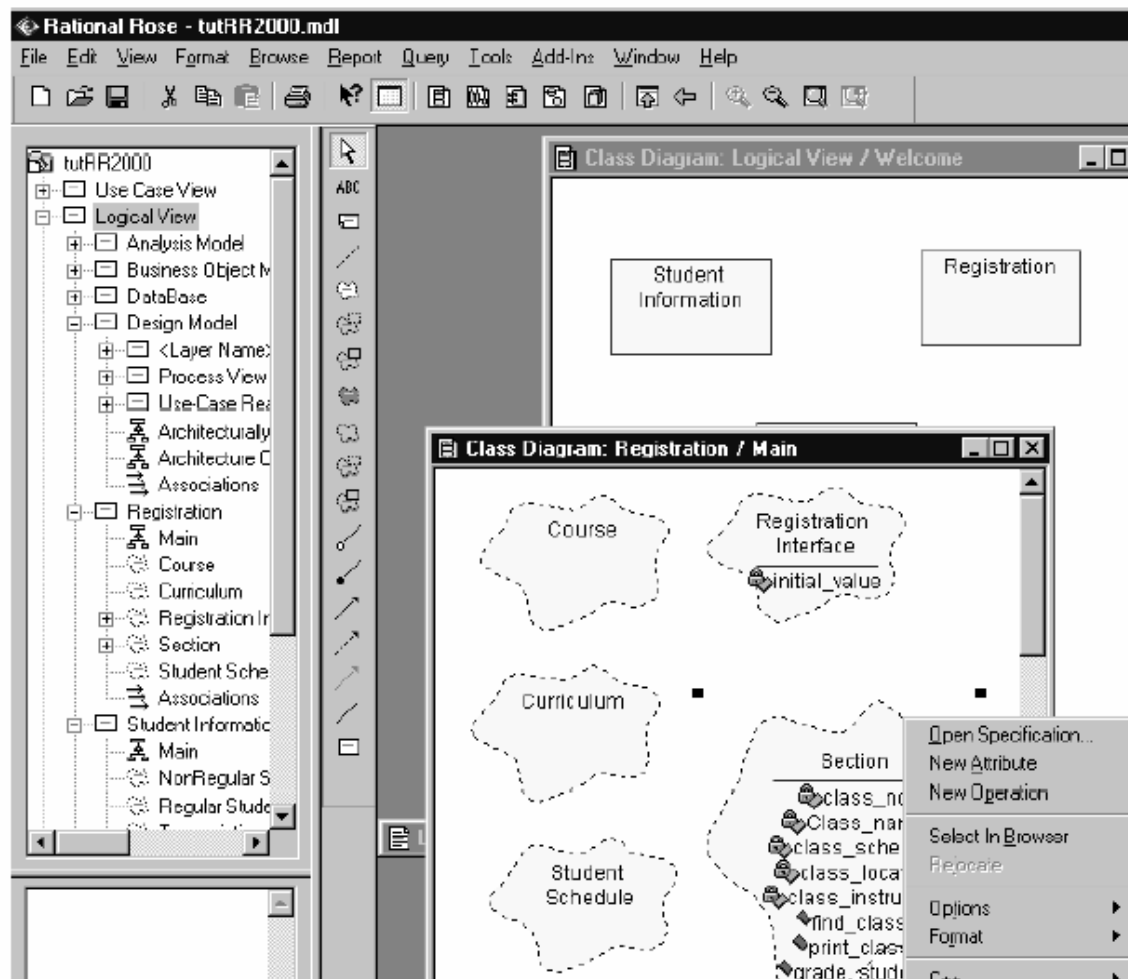
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10. Draw the appropriate Relationships.

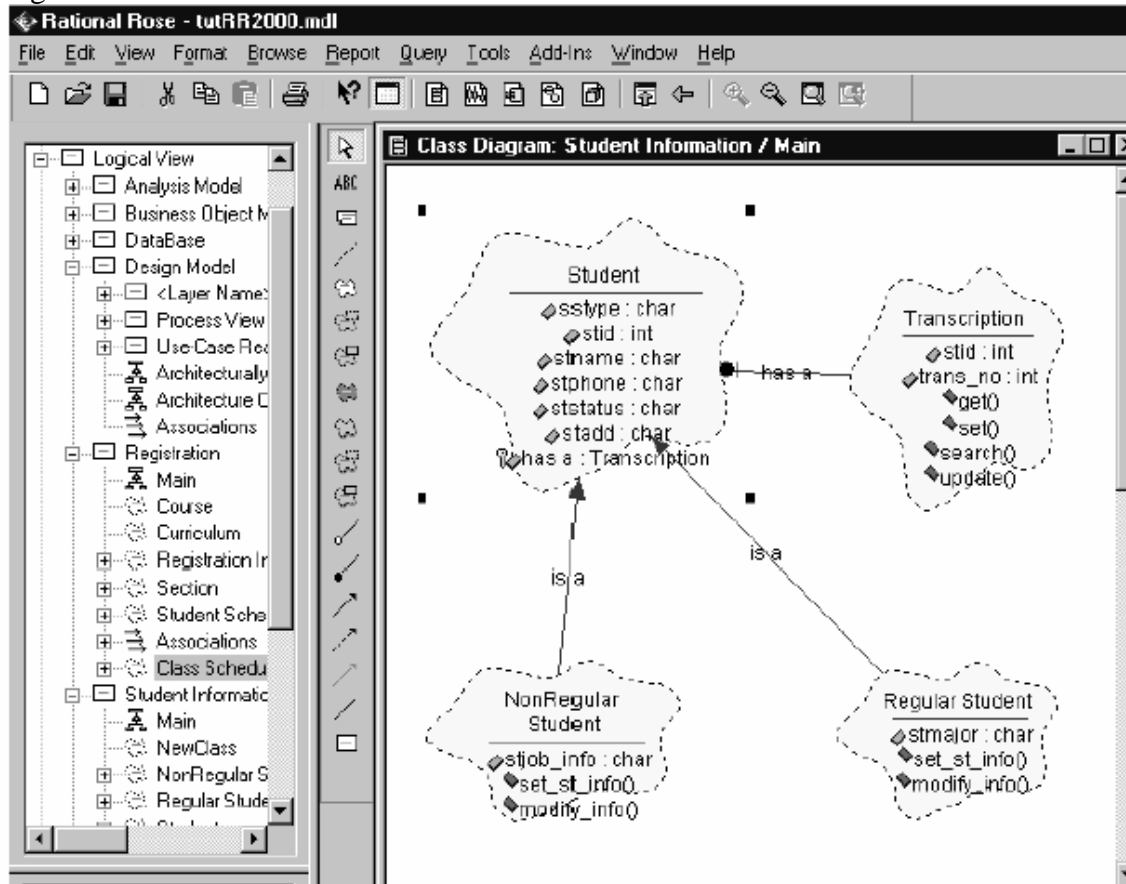
- The relationships are all depicted in the Tool Box. For the inheritance relationship, we need to create a new class called Student in the Student Information category. To create this new class, we can either use the tool box (select 'Class icon' in the Tool box) or from the Logical View right click on + next to student and drag it to the diagram window (see item 5 - Create classes in the browser window). Then drag all the attributes of the Regular Student class (these may be sttype, stid, stname, stphone) onto this new 'Student' class. Delete those attributes in the Non-Regular student class, which are the same as the attributes of Student class.
- Select the inherits icon from the Tool Box, and draw inherits relationship from the Regular Student class to Student class, and from the Non Regular Student class to the student class.
- Double click on the relationship line. The Specification window will pop up. Name the selected relationship to identify the purpose of the relationship. Name it as 'is a' . . Select Protected Inheritance. Give any documentation as desired.
- In the same way, draw 'has' relationship from the Student class onto the Transcription class and name it as 'has a' . Right click the relationship line and select cardinality as 1 on both ends.
- Give appropriate relationships to all the classes as needed in both the diagrams. The diagram s should look like the ones shown below and on the next page.
- To add cardinality, right click on the line at each end of the line and choose 0, 1, n etc. from menu.



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11. Now, the work in the Logical View is done. Next step is error checking.

- To check the model, select a model (The main class diagram in a category from the Logical View).
- Select the Student Information Category. Open the diagram by double clicking on the category.
- Open the Tool menu from the main menu on top of the screen and select Check Model.
- If you made any errors during the modeling, a small window will pop up and say "There are errors. See log file for details." To see the log, pop up the window from the right or center at the bottom of the screen.

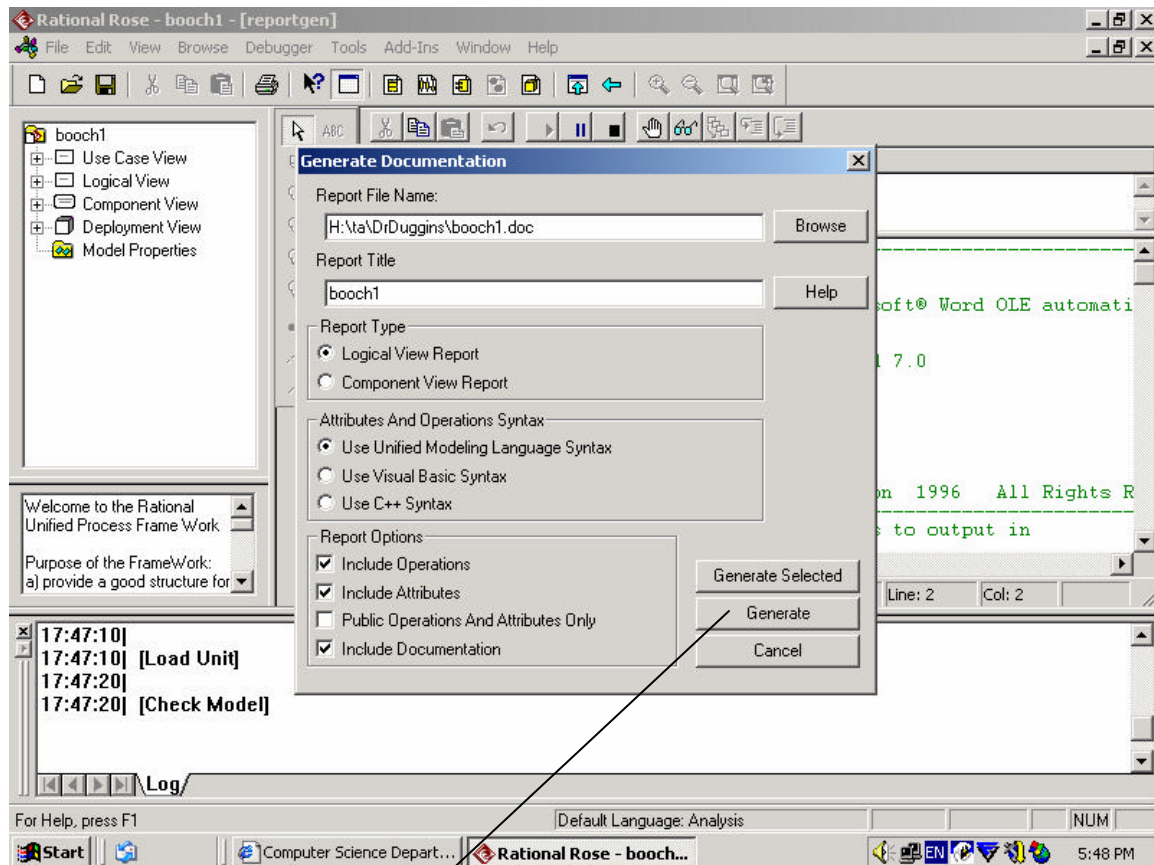
12. Generate Documentation

Rational Rose can automatically generate the documentation report. Use the following procedure:

1. From the top menu bar, click on "tools" and then "open script"/
2. Locate and click on the reportgen script in the Rational Rose Root directory (D:\Program Files\Rational\Rose)
3. From the top menu bar, click on "debugger" and then "go".
4. In the Generate Documentation window, check report options as shown below and click "Generate". This will generate a report in MS Word.

5. This report has extra documentation which is not required. When you open WORD and view this report, you will see it has a main heading: “**Logical View Report**”. Under that heading there are subheadings: “**Logical View**”, “**Analysis Model**”, “**Business Object Model**”, “**Design Model**”, “**Process View**” and “**Use-Case Realizations**” that have generated documentation (you did not type).

6. Following the “**Use-Case Realizations**” section, you will see the packages you created (classes in your model) and their documentation. You may delete the generated documentation in the subsections of the “**Logical View Report**” that appear before the packages you created, (i.e., the headings listed above in **part 5** and their documentation). Do not delete anything after you see the first package you created.



Click this option to generate report !

13. From ‘Booch’ Notation to UML or OMT Notation.

Select the View menu and select ‘As Unified’ (for UML) or ‘As OMT’ for these notations. The diagrams are automatically updated to the desired notation.

14.(You need to be in Booch Notation for this.) If your class assignment asks for an object diagram with message links, right click on logical view, choose New and object message diagram, name the diagram and then double click on it. Using the new tool bar, click and drag the solid clouds onto the object diagram. Give them names but no attributes. To add message links to show how objects are related, draw a line between the objects and then click on the directional line symbol and click on the line you have just

drawn. The directional lines will be placed next to the straight line and numbered in the order that you place them.