# COMP 2714 –RELATIONAL DATABASE SYSTEMS

## Lab05 – EER Diagramming (using UML notation) with Visio 2010 Professional

This lab tutorial provides an introduction to using Visio 2010 Professional to draw EER diagrams with the UML notation. For the purpose of COMP2714, we will not be covering every aspect of UML modeling, but focus mainly on the drawing of Class Diagrams (i.e. Static Structure Diagrams) in the Static Model section. The relevant Help information is found under menu Help -> Microsoft Office Visio Help -> Table of Contents -> Creating Drawings -> Software -> UML Model Diagrams, and in particular, Working with UML System Models and Model Types -> Static Structure.

Please note that the EER diagrams described in the textbook uses only a subset of the UML notation for Class diagrams; simply put, EER diagrams using UML notations are similar to Class diagrams without the operations / methods. Do not be confused with the terminology differences though.

**Note:** Since not all UML diagramming features are supported by Visio, and **there are different ways to diagram the same requirement under UML**, the objective is to learn to use the software tool properly, and **NOT just to mimic** the textbook's diagrams. If you have questions, please ask your instructor.

**For the purpose of this lab tutorial, you are required to:**

1. **Complete the 2 EER / static structure diagrams using Visio UML, one for each of the two diagrams attached.**
2. **Create a Word docx file, and copy & paste each of the two diagrams into it (1 diagram per page). Scale each diagram to fill the page, print the 2 pages and submit them to your lab instructor. Include your name and student ID on the diagrams. No cover page required unless specified otherwise by your lab instructor.**
3. **Post your Lab05<Lastname><Initial>.vsd file (NOT .docx file) to ShareIn, in the respective Lab and Set folder.**

**Read through the following helpful information before you start:**

0. Use Visio 2010 Professional for this lab. Do not use Visio 2013/2016, as it has changed significantly that some UML modeling features needed are no longer available.

1. Start Visio 2010, and under Category: select Software and then UML Model Diagram (Metric or US units);
   or from the menu, select File -> New -> Software -> UML Model Diagram (Metric or US units)

2. In the Model Explorer window, under Static Model -> Top Package:
   Right-click Top Package -> New -> Package - name it DreamHome.

3. Right-click DreamHome, and add 2 new packages named Branch and Staff.

4. Right-click Branch package -> New -> Static Structure Diagram. Rename Static Structure-1 to Branch. This is for the Branch view diagram. Similarly, create the static structure diagram for Staff in the Staff package for the Staff view diagram.

5. Drag and drop the class shape from the template onto the diagram, using the UML Static Structure template.
   Right-click the class shape on the diagram -> Properties to name the class (entity), and add attributes.
   Right-click the class shape on the diagram -> Shape Display Options ... and under Suppress, check Operations so that the class shape displays only the name and attributes.

6. Other useful shapes include Binary Association, Generalization, N-ary Association, Association Class and N-ary Assoc.Class. These are used for the various associations (relationships) between classes (entities). Note that for association class, the textbook diagram names the association with a verb, whereas in Visio, you have to name the class instead with a noun.

7. Right-click the association shape -> Properties to name the association
   - select the Name Reading Direction,
   - type in role names for End Name if required,
   - select Multiplicity (cardinality), or type it in the field if the drop-down list does not has the specific entry.

8. Right-click the association shape -> Shape Display Options ...
   Under General options, check Name to display the association name.
   Under End options, uncheck First end name and Second end name to suppress display of the end names (role names).

9. Right-click the association shape -> Format -> Text, select tab Text Block -> Alignment, to move text display.

   For Visio 2010, click the association shape, then click the **A** icon in the tool ribbon Paragraph section to rotate text. [For Visio 2007, right-click the association shape -> Shape -> Rotate Text to rotate the displayed text.]

10. Use a text box to add tags such as {Optional, Or} for generalization, and use the Notes template for your name and student ID label.

11. Note that Visio does not do certain things easily. For example, instead of defining {PK} as a tagged value to the attribute (which is hard to display on the diagram), you may have to append {PK} to the attribute name. Also, **you may want to leave out the composite attribute names from the diagrams**.

Diagram 1: Data Requirements according to Branch View  (see next page for the Visio UML version of this same diagram)
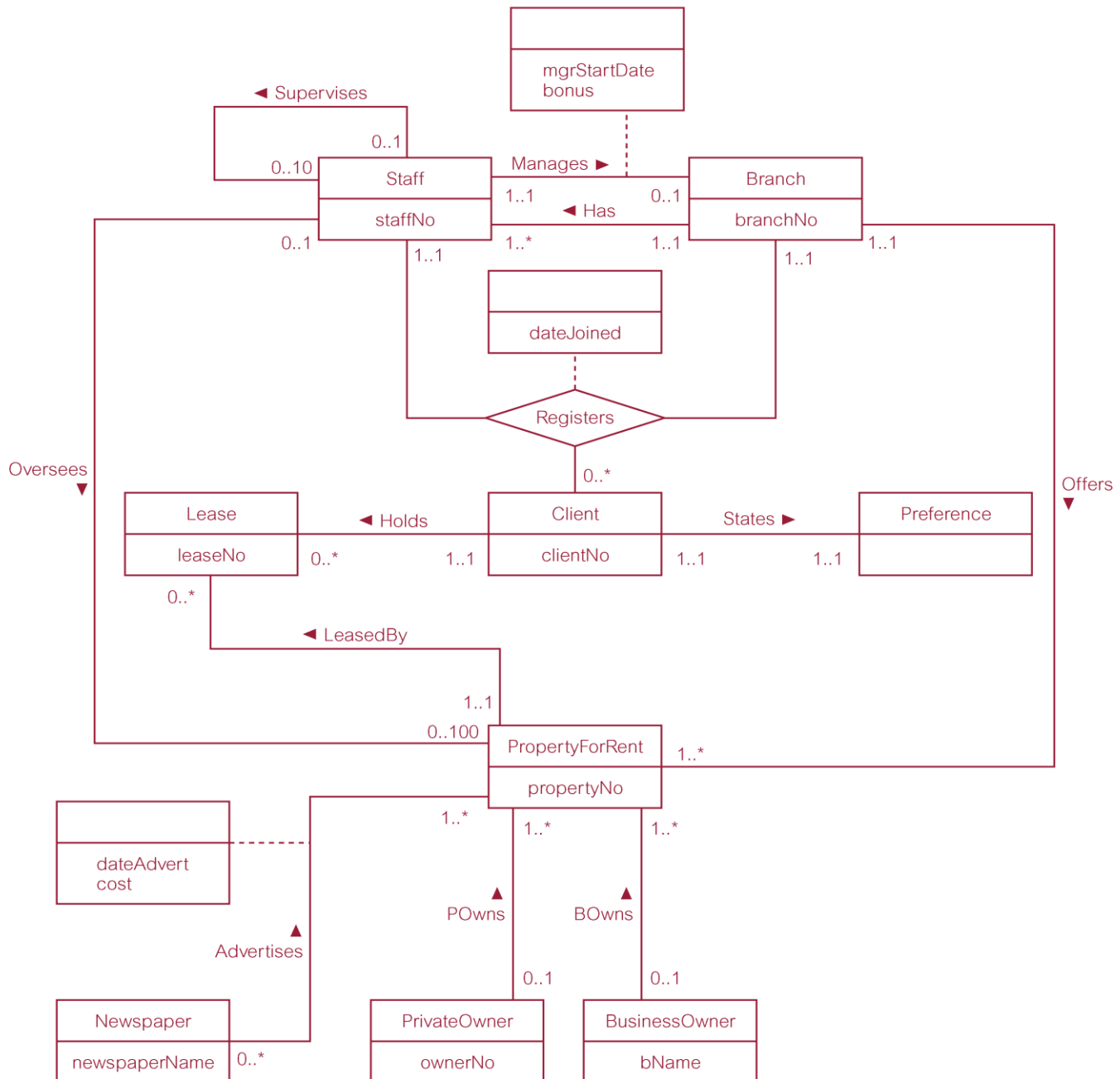
# Diagram 1 : Data Requirements according to Branch View

**Management**

mgrStartDate
bonus

◂ Supervises

0..1

0..10

1..1

0..1

**Staff**

staffNo

◂ Has

**Branch**

branchNo

1..1

0..1

1..1

1..*

1..1

1..1

**Registration**

dateJoined

0..*

◂ Oversees

◂ Offers

**Lease**

leaseNo

◂ Holds

**Client**

clientNo

States ▸

**Preference**

0..*

1..1

1..1

1..1

0..*

◂ LeasedBy

1..1

1..*

0..100

**PropertyForRent**

propertyNo

**Advertisement**

dateAdvert
cost

1..*

1..*

1..*

POwns ▸

◂ BOwns

0..*

0..1

0..1

**Newspaper**

newspaperName

**PrivateOwner**

ownerNo
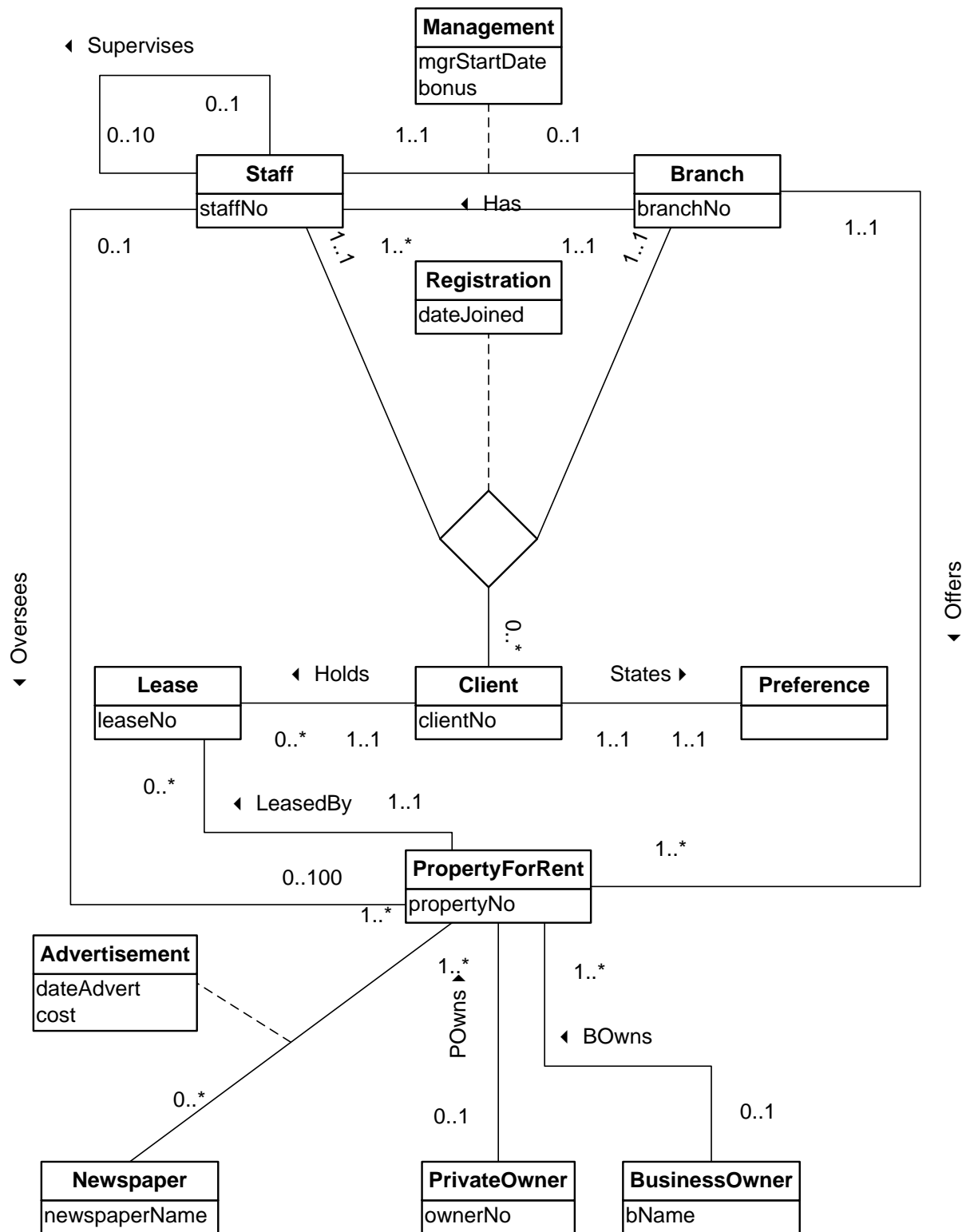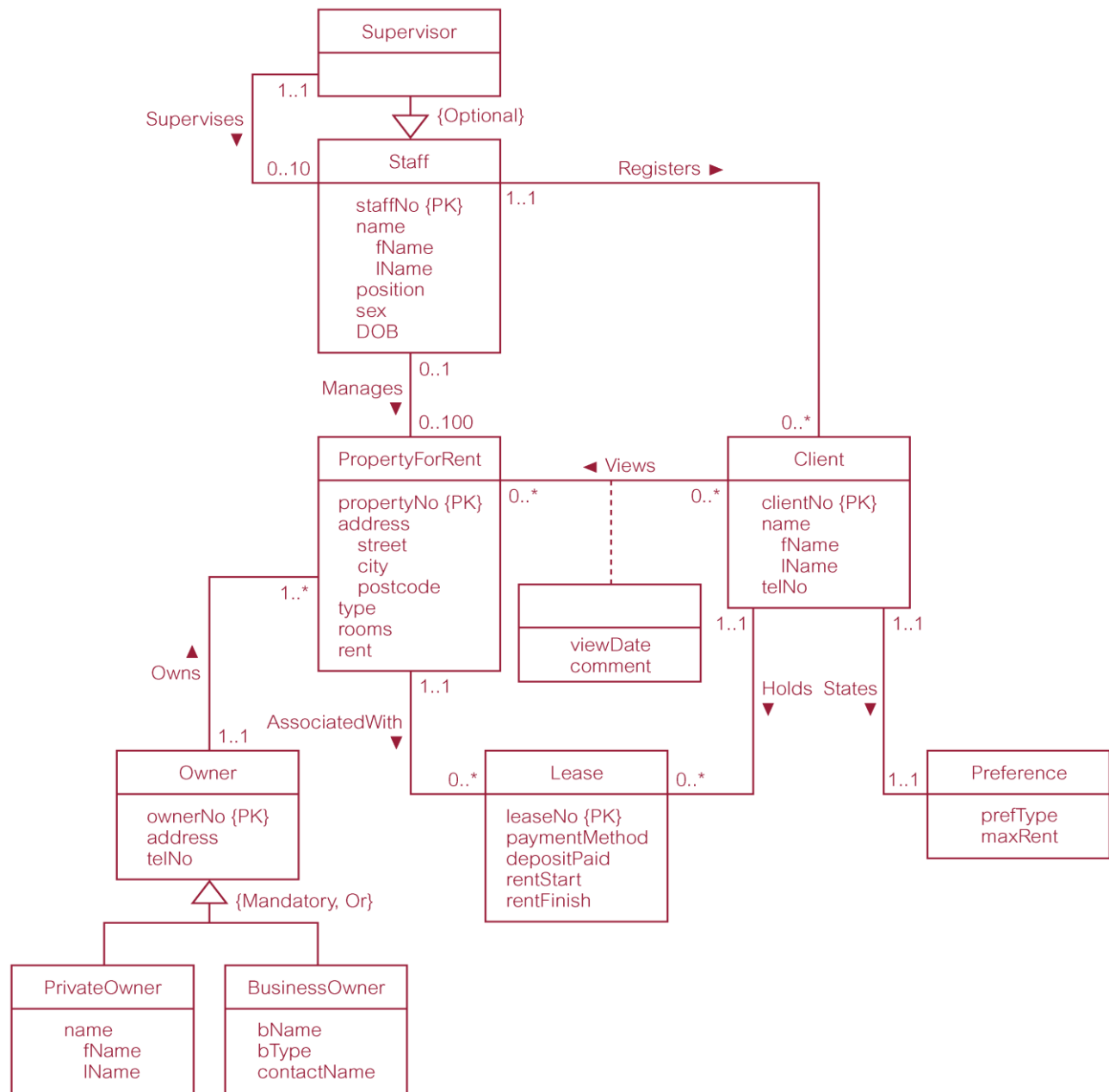
**BusinessOwner**

bName

Diagram 2: Data Requirements according to Staff View (see next page for the Visio UML version of this same diagram)

Diagram 2: Data Requirements according to Staff View