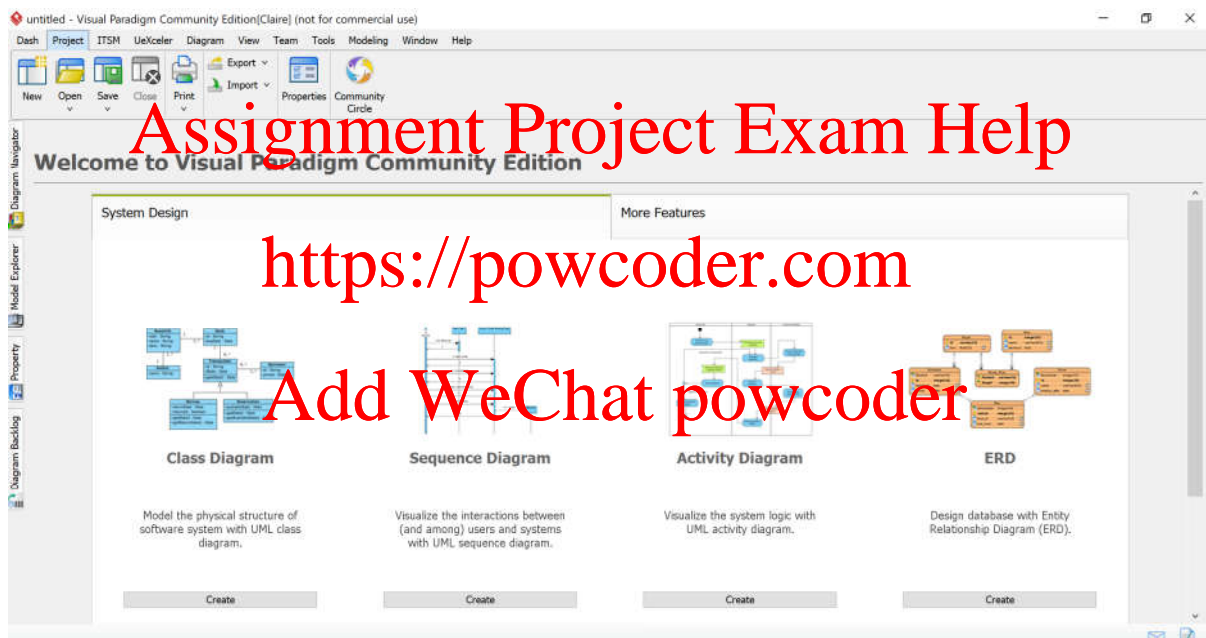


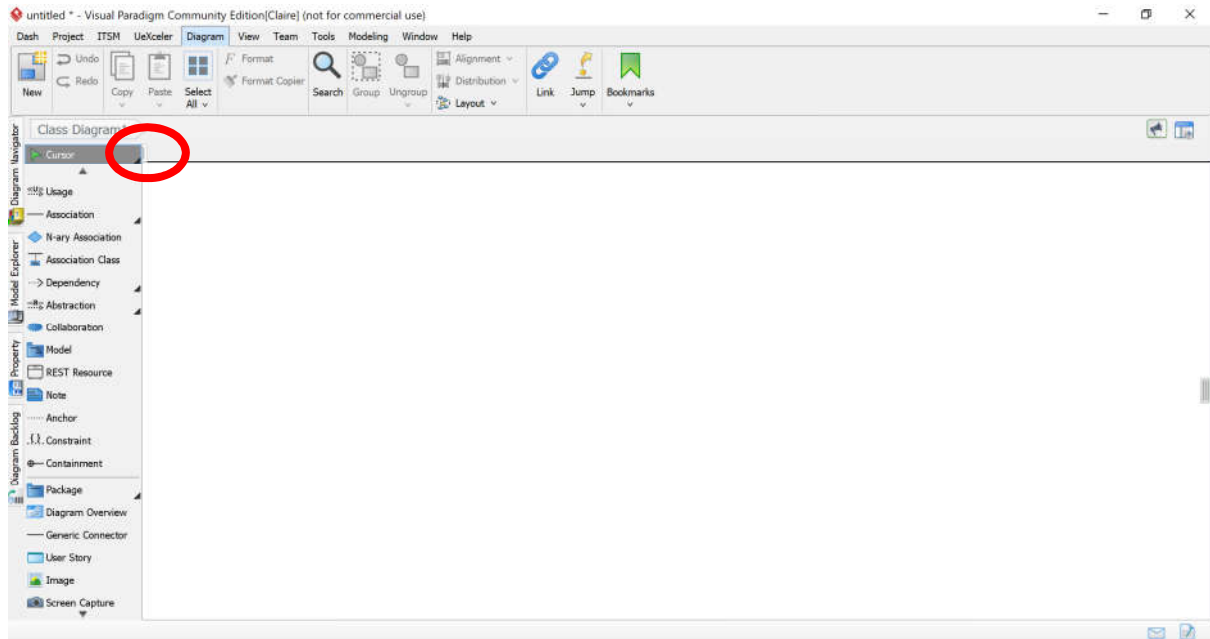
Creating Conceptual and Logical Diagrams – Some Visual Paradigm Hints

NB: You do not have to use Visual Paradigm for your assignment – you can use powerpoint or similar drawing tools or even present neat hand drawn diagrams.

1. Download and use Visual Paradigm Community Edition – this is free
2. When you install Visual Paradigm you will need to give them your e-mail address so that they can e-mail you a license code. Use this to activate the software
3. When you start the software you will get the following screen



4. Click CREATE to create a new CLASS DIAGRAM
5. You will see the following screen. The cursor will be flashing in the area circled in red – type in *conceptual* as the package name into this box.



6. Scroll up and down the objects on the left hand side, until you find the CLASS object – drag this onto the screen to draw your first entity.

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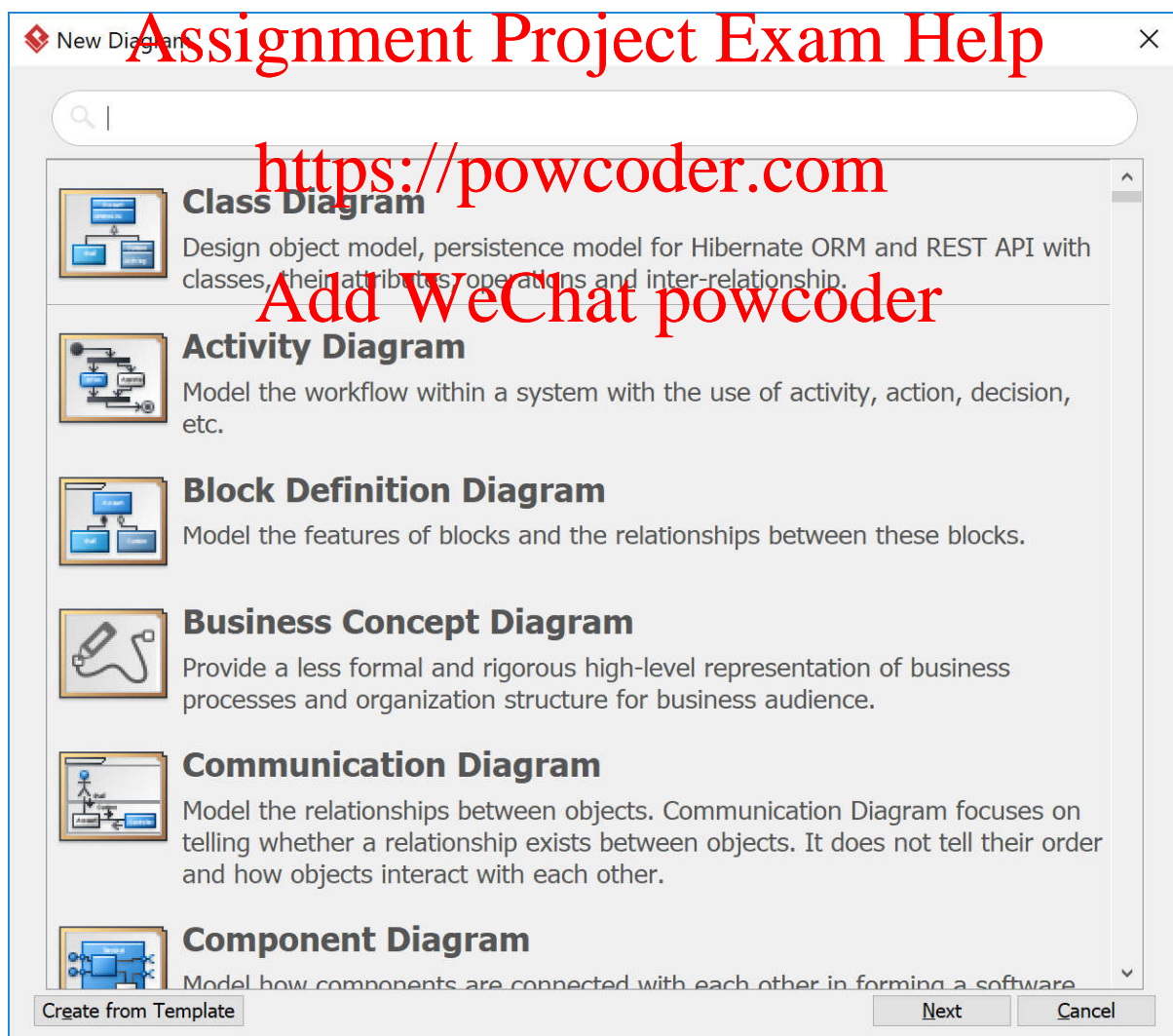


7. To add a RELATIONSHIP use the ASSOCIATION object
8. To change the CARDINALITY of a RELATIONSHIP look at the 'multiplicity' property of the association
9. To add an ATTRIBUTE, right click on the CLASS, then click OPEN SPECIFICATION and click on the ATTRIBUTE tab. Click ADD to add a new attribute and then name it.

10. To add an IDENTIFIER: Right click on the attribute, and select STEREO TYPE > PK
11. To set the CARDINALITY of an ATTRIBUTE - use the MULTIPLICITY option on the attribute.
Right click on the class, select 'presentation options' then select 'attributes' and 'show multiplicity'. Be careful not to set the UNIQUE option unless this is a single-field primary key
12. To show the cardinality of the attributes on the diagram, right click on the class and select PRESENTATION OPTIONS > ATTRIBUTES > SHOW MULTIPLICITY
13. To create a PRIMITIVE data type – see Appendix 1

LOGICAL DIAGRAM

14. To create the LOGICAL diagram, you should:
 - a. Click DIAGRAM > NEW and select CLASS DIAGRAM

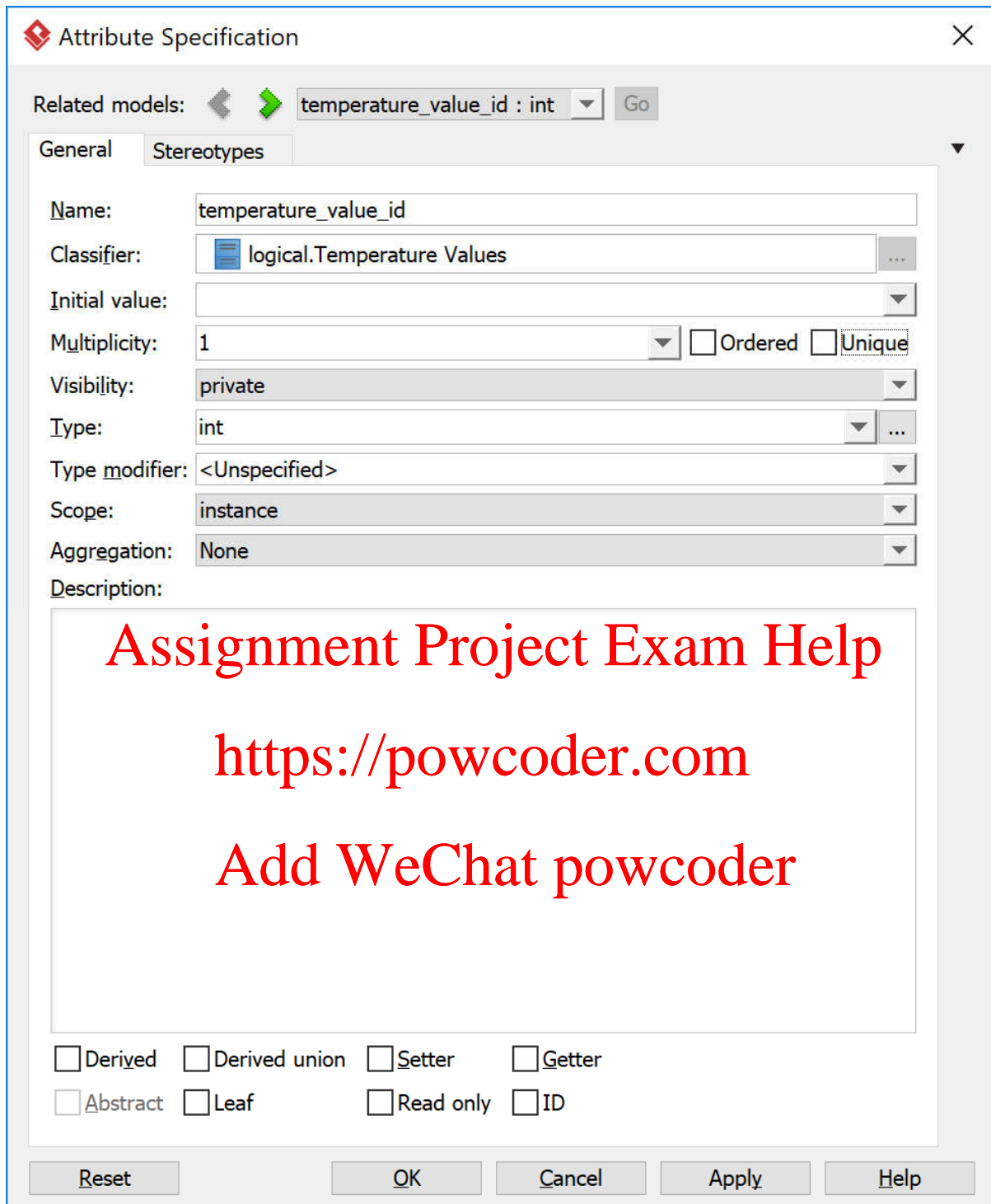


- b. Click NEXT and name the diagram *logical*
 - c. Rename the <default package> (close to the top left of the screen> to *logical* by double-clicking on it
 - d. You can then copy/paste the classes from your *conceptual* diagram. NB: When you paste the classes make sure you select PASTE MODEL ELEMENT not PASTE VIEW as the latter will make changes to the conceptual diagram every time you make changes to the logical diagram.
15. Edit or add an attribute as above (by right clicking on the class and then clicking on SPECIFICATION and ATTRIBUTES). However in this case make sure you specify the data type (from the *type* list) and the multiplicity
- e. Make sure UNIQUE is NOT ticked




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The image shows a software window titled "Attribute Specification" with a close button (X) in the top right corner. At the top, there is a "Related models:" section with a left arrow, a right arrow, a dropdown menu showing "temperature_value_id : int", and a "Go" button. Below this are two tabs: "General" (selected) and "Stereotypes". The "General" tab contains several fields: "Name:" with the text "temperature_value_id"; "Classifier:" with a small icon and the text "logical.Temperature Values" and a three-dot menu; "Initial value:" with a dropdown arrow; "Multiplicity:" with the value "1", a dropdown arrow, and checkboxes for "Ordered" and "Unique"; "Visibility:" with the text "private" and a dropdown arrow; "Type:" with the text "int", a dropdown arrow, and a three-dot menu; "Type modifier:" with the text "<Unspecified>" and a dropdown arrow; "Scope:" with the text "instance" and a dropdown arrow; "Aggregation:" with the text "None" and a dropdown arrow; and "Description:" with a large text area. The text area contains the following red text: "Assignment Project Exam Help", "https://powcoder.com", and "Add WeChat powcoder". Below the text area are two rows of checkboxes: the first row has "Derived", "Derived union", "Setter", and "Getter"; the second row has "Abstract", "Leaf", "Read only", and "ID". At the bottom of the dialog are five buttons: "Reset", "OK", "Cancel", "Apply", and "Help".


Attribute Specification


Related models:   temperature_value_id : int  Go


General Stereotypes


Name: temperature_value_id


Classifier:  logical.Temperature Values ...


Initial value: 


Multiplicity: 1  ☐ Ordered ☐ Unique

Visibility: private 

Type: int  ...

Type modifier: <Unspecified> 

Scope: instance 

Aggregation: None 

Description:

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☐ Derived ☐ Derived union ☐ Setter ☐ Getter

☐ Abstract ☐ Leaf ☐ Read only ☐ ID

Reset OK Cancel Apply Help

16. Go through any existing attributes to specify their data type and multiplicity.
 - f. For geometry data types, just type the word geometry into the type box.
 - g. For character varying use string
 - h. For numbers use int or double
 - i. For date, just type the word date into the box

17. The <<FK>> stereotype does not exist, you can create it by using STEREOTYPES >EDIT
STEREOTYPES > ADD
18. To add UNIQUE constraints just right click and select ADD > OPERATION. Change the word
OPERATION to UNIQUE and then in brackets add the fields that the constraints operates on.
(NB: Don't use the CONSTRAINTS option as this is not suitable)

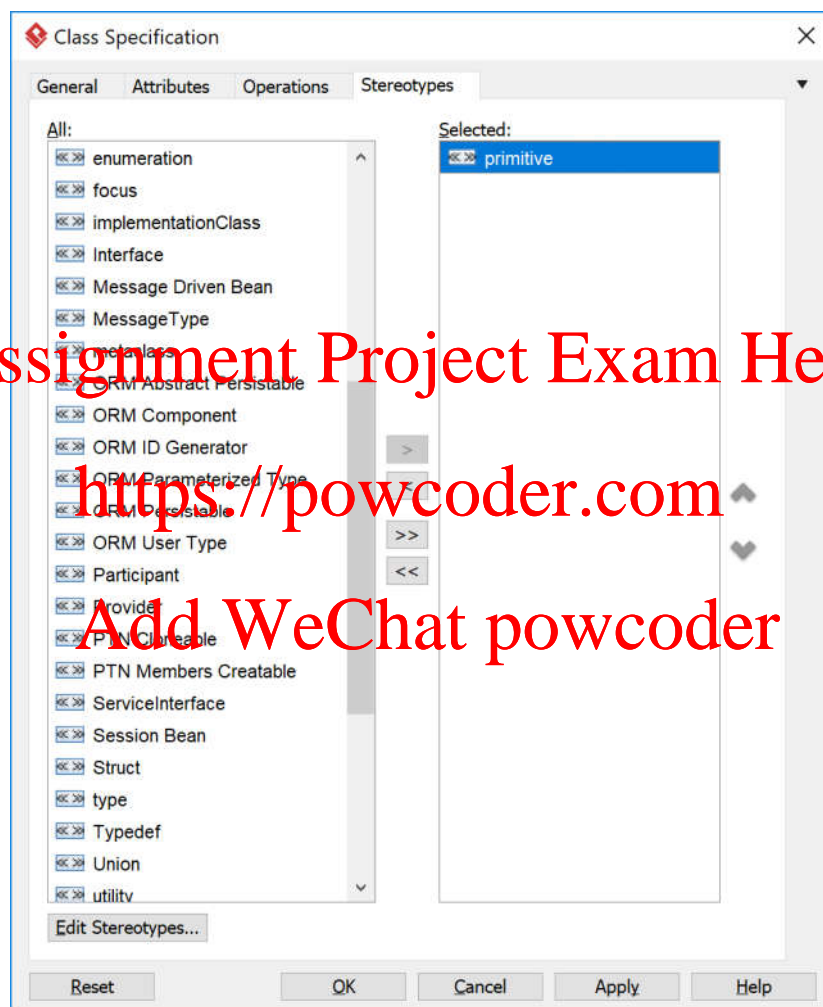
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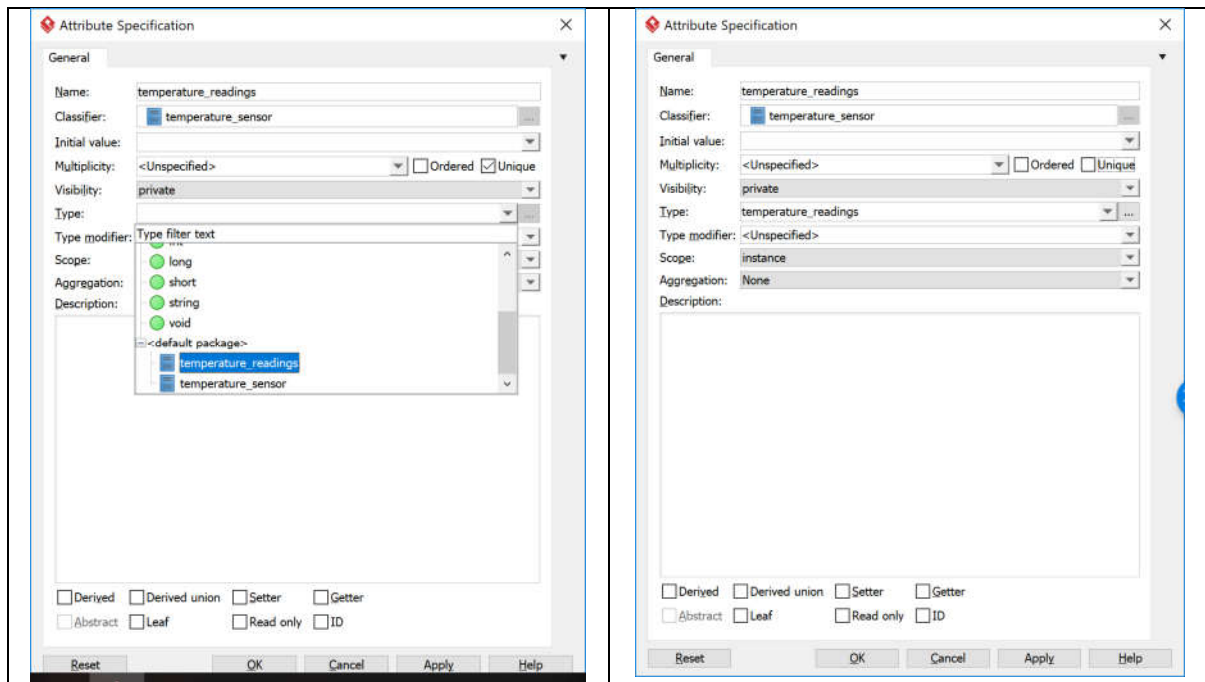
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Appendix 1 – Creating a << PRIMITIVE >> Data Type

1. Create the PRIMITIVE ENTITY
 - a. Drag a new CLASS object onto the diagram
 - b. Add the attributes that you need for the primitive type
 - c. Click OK to create the object
 - d. Right-click on the CLASS and then select STEREOTYPES > EDIT STEREOTYPES and select the << PRIMITIVE >> type from the list



2. Create the PARENT ENTITY
 - e. Then create the second CLASS (entity) that will use this primitive type
 - f. Add attributes as usual
 - g. However, when adding the attribute that will contain the primitive type, scroll down in the TYPE list and find the primitive type (i.e. don't select int or string for the type)



3. Create the RELATIONSHIP

- Add an association to the diagram
- Right-click on the association and select OPEN SPECIFICATION
- Set the correct relationships and cardinality
- Set one end of the relationship (PARENT end) to NAVIGABLE FALSE and the other (CHILD end) to NAVIGABLE TRUE as shown below

