

Notes

There is no requirement to use software to create your ER diagram, it can be hand-drawn. You may however, find it easier to make changes to your ER diagram if you use software.

Many applications can draw an ER diagram (even if it's not specifically designed for it) such as: PowerPoint, Visio, etc.... This will focus on the web-application draw.io (<https://www.draw.io/>).

This is nowhere near a comprehensive list of things you can do with draw.io, it's merely a quick-start guide.

You must use the notation taught in lectures when constructing your ER diagram.

Accessing draw.io

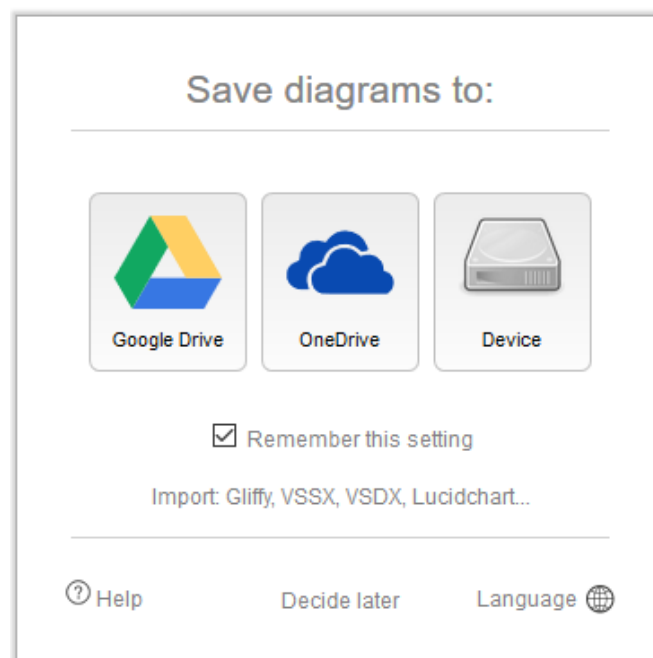
There are two methods to access draw.io, either through the browser (a) or as a desktop client (b). I recommend using the browser (a).

- a. Browser: <https://www.draw.io/>
- b. Client: <https://about.draw.io/integrations/> (scroll down to draw.io Desktop)

Choosing a save location

If you are accessing draw.io through the browser you *should* select a save location straight away.

Every time you open draw.io you will be greeted with this screen:

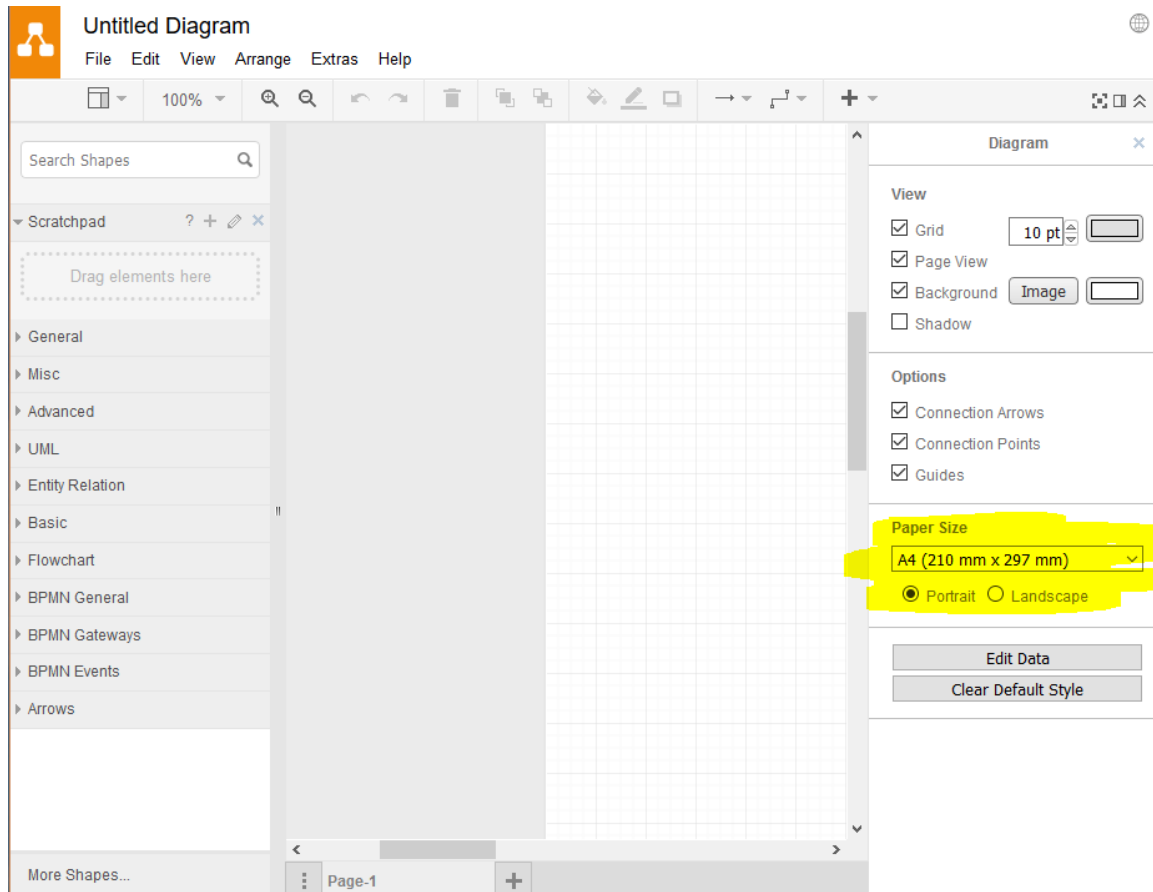


Select either "Google Drive", or "OneDrive" to automatically save to your cloud storage (Google Drive supports collaboration). Otherwise, select "Device" to save to your local computer.

Note: You can still manually specify a save location using "File -> Save (As)" after this pop-up has disappeared.

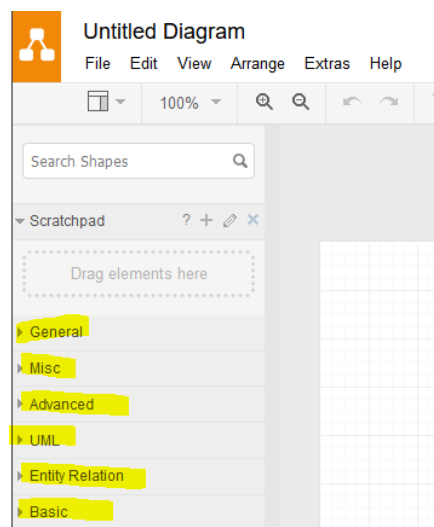
Page layout

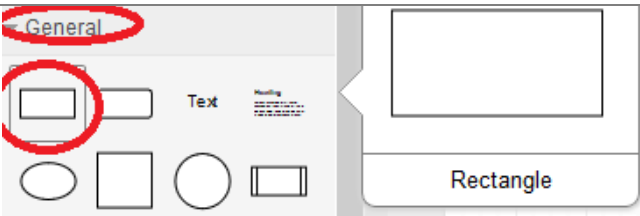
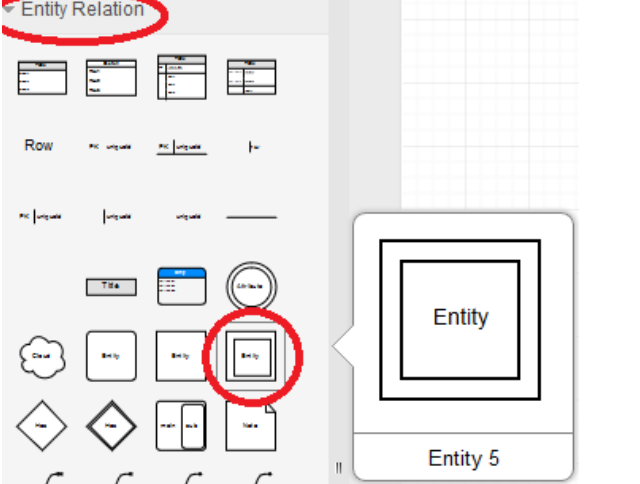
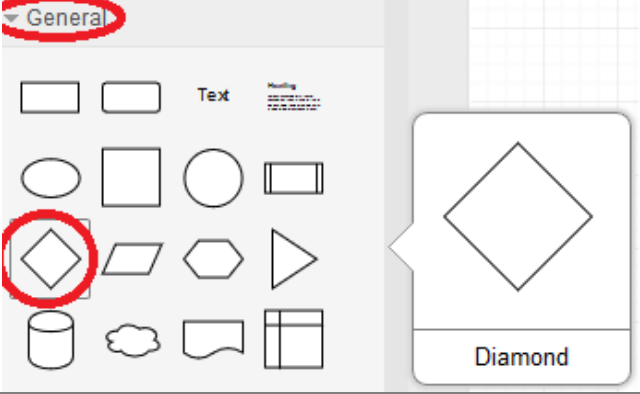
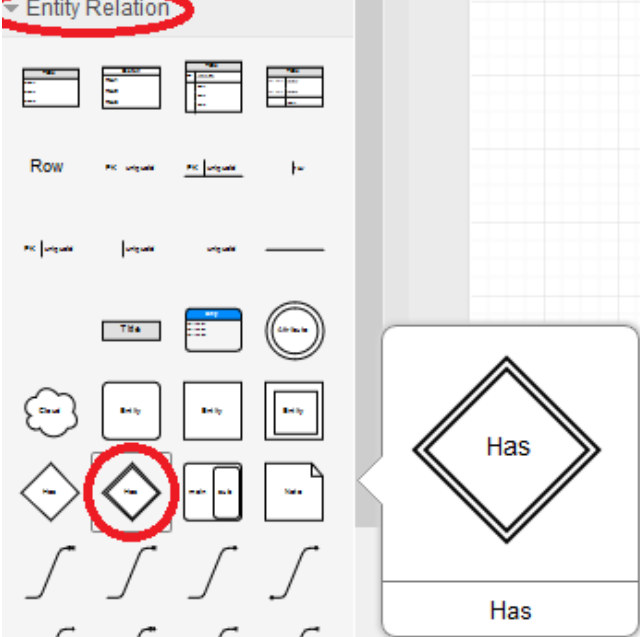
By default, the page is set to US sizing. Change the paper size to “A4” by selecting it from the drop-down menu located on the right-side panel. It’s your choice to decide if you want to use Portrait or Landscape.



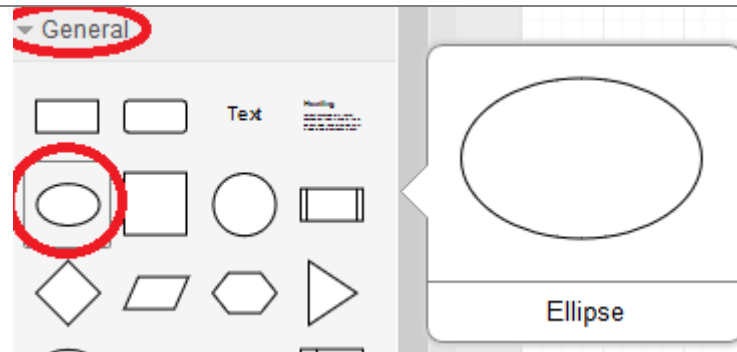
Commonly used shapes

In the table below are commonly used items used to construct an ER diagram. These are all found on the left-side panel by expanding the relevant section.



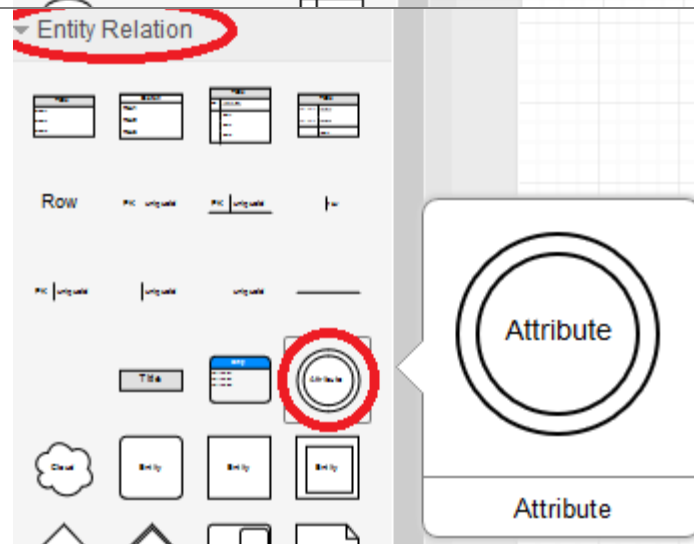
<p>Object</p> <p>Strong entity</p>	<p>Location</p> <div data-bbox="451 129 1093 344"> <p>General</p>  </div>
<p>Weak entity</p>	<div data-bbox="451 356 1093 837"> <p>Entity Relation</p>  </div>
<p>Relationship</p>	<div data-bbox="451 848 1093 1240"> <p>General</p>  </div>
<p>Weak entity owner relationship</p> <p>Note: Reduce the line width (discussed later).</p>	<div data-bbox="451 1252 1093 1897"> <p>Entity Relation</p>  </div>

Attribute



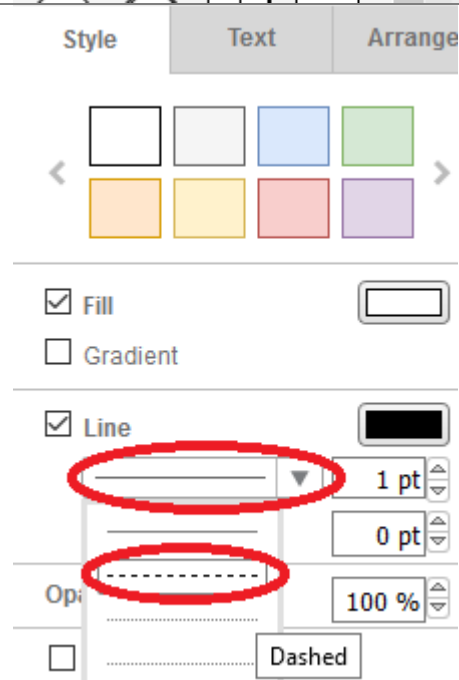
Multivalued attribute

Note: Reduce the line width (discussed later).



Derived attribute

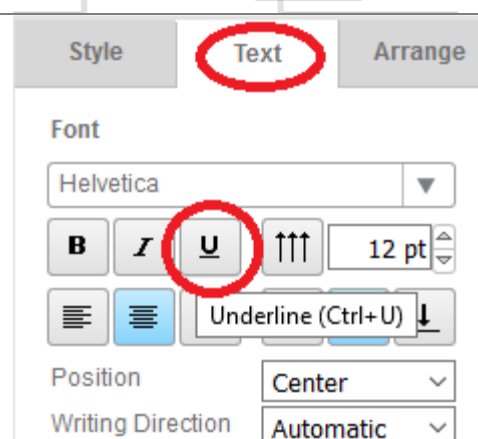
Note: Use a regular attribute and set the line style to "Dashed".



Key

Note: Use a regular attribute. Select the attribute and type the name of the key.

Underline the text with "CTRL+U" or select "Underline".

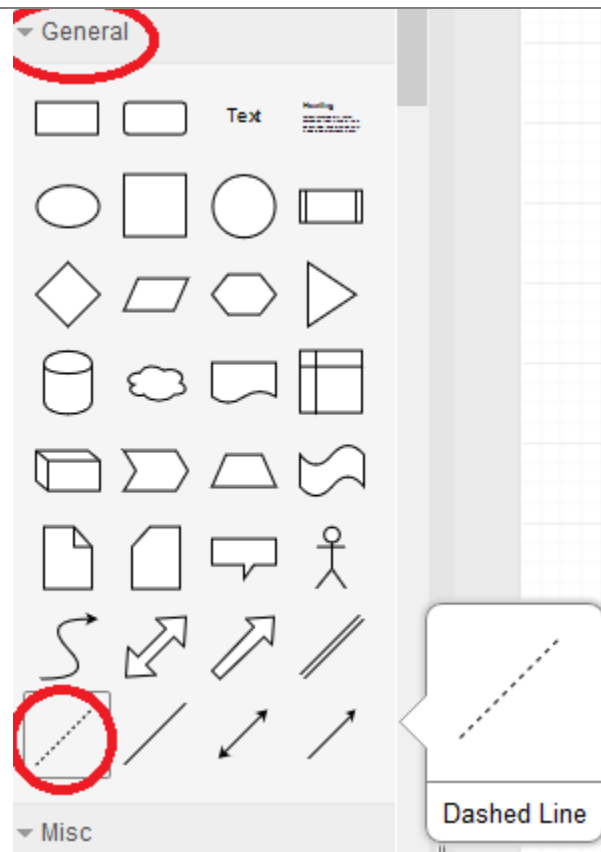


Partial key

Note: Use a regular attribute. Select the attribute and type the name of the partial key.

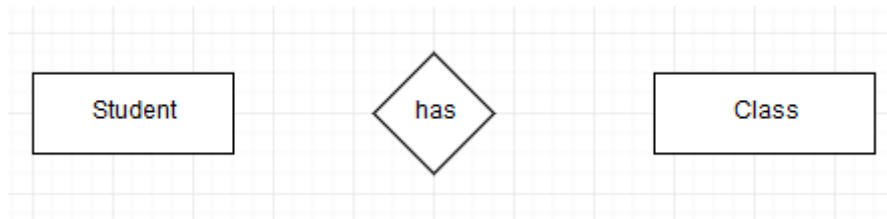
Create a dashed line and move it such that it's underlining the text.

Tip: Group the objects together. Hold CTRL and left click each object. Release CTRL, right click either object and select "Group" or press "CTRL+G".

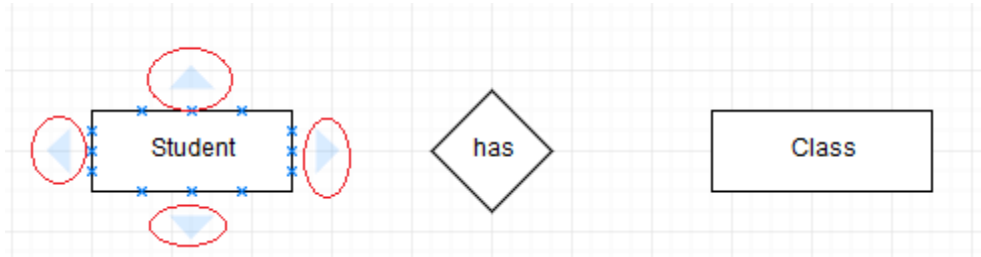


Connecting objects

Say you have a few objects placed on the page like so:



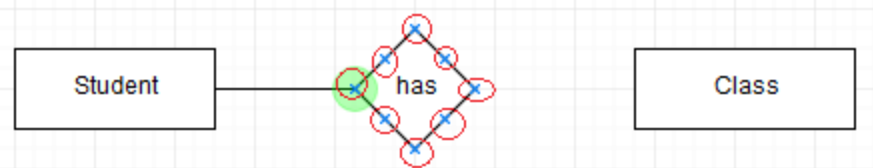
1. Hover your mouse over an object, in this case, Student. Four arrows will appear as shown below:



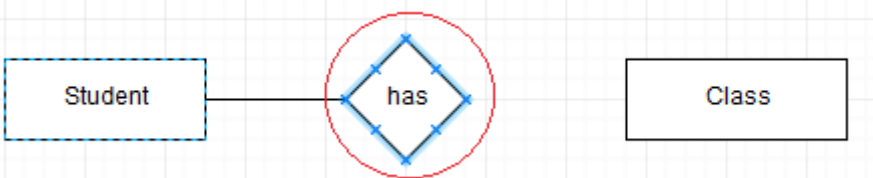
2. Select one of the arrows (the edge which the connection will originate from) and drag it to the destination object, in this case, "has".

Note that there are two destinations the line can snap to:

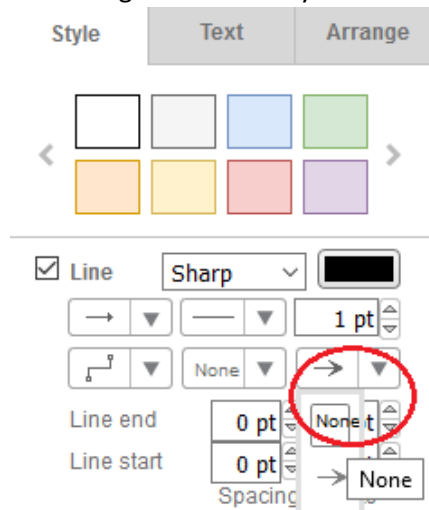
- An edge: The line will always terminate there, even when the object is moved.



- The centre: The line will terminate at the side closest to the originating object, regardless of where the object is moved.

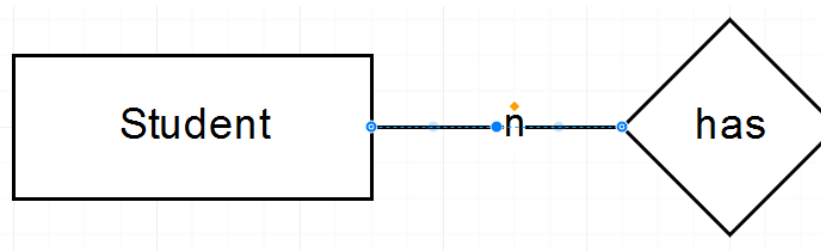


3. By default, the line will have an arrow. As this is not the notation used in lectures, remove it. Select the line and change the arrow style to "None".



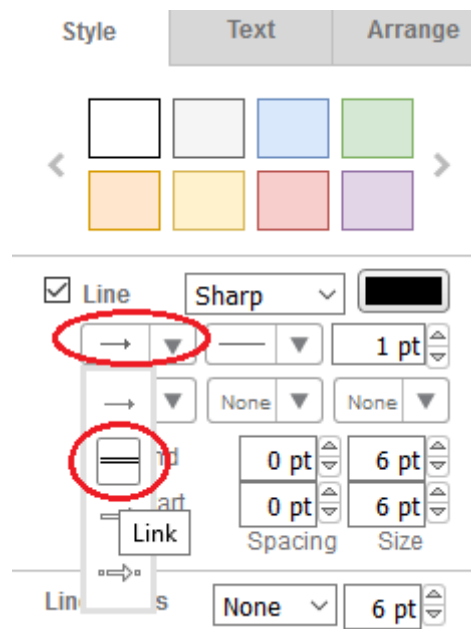
Setting cardinality

1. Select the connecting line you wish to set the cardinality on.
2. Enter either “1”, “n”, or “m” depending on which cardinality you wish to use.
3. The golden diamond can be used to relocate the text on the line. It will always stay with the line regardless of where any object is moved.



Setting participation

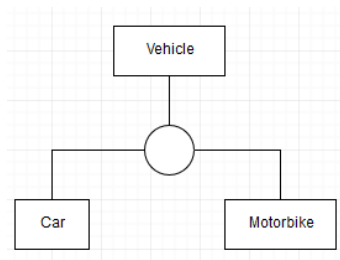
1. Select the connecting line you wish to set the participation on; by default, they are all partial participation.
2. Set the line style to "Link" (double line) if you wish to make it total participation.



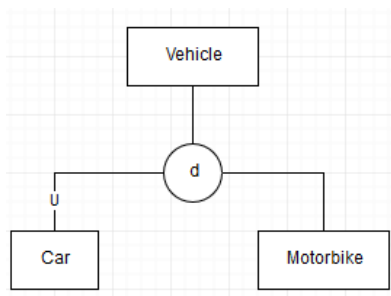
Super/subclasses

There is probably an easier way to do this, if you find it please let me know!

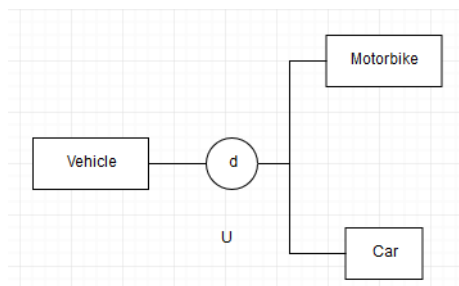
1. Create the skeleton of the super/subclass using the objects discussed above.
2. Use the “Circle” tool under “General” to place a circle as shown below.



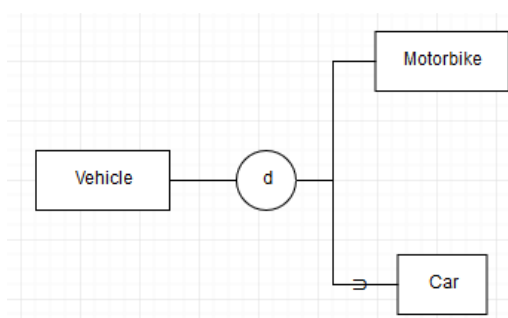
3. Select the circle (left click) and type either “d” or “o” to specify disjoint or overlap.
4. The direction of specialisation must be included. If you have a top/down specialisation then all you need to do is simply type a capital “U” after selecting the appropriate relationship to indicate the direction, as shown below (make sure you move it to the correct spot).



5. **However:** If you have written your super/subclass horizontally you must manually move a “U” there! Don’t forget, this “U” is to **indicate which direction** specialisation has occurred. Do this by double clicking on a blank area in the ER diagram or by selecting “Text” under “General”; enter a capital “U”. You should now have a “U” floating around, not joined to anything as shown below.

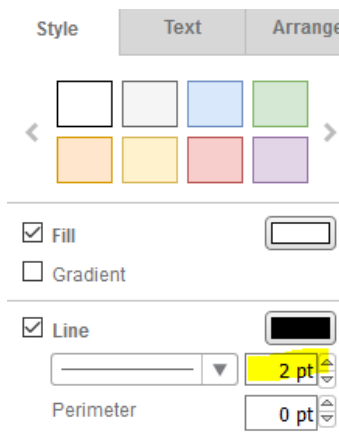


6. Rotate the “U” so that it’s pointing in the direction of specialisation.
7. Simply dragging the “U” to where it should belong will snap the object to the relationship line and it will look horrible, don’t do this. Instead, select the U and drag it as close as you can to where it should be without it wanting to snap to the relationship line (i.e. the relationship line will turn blue if it’s too close).
8. Select the “U” and then meticulously move it to where it should be by using the arrow keys (easier if you’re zoomed in). As shown below.



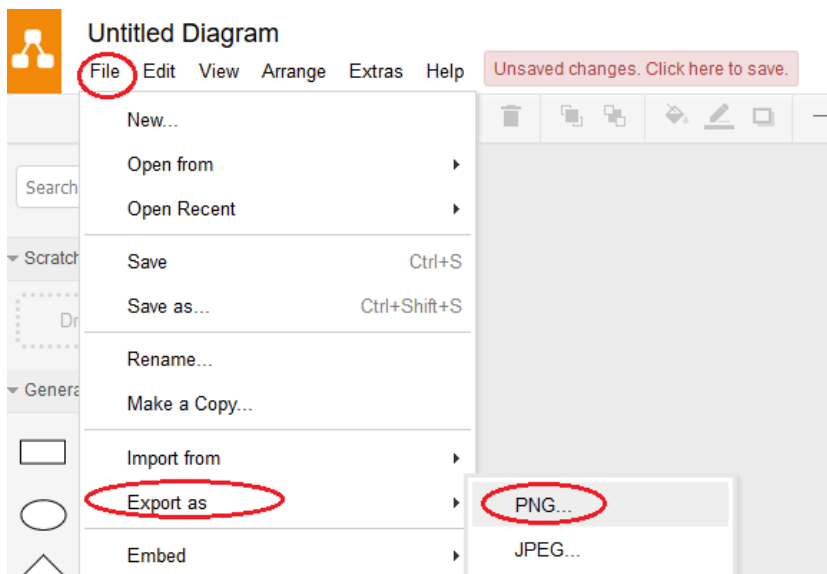
Changing line width

This is mainly used when placing the shapes which represent multivalued attributes, weak entities, and weak entity owner relationships. Select the object, and set the line width to “1 pt” (the default), or whichever looks best.



Exporting your diagram

Once you are happy with your diagram, you can export it by selecting “File > Export as > PNG...”. Play around with the scaling value until you find a resolution you are happy with.



Collaboration

If you save your document using “Google Drive” then you can have multiple users edit the same ER diagram at once. This is very handy if you’re doing group work. Read more about it here:

<https://support.draw.io/display/DOD/Using+draw.io+with+Google+Drive>

Tips and tricks

- Don’t spend time making your ER diagram fit within a single A4 page or making it look neat during the drafting process. It’s very easy to get hung up on making the diagram look neat. It’s often better to re-draft the diagram once you’re happy with the content.
- **Save often! (CTRL+S). Web browsers will crash and it will not automatically save your work.**

