

# Inf1B Data and Analysis

## Lab 1 (week 3) – Drawing ER diagrams

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### 1 Introduction

In this lab sheet you will draw your gliding ER diagram using the `dia` application.

### 2 Setting up the diagram drawing environment

1. Start `dia`. Either go to the main menu on your `dice` desktop (by clicking on the icon at the bottom-left corner of the screen) and select the option for `Dia Diagram Editor` from the `Graphics` menu, or type `dia` at the command line in a terminal window. (You can run it in the background by typing “`dia &`” — ask your demonstrator if you don’t know what this means.)
2. You will see a diagram window and a `Diagram Editor` window with tool buttons. In the middle of the tool buttons window there is a pull-down menu (which may be labelled `Misc` or `Assorted` initially). Click on that menu and select the option `ER`, either from the list if it’s present, or from the `Other Sheets` sub-menu. Once you’ve done this, you will see a set of buttons for drawing entities, relationships and so on, just below the pull-down menu.
3. The blue lines on the diagram window are page-delimiters. By default they are set as size A4 with portrait orientation. You may prefer using landscape orientation for this task. To change the orientation use the `File - Page Setup...` menu option.

Now your environment for drawing ER diagrams is all set. The next part of this tutorial is to draw the ER diagram you built during your first Data and Analysis tutorial. The steps to achieve this are described in the next section.

## 2.1 Drawing the Gliding ER model

1. Select the **Entity** drawing tool (first one on the left, denoted with a square labelled “E”) and click anywhere on the diagram window. Double click on the Entity you just created and explore the different options you can use for customising entities. Once you have played with these options, set the final name of this entity to be **Glider**.
2. In the same way, but using the **Attribute** tool (a circle with the letter “A”) define the attributes for this entity. When you double click on a defined attribute you also have a number of options for customisation. Spend some time exploring these as well.
3. In order to connect objects, select the icon with two parallel lines and then click on the screen. Then click and drag (while keeping mouse button pressed) on one of the green ends of the line and connect it to one of the objects (when you see a red line around the object it means the connection is made and you can release the mouse). Do the same for the other end of the line. The small square in the middle of the line allows you to change the shape of the line. Notice that the connection lines will follow if you move the objects around — this makes it easy to lay your diagram out neatly.
4. If you prefer a straight line connection to a zig-zag, use the **Line** button from the top part of the tools window. You can also add arrows and change the width of lines using the options at the bottom of the window. These are useful for showing key dependencies and total participation relationships. Experiment with these options.
5. There is also a tool for drawing relationships (the button icon contains a letter “R”). Explore how it works and define the relationships between entities.
6. Build up your gliding ER diagram by adding and connecting all the entities, attributes and relationships from the model you designed in the tutorial.
7. Editing tips:
  - (a) *Deleting*: If you want to delete an object, click on it and press the **delete** key. You can also undo the last action performed, by clicking **Edit - Undo**.
  - (b) *Scaling*: Objects created in **dia** by default are quite large; you will want to make them smaller for printing. The simplest way to achieve this is to lay out your diagram on the screen without worrying about the size, and then — once it is complete — use the **File - Page Setup...** menu, **Scaling** option, and scale the diagram to fit in a single page (i.e. 1 x 1).
  - (c) *Printing*: To print your diagram, use the **File - Print Diagram...** menu.

Check your ER diagram with a demonstrator during one of the drop-in labs if you can!