## Creative Coding 2

## Excel Functions – A Basic Guide

**Entering Formulae:**

Say you want to use Excel to add 2 to each of the values x = 1, 2, 3, 4, 5. We will apply the formula y = x + 2. Note that y is the result and x is the original value.

1. Type **x** (heading) into cell A1.
2. Type 1, 2 etc. (values) into the column below (you can also use autofill – see below).
3. Type **y = x+2** (heading) into cell B1.

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1. We click on B2 (the cell underneath the heading **y = x + 2**), and enter the following formula ***=A2 + 2*** (***not*** =1+2!). Press enter.
2. Now we can enter the formula ***=A3 + 2*** into the cell B3. However if we have to do this for every formula, this can become very tedious – especially if we have 100’s of values! See note on autofill below.

**Notes on entering formulae:**

1. When we enter a formula in Excel, it is important that ***we always place an equals sign before the formula*** . This is so that Excel can differentiate between a formula and any other type of entry. If we entered A2+2 without the equals sign, Excel would not work out the calculation.
2. Also, rather than type A2, we can select the cell. Excel adds 2 to the value in this cell. The cell in the example above contains 1. So Excel adds 2 to 1 to give 3!
3. When a formula is entered into a cell, it also appears in the ***Formula bar*.**

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**Note on Autofill:**

Autofill is very handy when you want to apply a formula to a series of values, and you don’t want to type this formula for each value. In the example above, instead of entering ***=A3 + 2*** into B3, we can do the following:

1. Select B2 (where the first formula is already entered).
2. Move your mouse to the bottom right of the cell. The cursor should turn into a black cross. Select the right mouse button and drag the mouse cursor (keeping the right mouse button held down) for the required number of cells. (for as long as you have formula to fill). Lift the mouse button when finished and a menu will appear. Select ‘***Fill Without Formatting’***. The cells should automatically fill with the ***results of the formula*** applied to each x = 1, 2, 3, 4, 5.

Now if you click into B3, you will see that the formula has changedto ***=A3 + 2,*** and in B4 ***=A4+2 etc.*** Therefore the cell addresses automatically change as you move down the column. Obviously this would also work if you were moving across rows.This is because Excel uses ***relative references***.

**Relative reference definition:**

When a formula with relative cell references in copied to another cell, the reference changes based on a relative position of rows and columns. By default, all references in Excel are relative.

Note that autofill can also be used for copying values or filling series – i.e. 1, 2, 3, 4, 5, etc.

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