Accessing Rows and Columns

We are able to access the rows in our data table at any time by calling the number of that row (item) from the outer list:



We are able to access the columns in our data table at any time by mapping the number of that column (item) from the inner lists across every row:

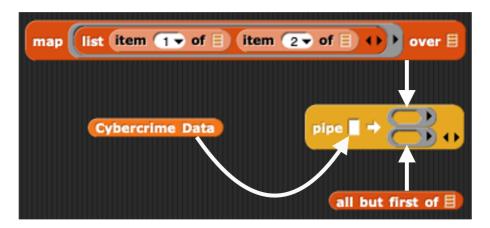


Activity 1: List of lists?

In your own words explain below what is meant by <i>Snap!</i> storing data as a list of lists

Pipe

The **pipe** function allows us to pass one function to the next, making it easier to visualise how we're manipulating the data. This avoids building one large nested expression.



Data Manipulation

These are the data manipulation blocks that will be most useful to us. Combining these with **operator** blocks will allow us to **filter**, **group** or **sort** our data in any way.

Plot

The **plot** function will plot our data on the stage. This can be used at the end of a **pipe** function, or as part of a larger nested expression.

We must use the **map** function (or store the desired values as a variable) before passing the data to the **plot** function. This is because the plot can only contain one set of values (one list) for the y-axis, the x-axis is taken automatically from the number of entries.

Labels and **scales** are not automatically created in *Snap!* and there is no block that will create them for you. This is a time consuming task so scales are not expected of you.

Remove the **plot** from your **pipe** function so that you understand the data that you are passing.

The **hide** and **clear** blocks are used to hide the sprite and clear the stage before plotting.

```
pipe Cybercrime Data  
keep items is item 3 of 8 a number 7 from 8

# sort 8 by item 3 of 8 < item 3 of 8

# group 8 by Item 3 of 8

map item 2 of 8 over 8

clear hide  
plot 8 bars at x: -200 y: -100 width: 400 height: 200
```

Activity 2: Plotting

Attempt creating plots to gain insight into the data. Here are some suggestions you could try:

- Bar chart of the number of crimes per year
- Bar chart of the number male/female suspects
- Pie chart of the different reasons for court appearances
- Two bar charts for the ages of male/female suspects
- Two overlapping line graphs for the number of male/female suspects per year

Discussion: Activity Title Here

This is an example extension to the data visualisation task.

You can attempt implementing this larger code if you're ahead.

The benefits of this code are:

- It scales correctly to the screen, so there is no need to find an appropriate pen size.
- It finds the range of the data that you are using (in this example the **age**), so that the brightness values will always scale to the data.

You can try to use and adapt this code to investigate other elements of our data set.

```
when 🦰 clicked
set MyData v to
keep items is item 1 → of 🗏 a number → ? >>> from
map list item 3 → of | item 6 → of | () over Cybercrime Data
set largest v to
item 1 of
item 1 → of
 ≸ sort (MyData) by (item (1 → of 目) > (item (1 → of 目)
item 1 of
 item 1 → of
  keep items ∕ is item 1 → of 目 a number ▼ ? >>> from
  ≸ sort MyData by (item 1 → of 目) < item 1 → of 目
set range ▼ to largest - smallest
set row to 0
pen up
set pen saturation ▼ to 100
set pen size to
 width of Stage × height of Stage > / length of MyData
set x to left of Stage
                         pen size / 2
set y to top of Stage
pen down
for each (item) in MyData
 if ⟨ is | item 2 ▼ of | item | identical to | Female ?
  set pen hue to 0
  set pen brightness to
  100 - item 1 of item / range
  set pen hue to 60
  100 - item 1 → of item / range × 100 >
    x position > right v of Stage v
  change row ▼ by pen size ▼
  pen up
  set x to left ▼ of Stage ▼
  set y to top of Stage - row - pen size / 2
  pen down
 change x by pen size
```

Accessing Rows and Columns

An example is an example of an example. For example, you take an example and make an example of it:

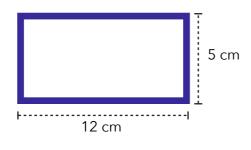
- 1. Example
- 2. Example
- 3. Example
- 4. Example
- 5. Example
- 6. Example
- 7. Example

Here you can see **seven** examples of an example.

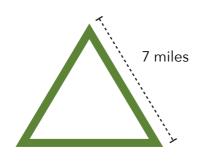
Can you think of any more?

Activity: Designing Examples

1. For each of these examples of shapes, describe what the example is showing.



30 mm



Information

You can fill this page with extra information, self-learning, resources, pictures, guides, or step-by-step instructions.

Data Manipulation

These are the data manipulation blocks that will be most useful to us. Using operator blocks can allow us to **filter**, **group** or **sort** our data in any way.

Activity 2: **How** to Manipulate Data?