Dynamo User Interfaces

Presentation by

Gavin Crump

Today's presentation…

1. About me
2. Dynamo
3. Dynamo Player
4. Data-Shapes

Ultimately…

What, Why and **How**

A bit about me…!

Hi there, I'm Gavin Crump!

Architecturally focused (B/M.Arch)

BIM Manager at *Crone Architects*

In Sydney since 2015

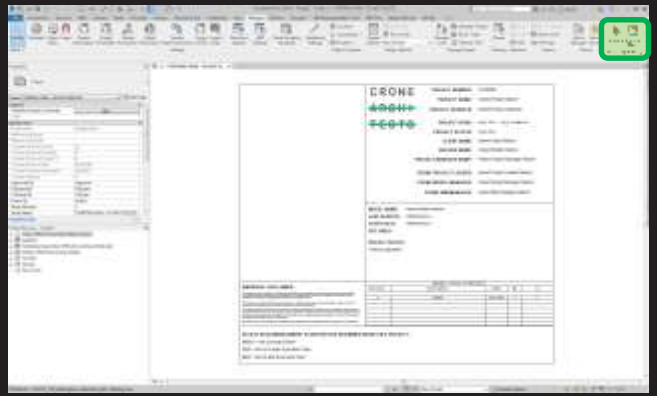
8 Years experience (30 y.o.)

Attending **RUGSyd** since last year

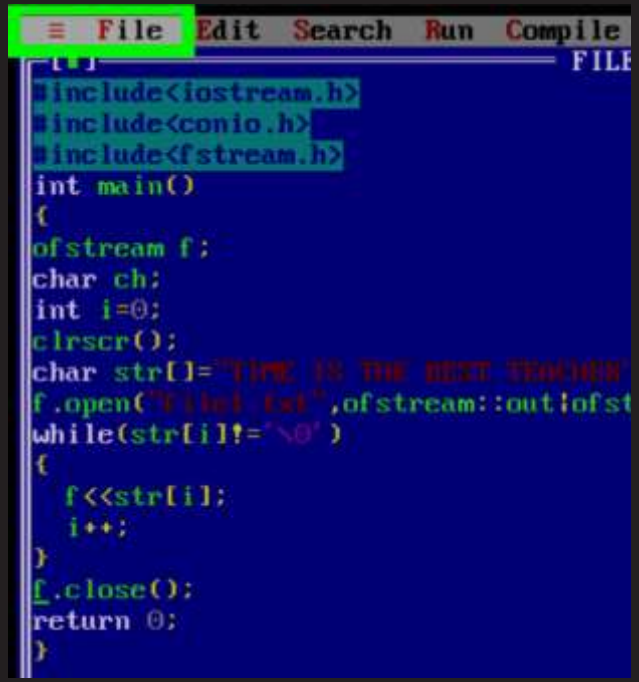
(Aussie BIM Guru)

Dynamo

What is Dynamo



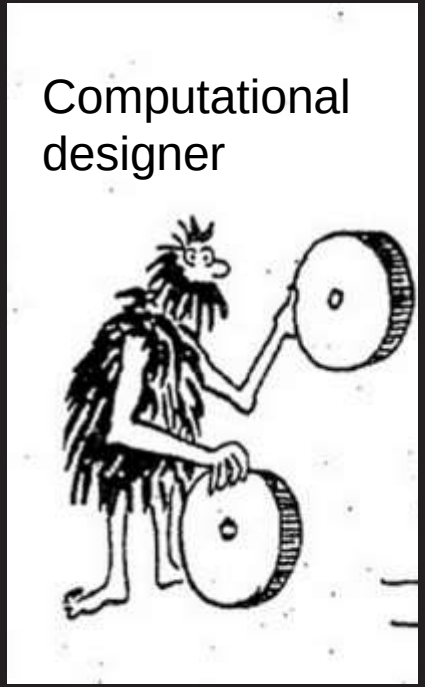
What is Graphical Programming?



Why **use** Dynamo

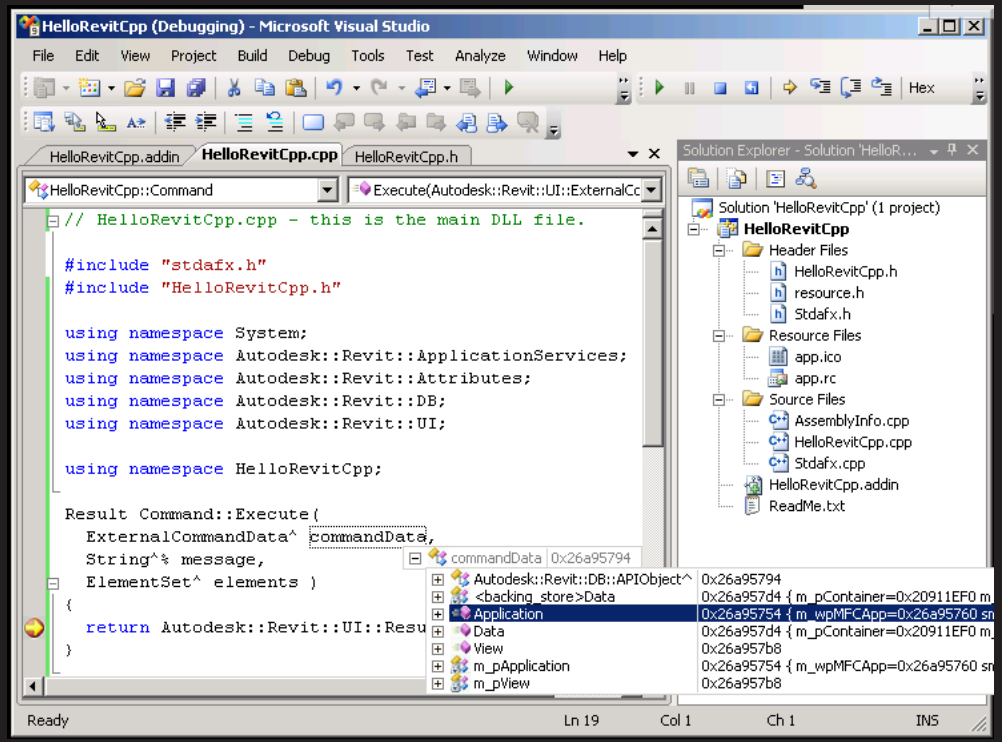
Accessible to **all** Revit users
Efficiency/time saving
Workflow Standardization
Supports Python coding
It’s fun (most of the time)

Why **use** Dynamo



Don’t be
these guys!

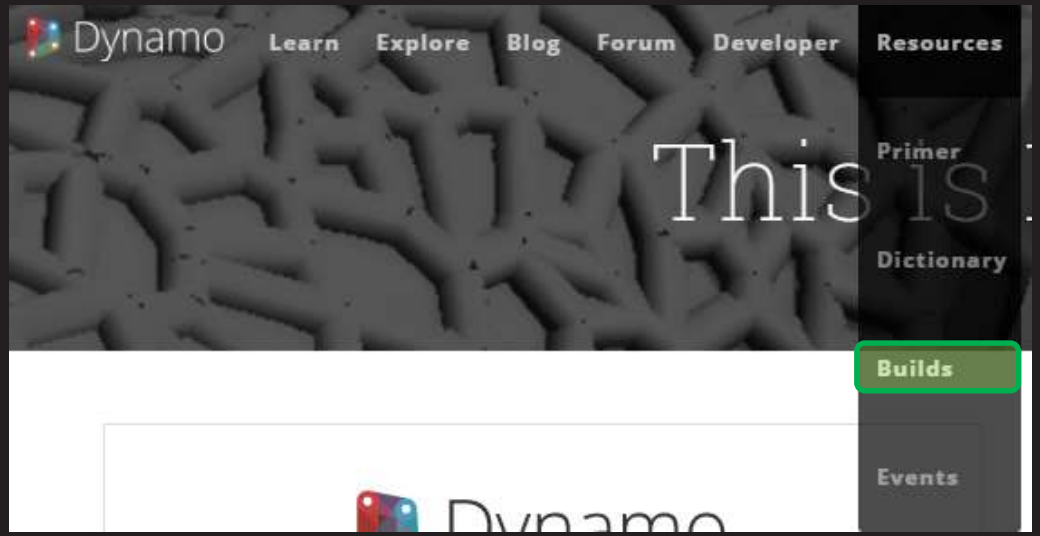
Vertical Learning Curves



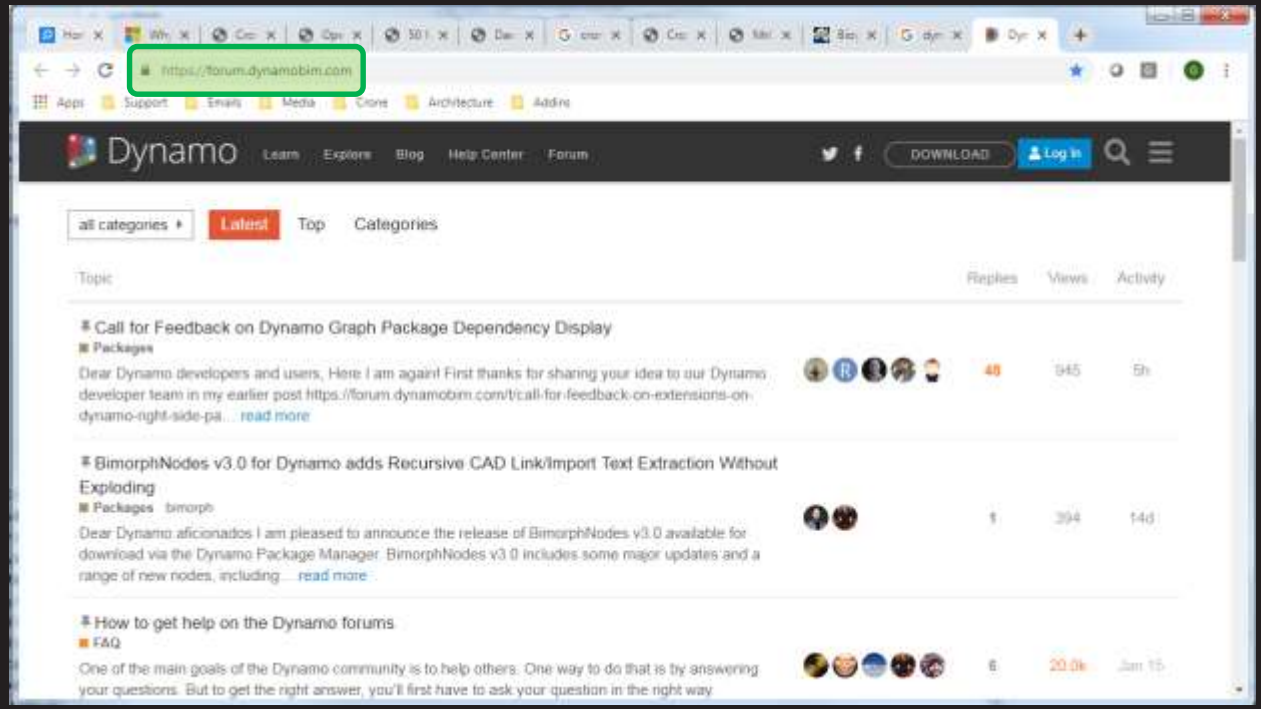
Accessing Dynamo

Dynamo is **free** (if you have Revit)

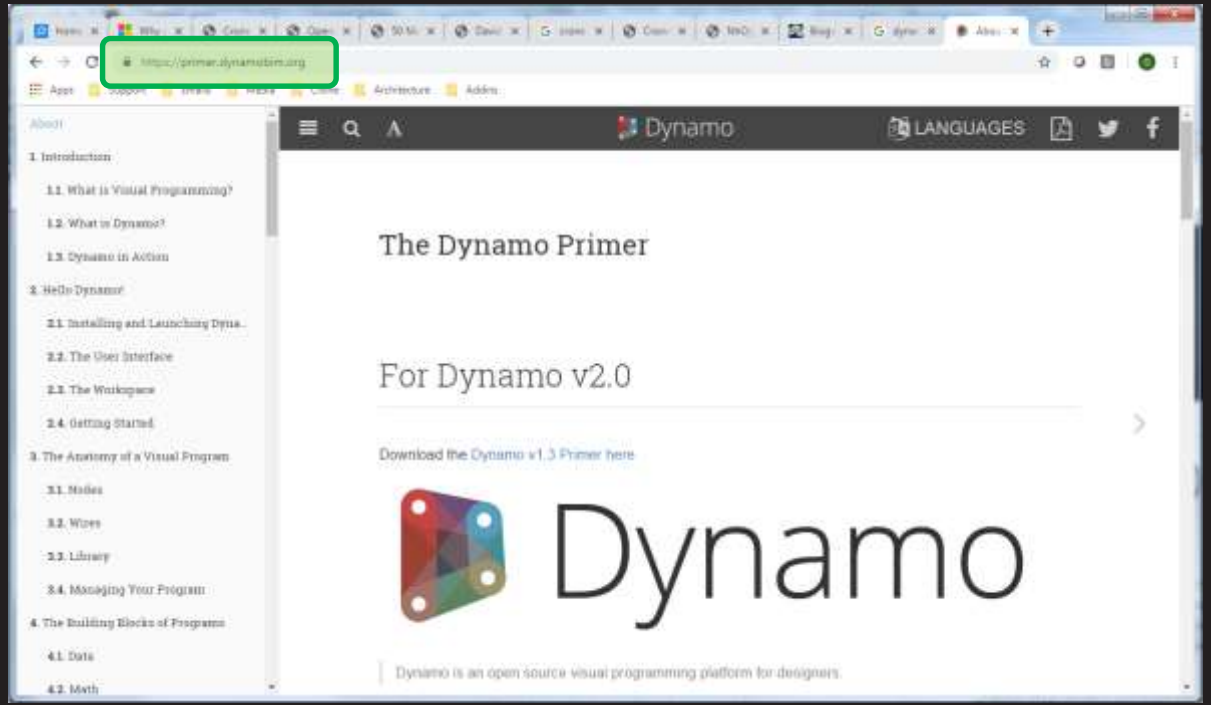
OR



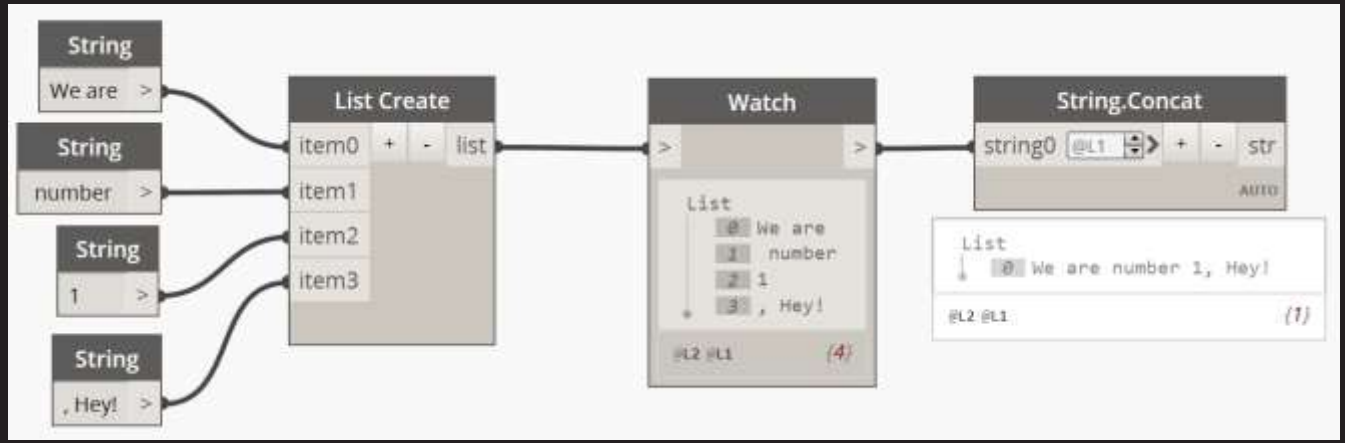
Dynamo Forums / Community



Dynamo Primer (wiki/manual)



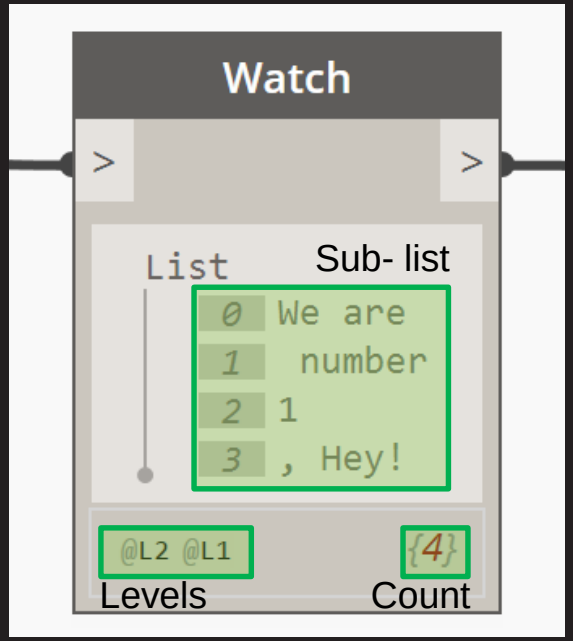
Dynamo Coding Logic/Flow

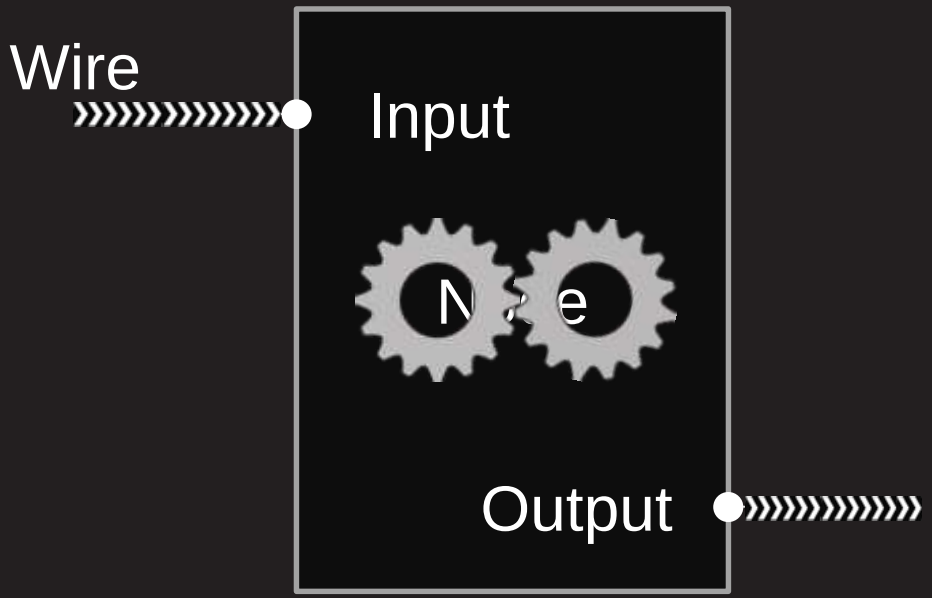


Inputs → Functions → Output

Data flow →

Dynamo Node-ing

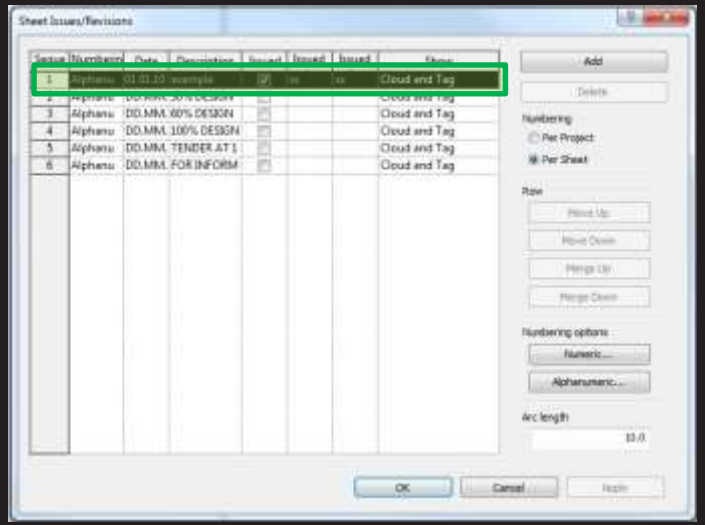


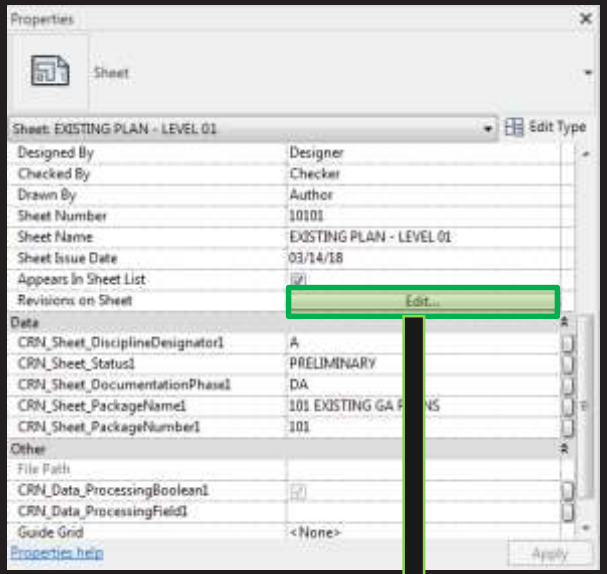


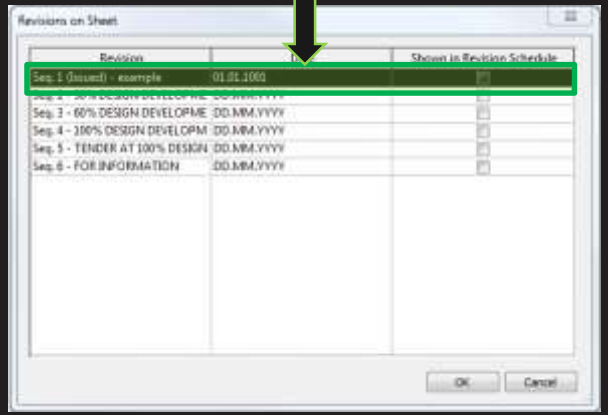
A problematic example

That can be solved by

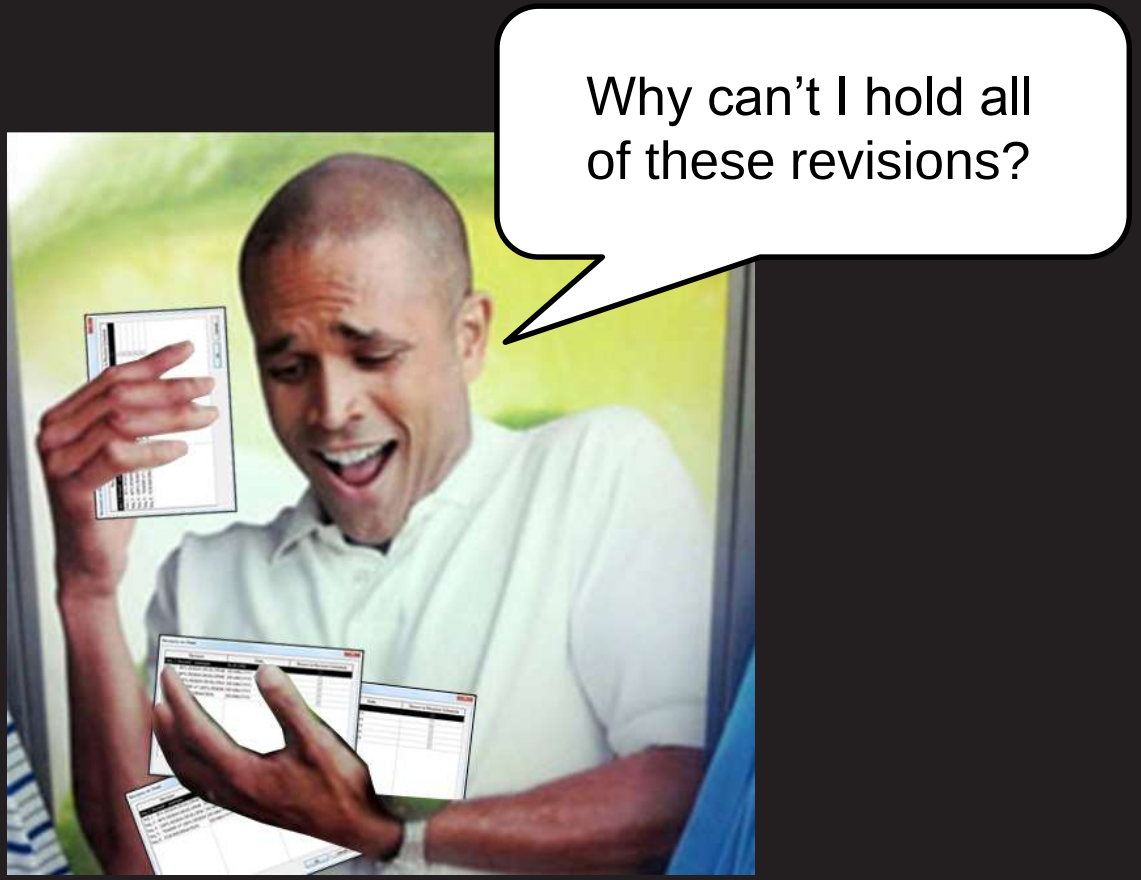
Revisions







To Sheets

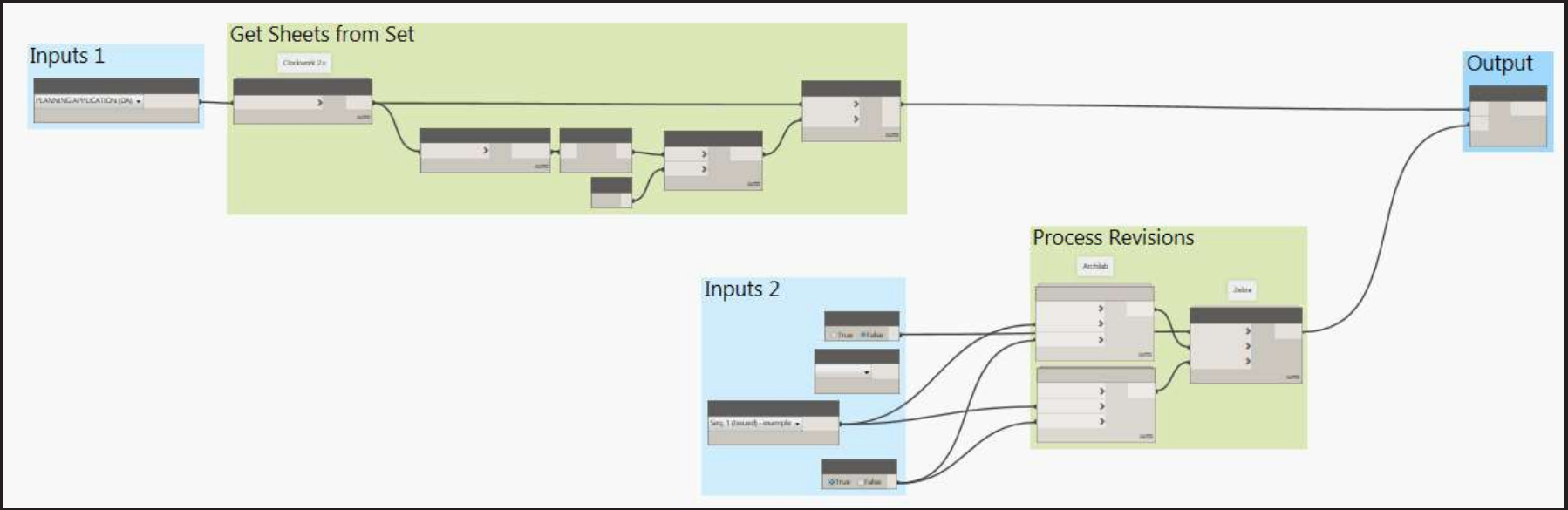

Why can’t I hold all of these revisions?

Demonstration time

Basic  Dynamo **Script**

(then some UI)

basic script



Input 1
Sheet set
(drop down)

Process
Get sheets
(from view set)

Input 2
Revision
(drop down)

Input 3
Add/remove
(boolean)

Process
If statement
(add/remove)

Output
Apply results
to Revit

Some **problems**

(with basic scripts)

Native script must be opened

User must **understand** Dynamo UI

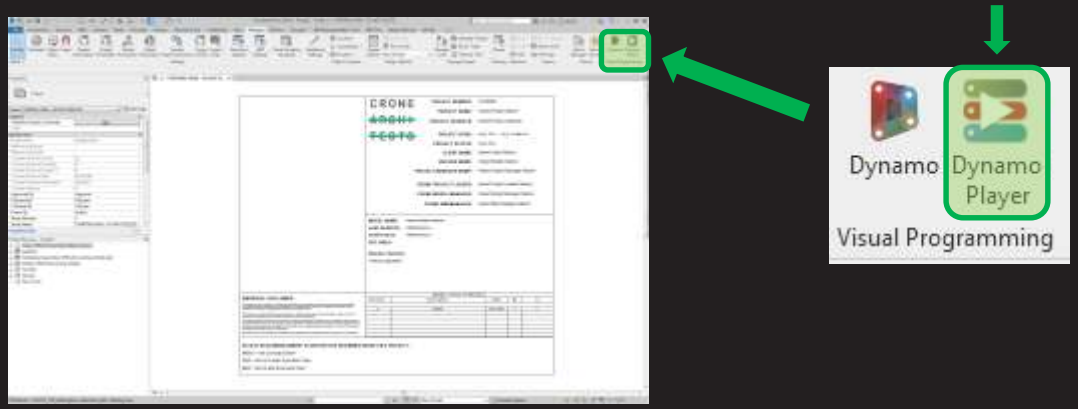
User must find the **Inputs**

User can **overwrite** the script

One script open at a time

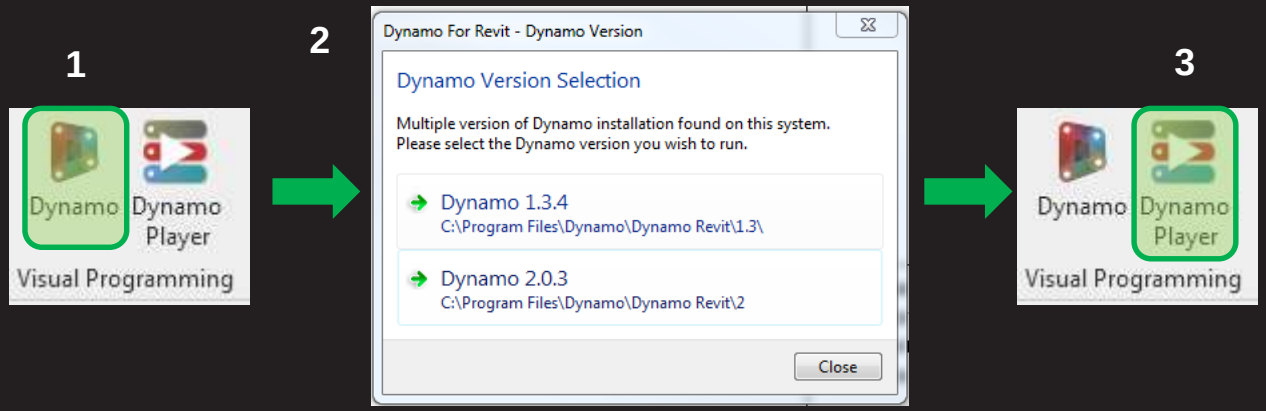
Solution?

Dynamo Player



(For Revit 2017+)

Dynamo Player



Open Dynamo, close,

then open Dynamo Player

Native script **not opened**

Only understand **Dynamo Player**

Easy access to Inputs

User **cannot** overwrite (easily)

Toolbox(s) of scripts

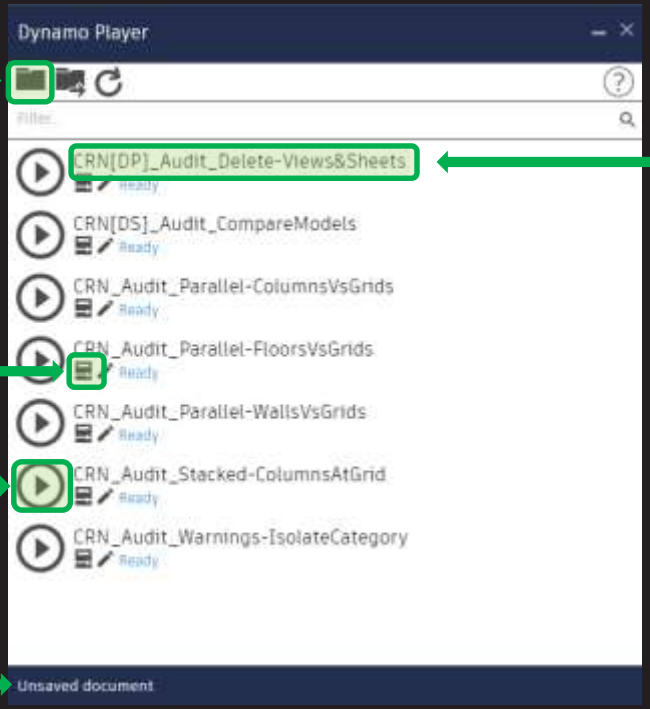
Dynamo Player

1. Navigate to your script folder
   + view folder
   + refresh Player

3. Modify inputs to script

4. Press play to run!

Active document



Each row is a script

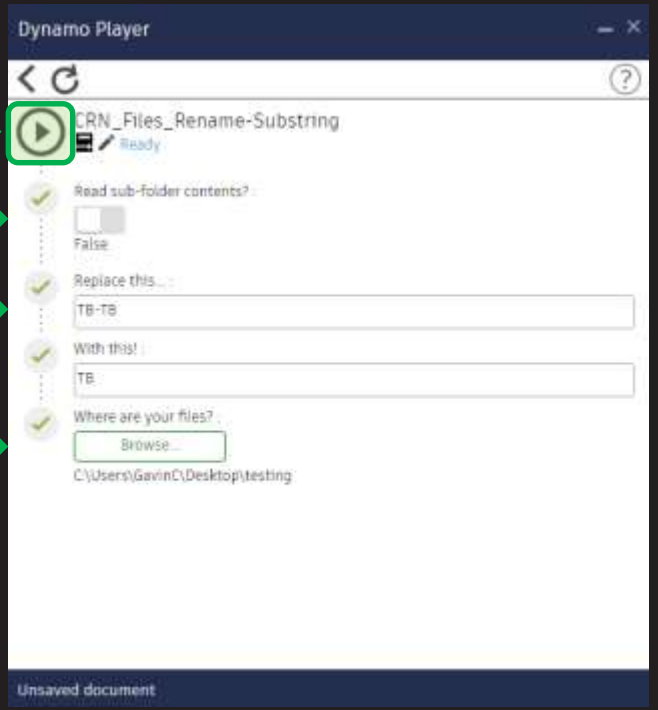
Dynamo Player

Play button when ready

Boolean Input (toggle)

Text input (free)

File path (browse)



Integer/number sliders

Outputs (feedback)

Drop down menus

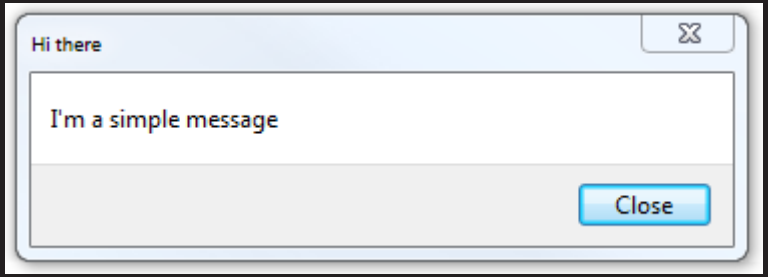
Demonstration time

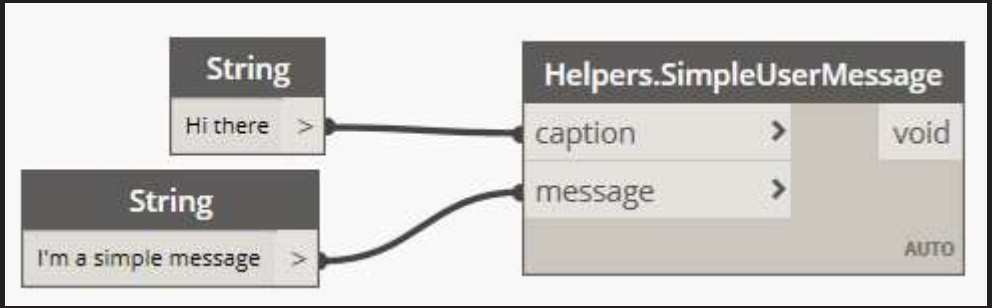
Enabling  Dynamo Player

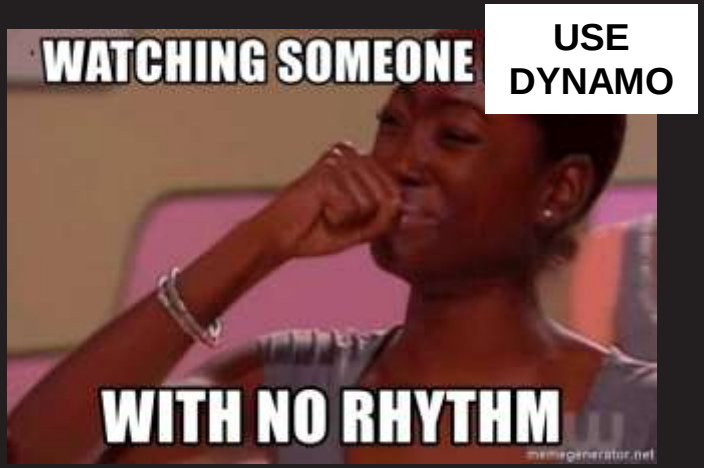
(then some advanced UI)

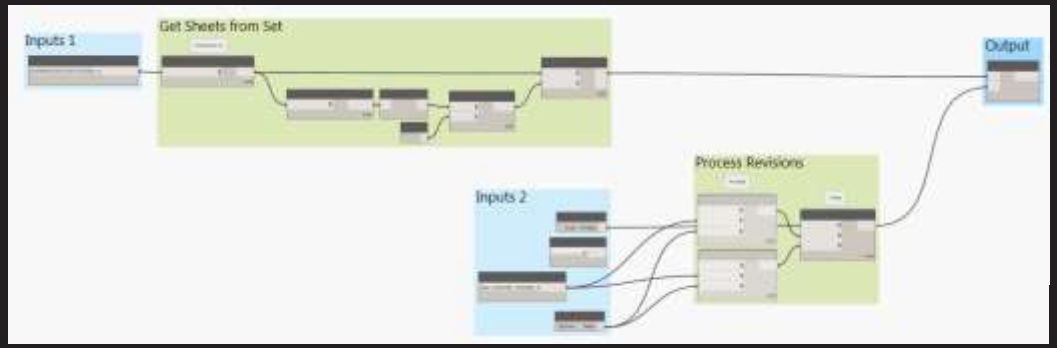
Dynamo Player

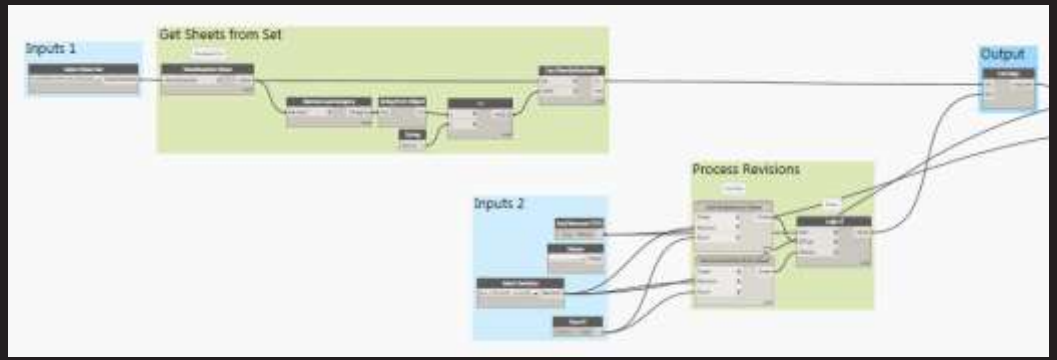
Chuckin’ in some Rhythm











Upgrading the script

Changes made

- inputs identified for Player
- basic message at end

Some **limitations**

(of Dynamo Player)

Input types are limited

Stop/Start not easily achieved

Itchy **‘Trigger fingers’**

UI Layout restrictive

Hard to embed **Help**

Solution?

d|s Data-shapes

The Data Shapes Company was co-founded by Mostafa El Ayoubi, Daniel Hurtubise and Temesgen Gossa. They share a common vision for BIM and wish to implement a "less talking, more doing" philosophy in the projects they collaborate in as BIM Managers, trainers or custom tool/workflow developpers. Their skillset is at the crossroads between civil engineering, architecture and information technology.

French development team

Custom package for Dynamo

Model Comparison,

Other ‘one off’ functions

But mostly known for

User Interface creation

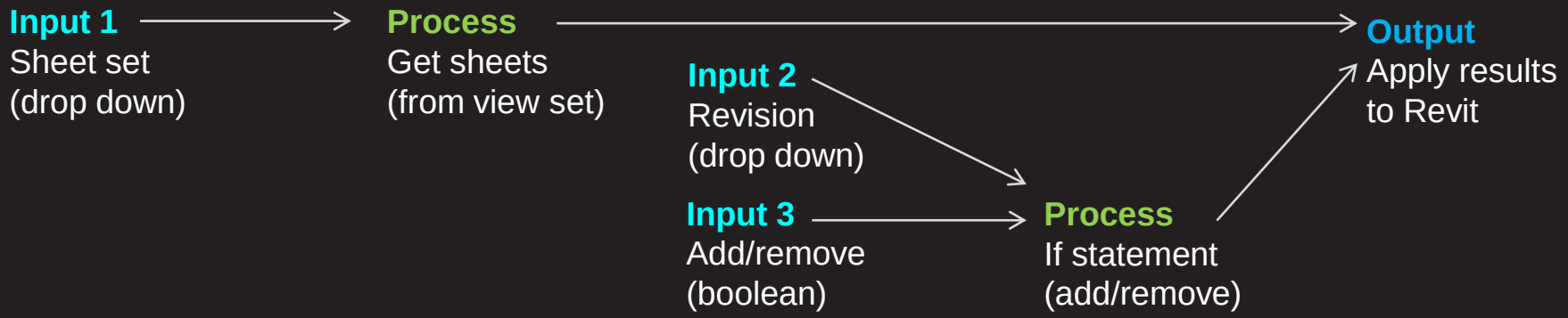
Demonstration time

UI Potential

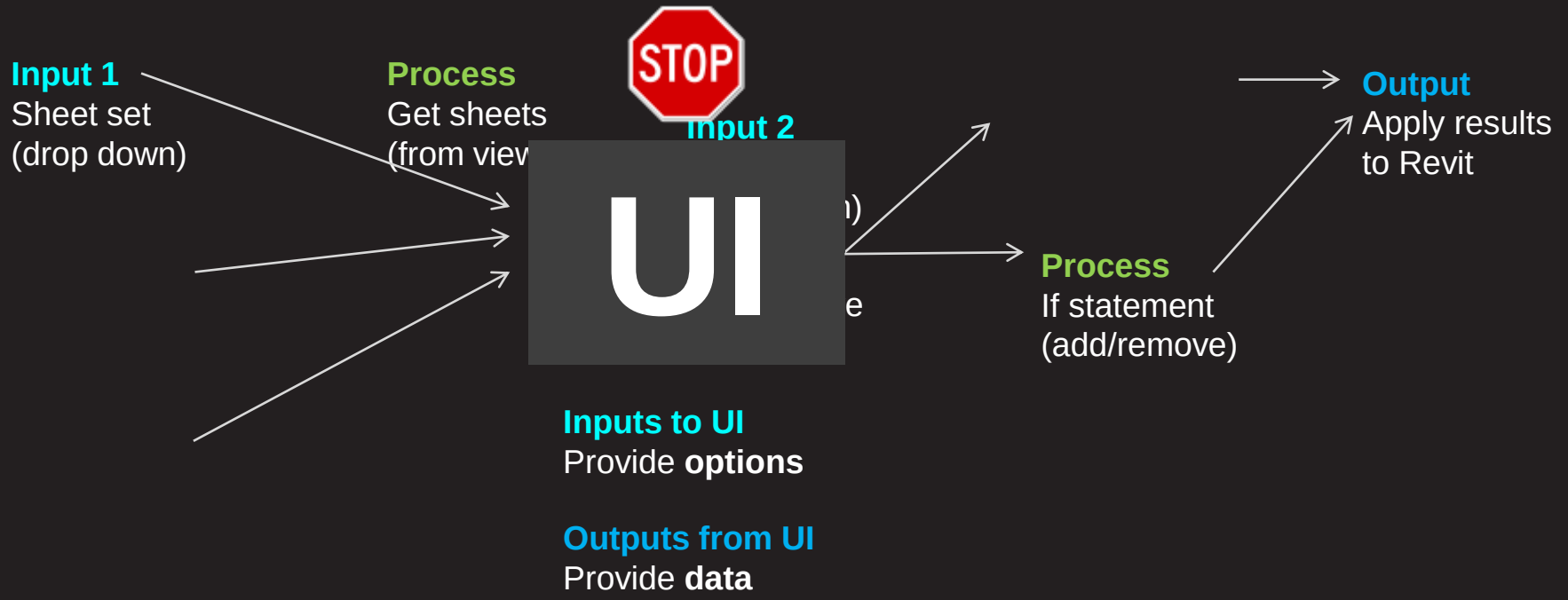
Using Data Shapes

UI Options

Stop/Start Logic



Stop/Start Logic



All benefits of Dynamo Player +

Stop/Start possible

Play button Triggers **UI**

Highly Flexible

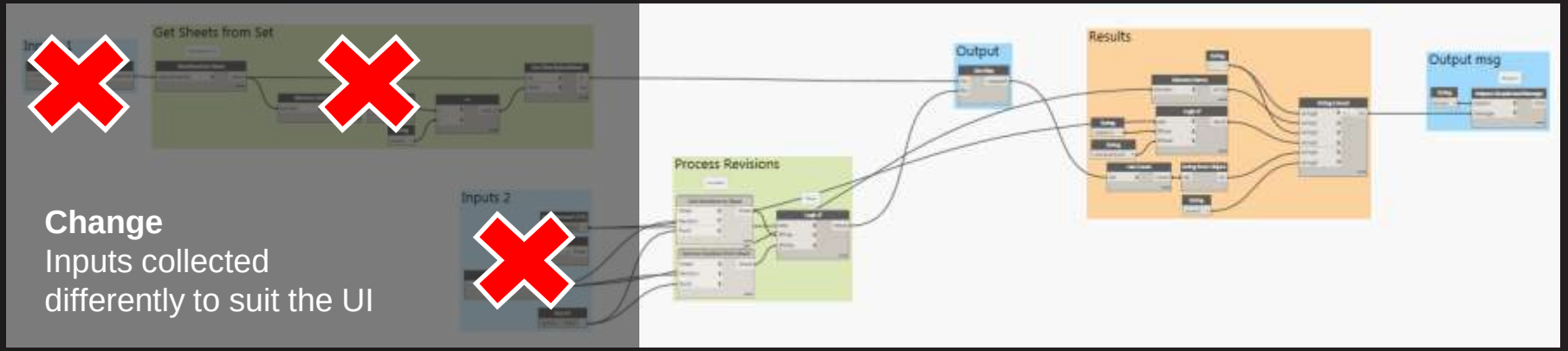
help **easy** to add

Demonstration time

Enhancing a basic script

Using Data Shapes

data-shapes



Change
Inputs collected differently to suit the UI

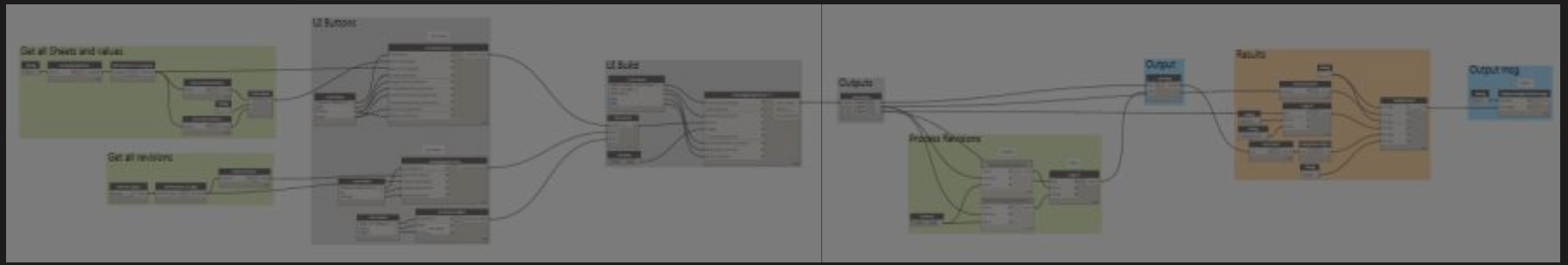
Inputs
collected

UI Buttons
created

UI Window
created

Outputs
'bottle-necked'

Process & **output**
is the same



Three examples

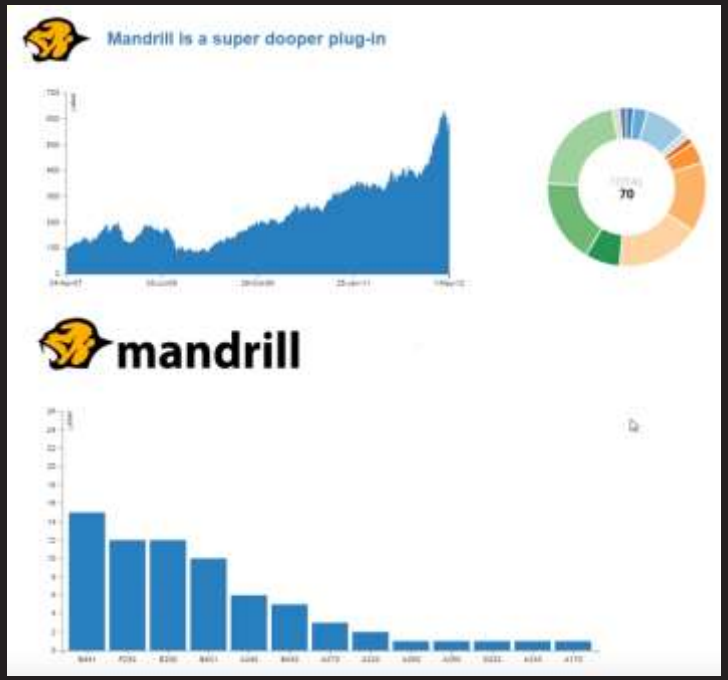
Sometimes Player is better!

Other packages

For further learning

(a deep rabbit hole!)

mandrill



By Konrad Sobon

https://legacy.gitbook.com/book/konradsobon/mandrill-primer/details

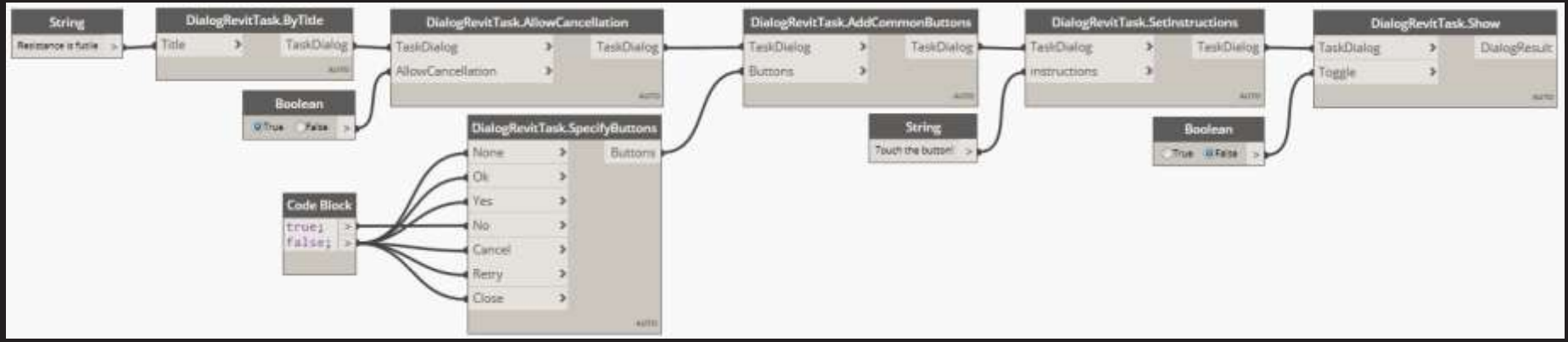
Primarily used for

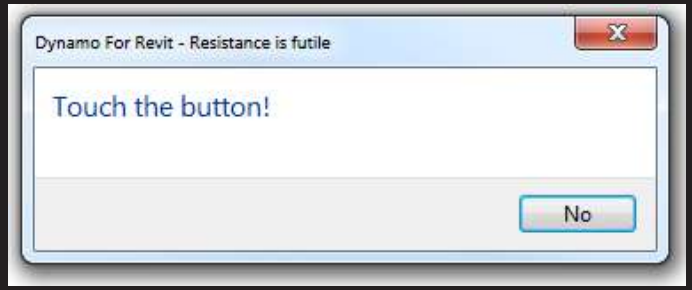
Data visualization

using D3.js (Python)

1. Bar Chart
2. Area Chart
3. Line Chart
4. Stacked Bar Chart
5. Grouped Bar Chart
6. Donut Chart
7. Scatter Plot
8. Parallel Coordinates
9. Horizontal Bar Chart
10. Normalized Stacked Bar Chart
11. Scatter Plot Matrix
12. Scatter Plot

Synthetic (Dialog boxes)

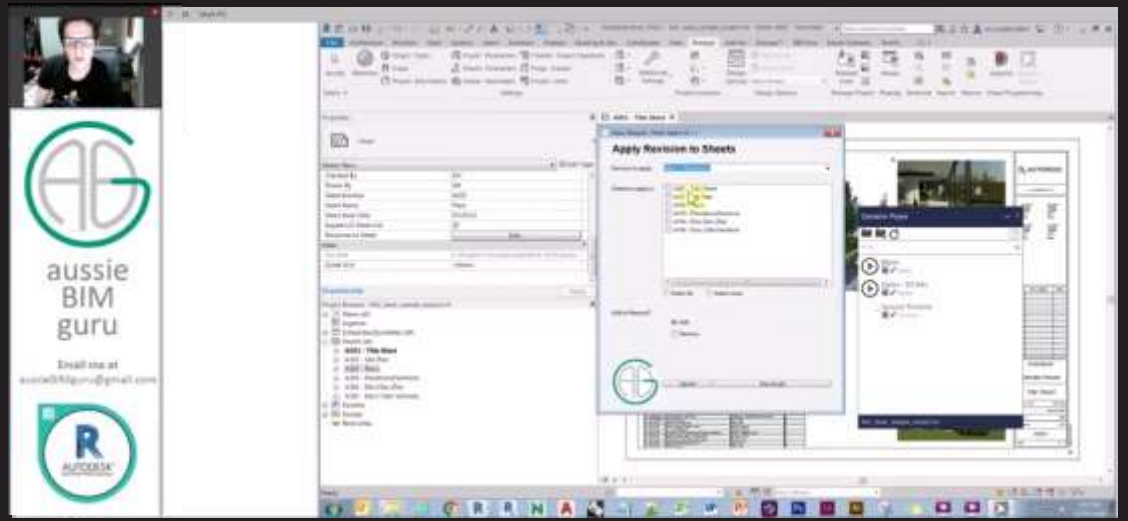




Further learning @ my channel

Aussie BIM Guru

https://www.youtube.com/channel/UCry22yTdpgEDdzIZig7NSMQ/featured



Thanks for listening!

Questions/feedback

Feel free to comment

don’t be a stranger ☺