Programming Revit MEP? Say it Ain’t Dynamo!

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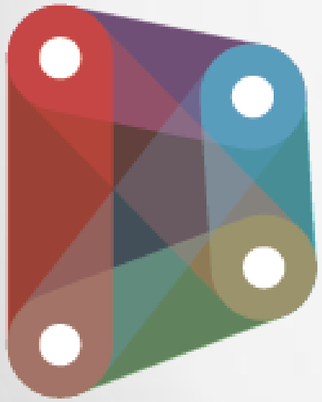
CADLearning by 4D Technologies

@jasonboehning

Class Goal

For you to see how Dynamo can improve your workflow in Revit MEP!



Dynamo

Key learning objectives

At the end of this class, you will be able to:

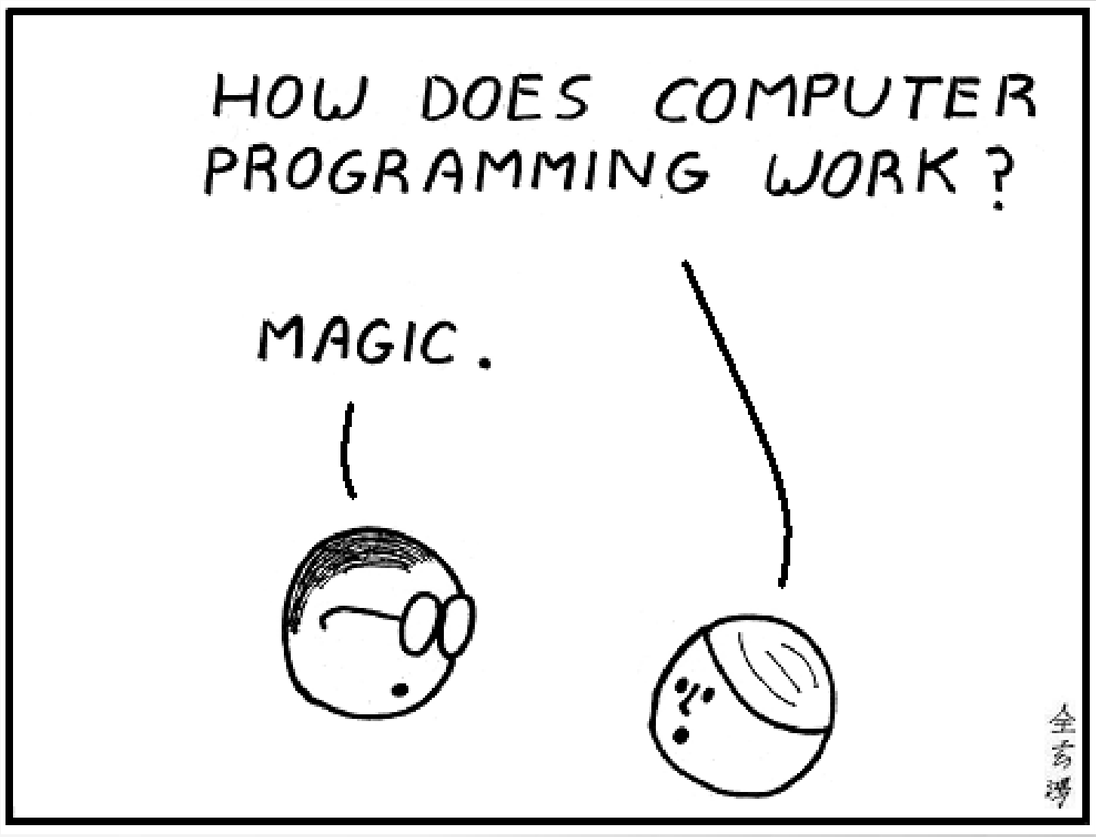
- describe what Dynamo is
- describe what visual programming is
- understand practical uses for Dynamo in the Revit MEP workflow
- recognize major changes that can be made quickly with Dynamo

Session Agenda

- Programming Revit
- What is Dynamo?
- Using Dynamo with Revit
  - Selecting Elements
  - Getting Parameters
  - Setting Parameters

Why Program Revit?

- Speed-up workflow
- Reduce duplication of work
- Decrease chance of errors
- Improve accuracy



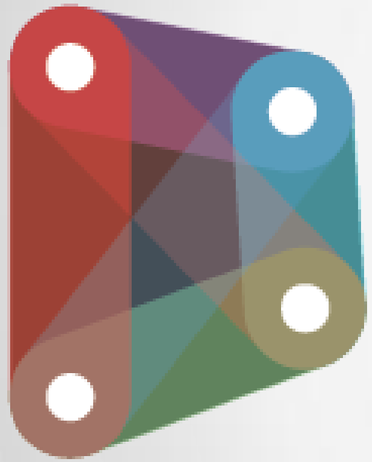
Programming Revit

Automated Tasks

Learning Programing and the API

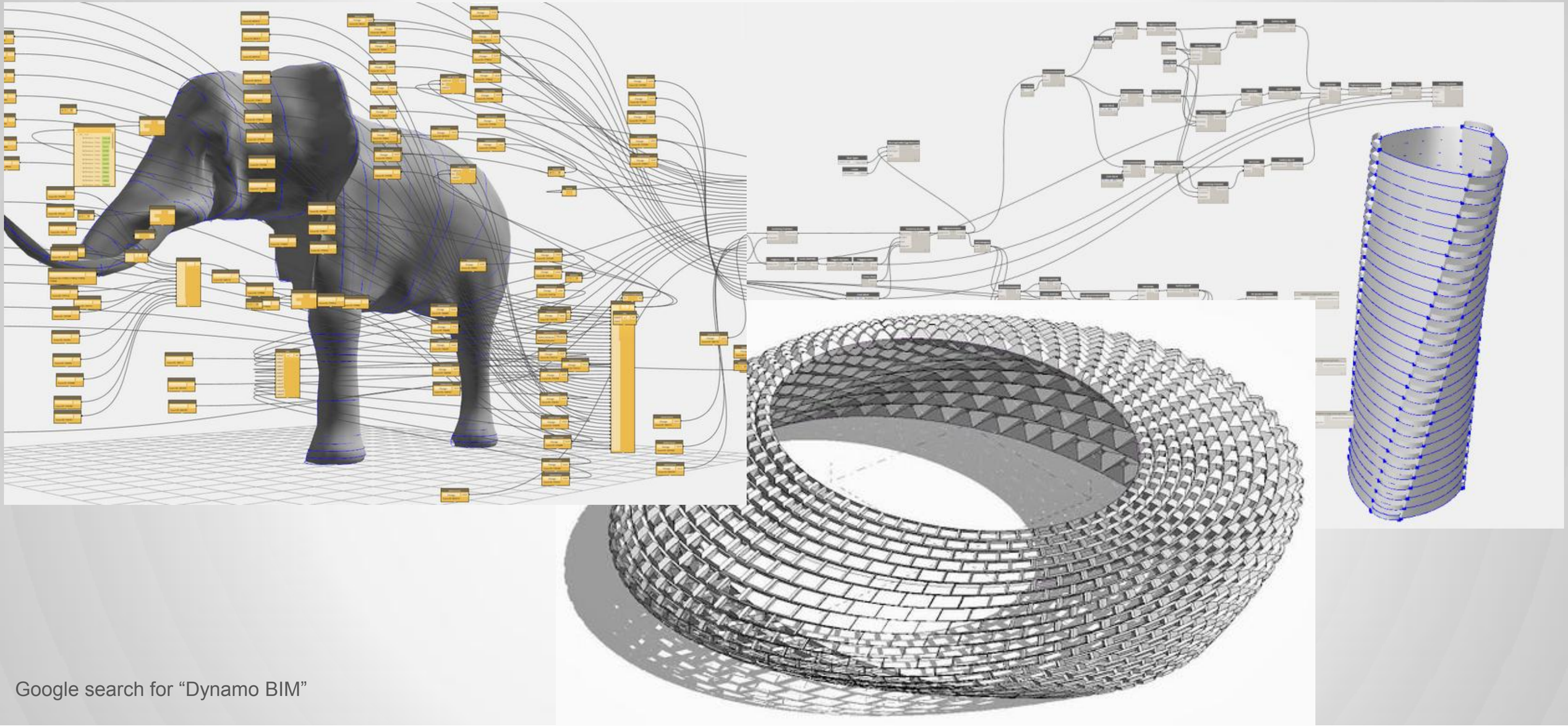
What do we do?!?!

- Use Dynamo!



Dynamo

What is Dynamo?



Google search for “Dynamo BIM”

What is Dynamo?

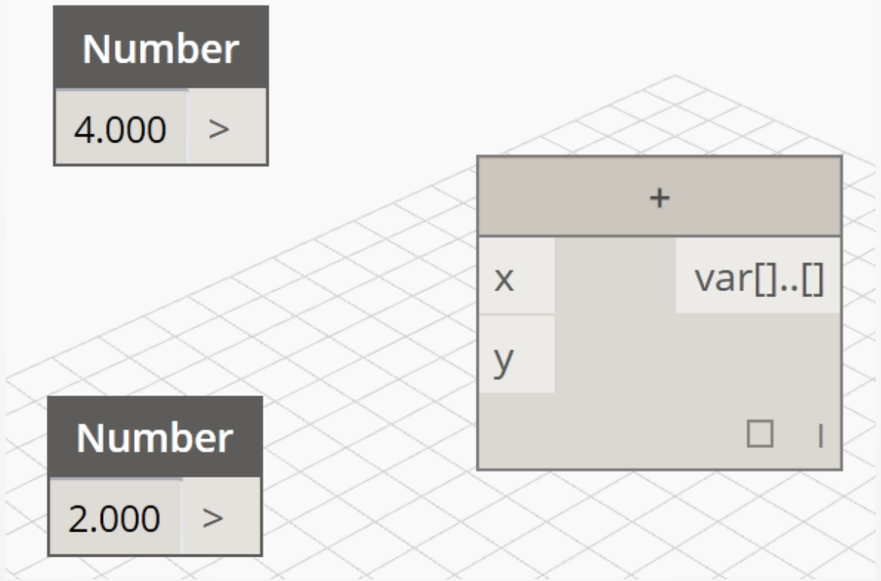
- Visual Programming Tool
- Communicates with Revit through the API (Application Programming Interface)
- Free! (Add-in for Revit)
- www.DynamoBIM.com

What does Dynamo do?

- Creates its own geometry with parametric relationships
- Reads from and writes to external databases

What is Visual Programming?

- Source code is created with nodes instead of text
- Flow of information is controlled by connectors (wires)



What is Visual Programming?

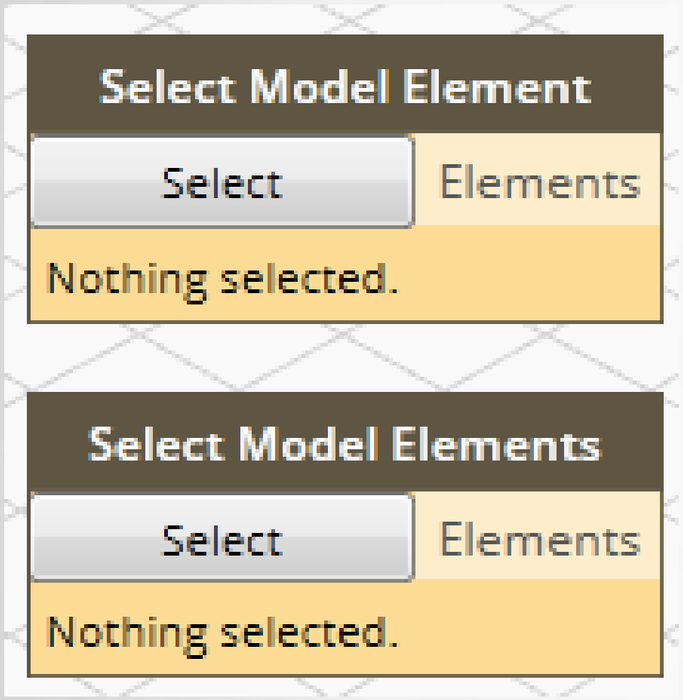
- Placing and connecting nodes
- All nodes are in the Node Library

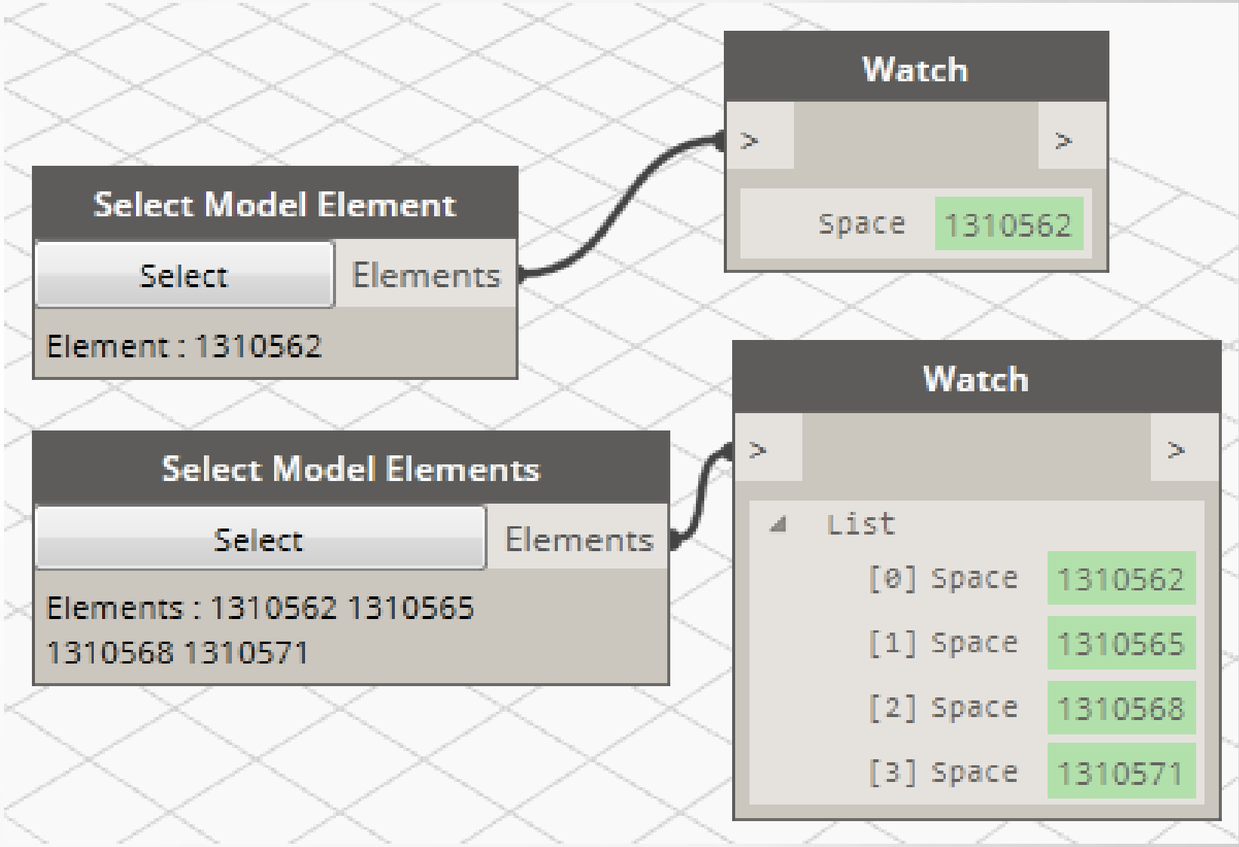
Dynamo with Revit Workflow

- Select Elements
- Perform Task
  - Get Parameters
  - Set Parameters

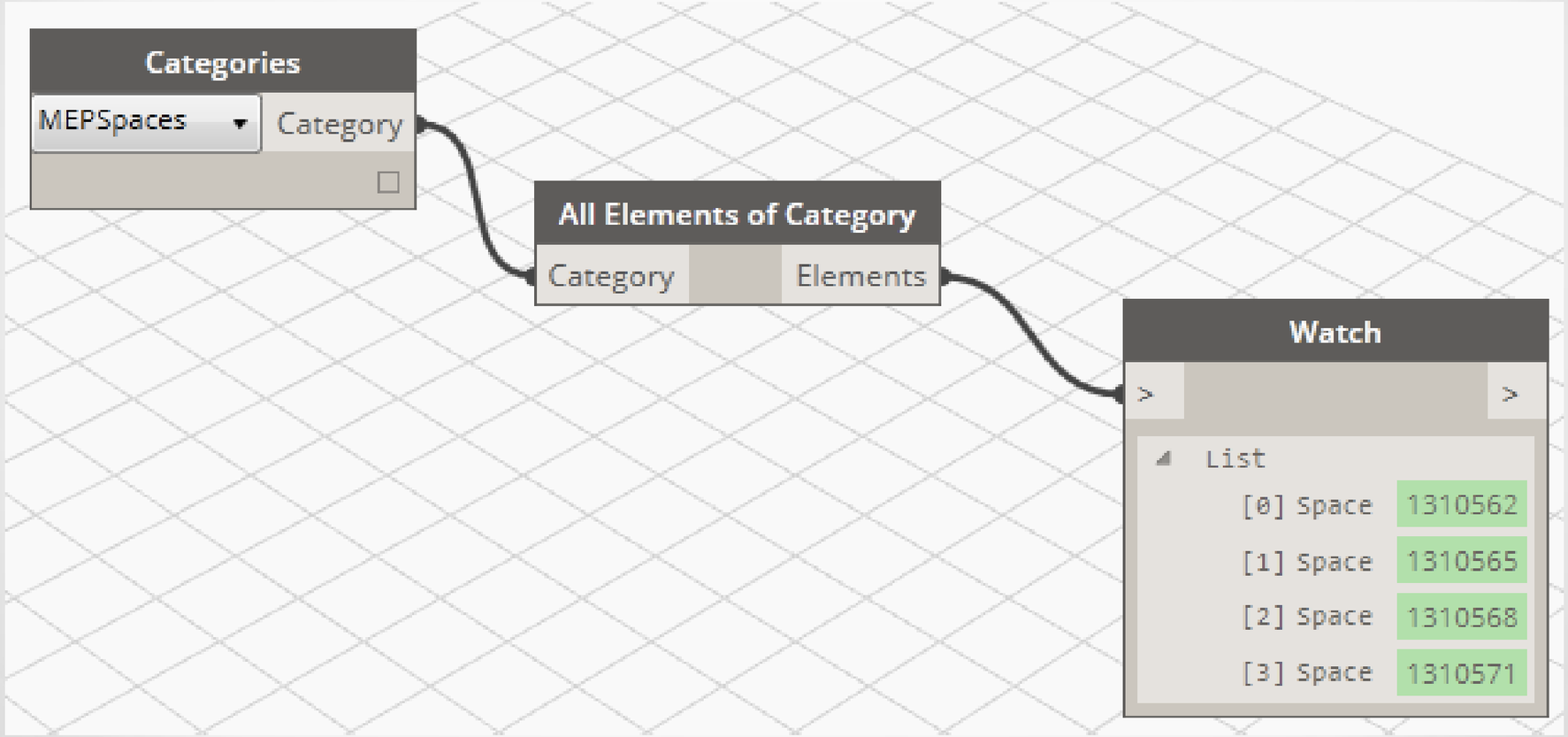
Selecting Elements

Selecting Model Elements

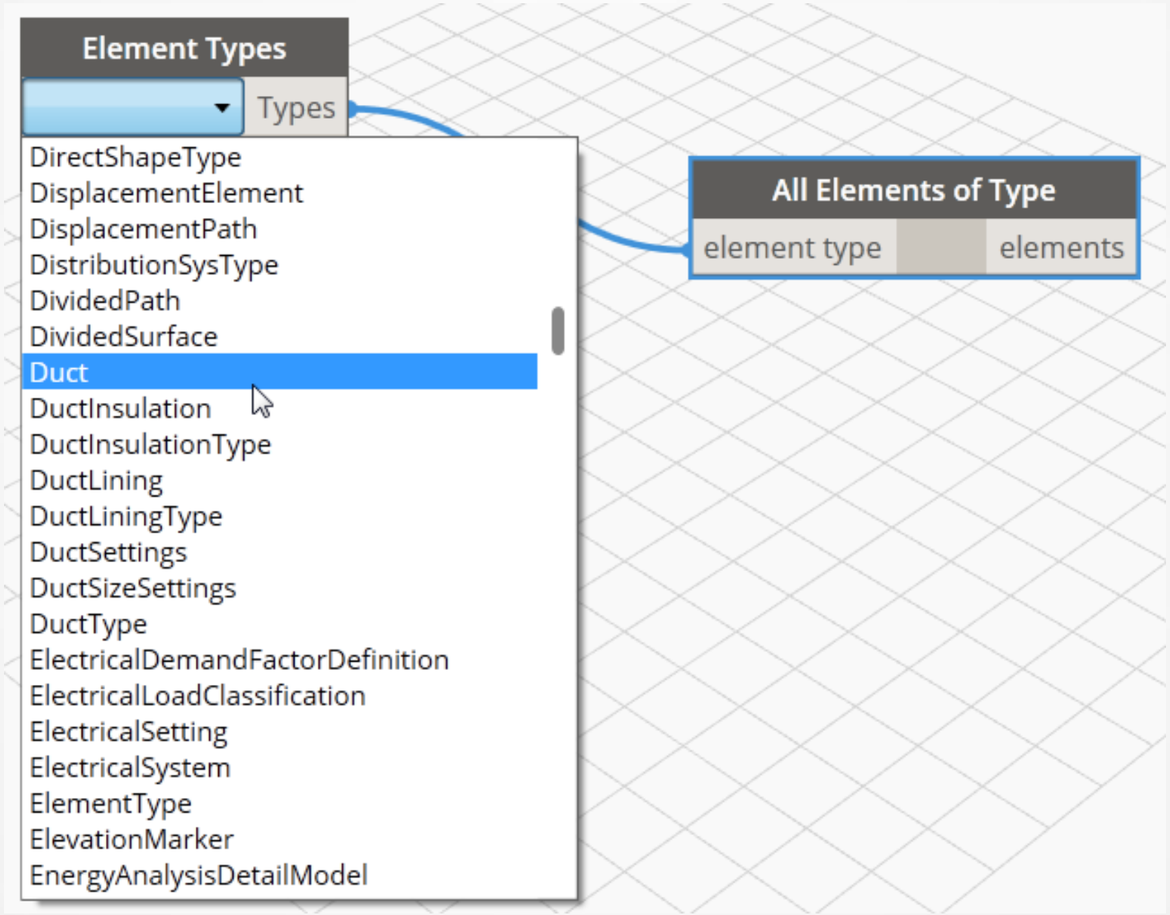




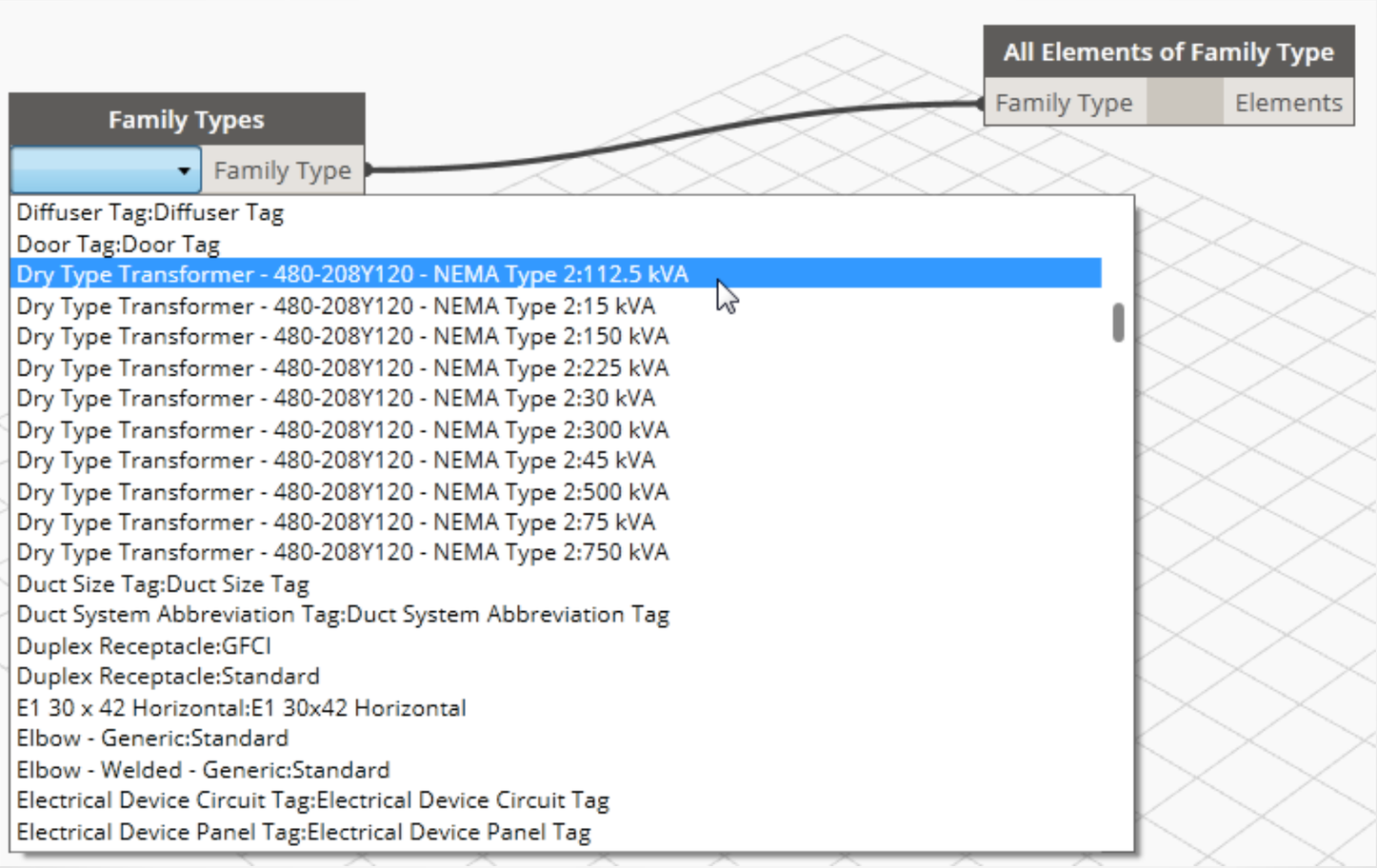
Selecting Elements by Category



Selecting System Families and Elements in a System Family



Selecting Loadable Family Types and Elements in a Loadable Family Type

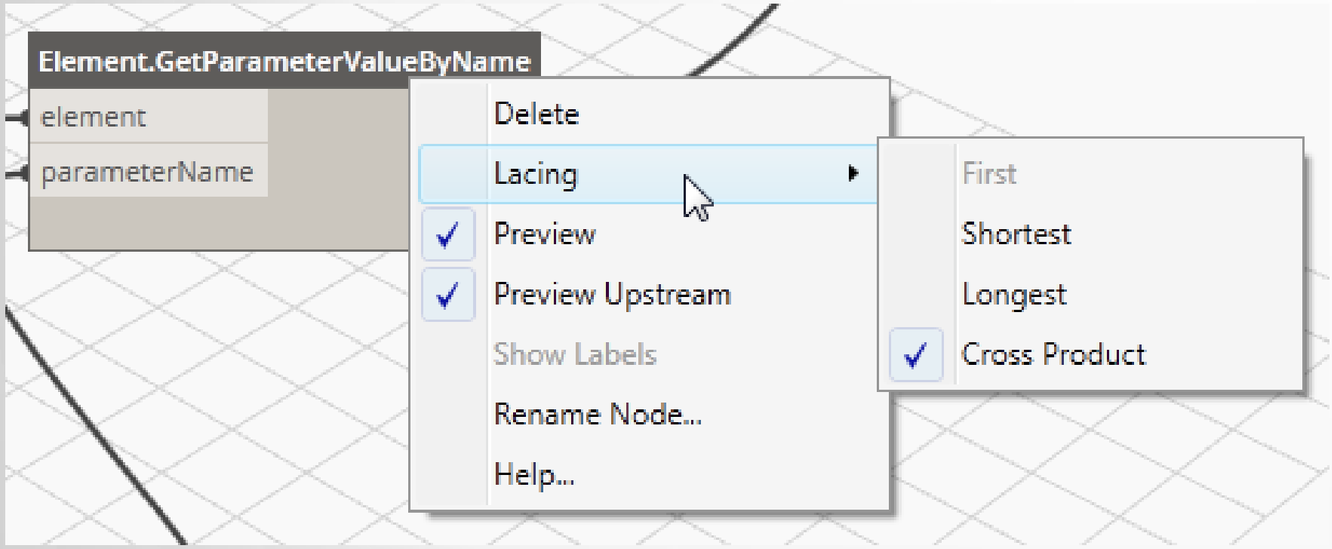


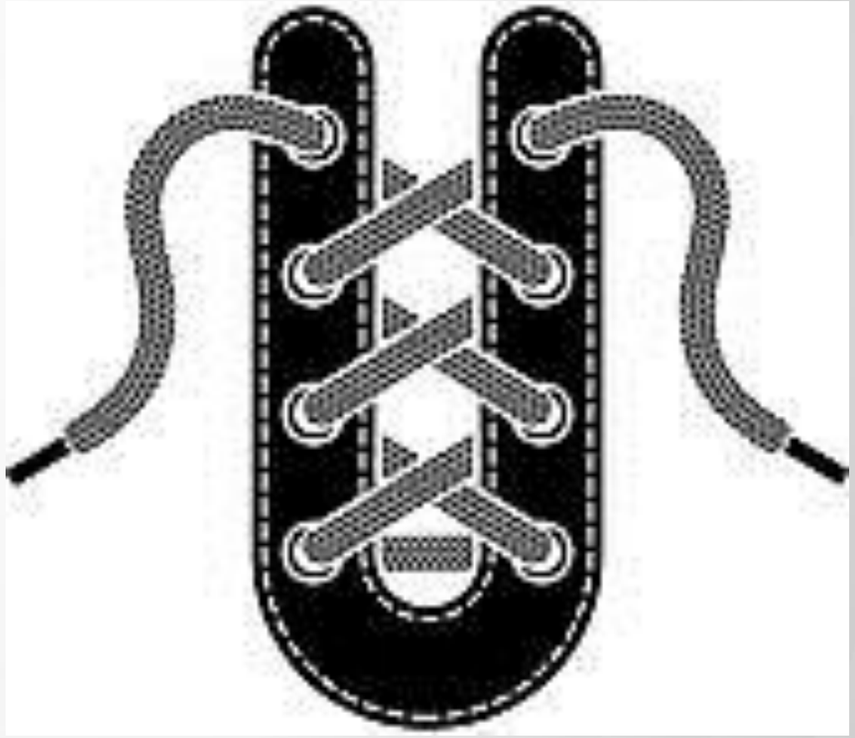
Lists

- List
  - Multiple items
  - Created when multiple elements are selected
  - Can be created manually
  - Can be created from imported Excel file
  - Provides multiple inputs
- Numbering System
  - By Index
  - Starts at [0]
  - 1st item is at index0

Lacing

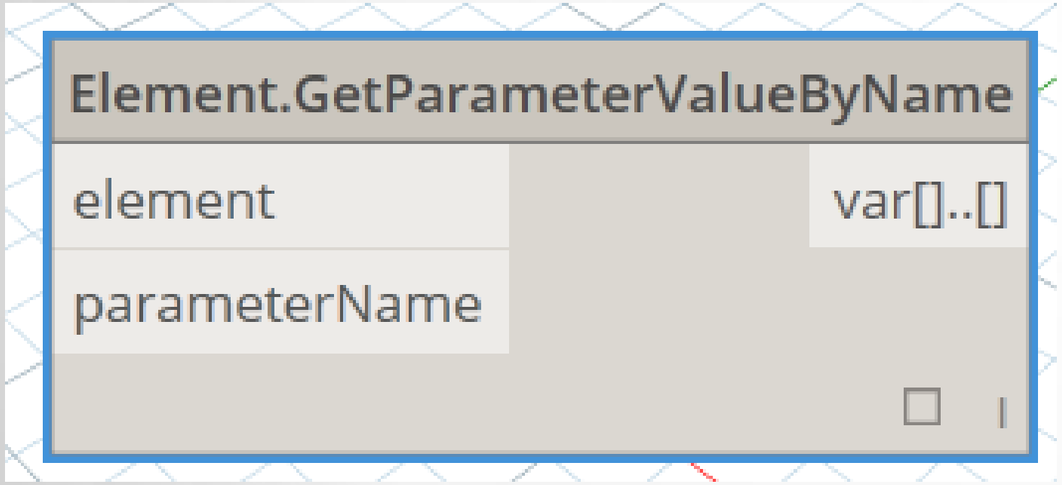
- When two or more lists are inputs, you can control the node lacing



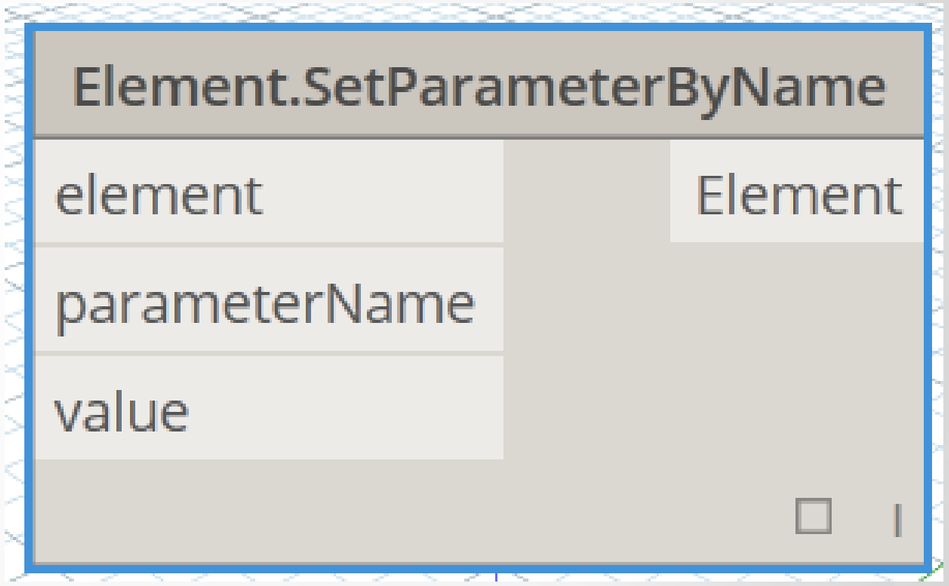


Working with Parameters

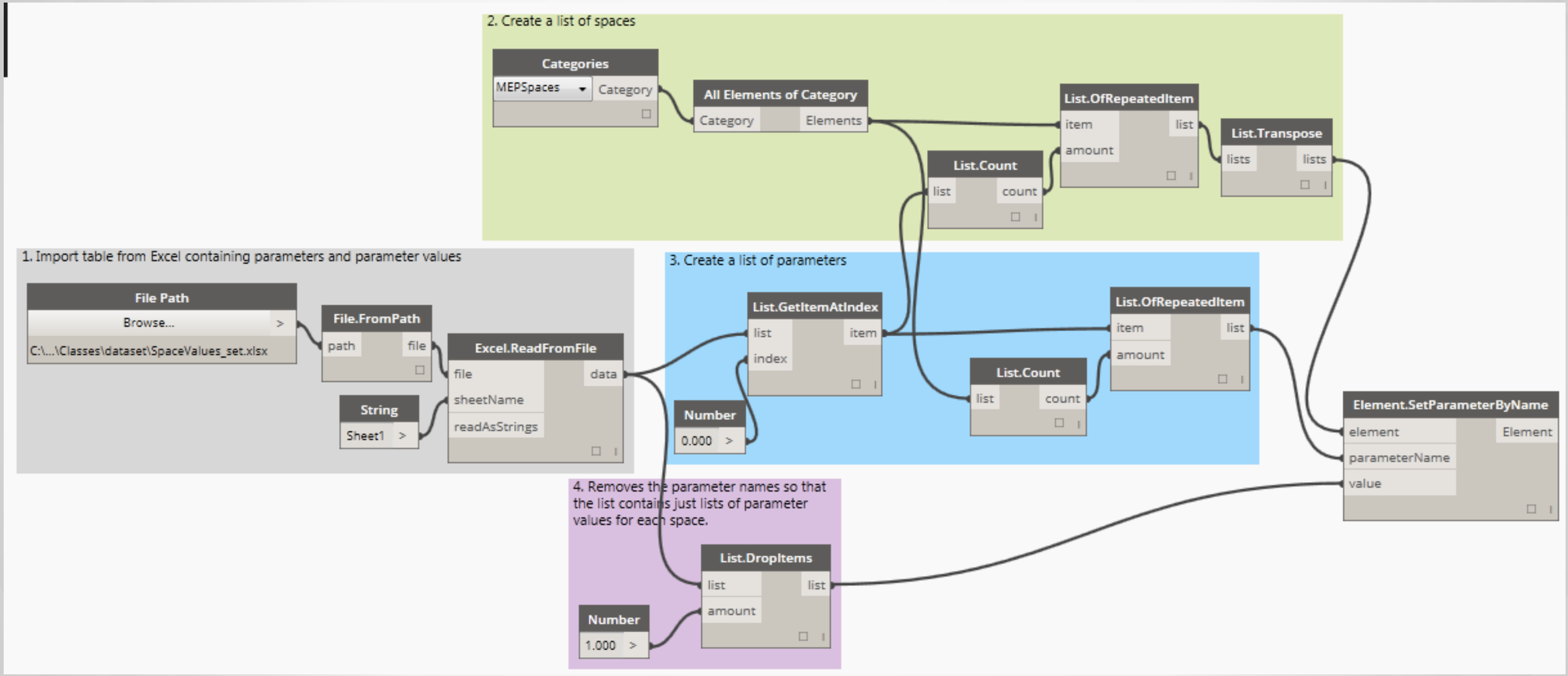
- Getting Parameters



- Setting Parameters



Setting Space Parameters



Setting Space Parameters

2

	A	B	C	D	E	
1	Space 1	Space 1	Space 1	Space 1	Space 1	Space 1
2	Space 2	Space 2	Space 2	Space 2	Space 2	Space 2
3	Space 3	Space 3	Space 3	Space 3	Space 3	Space 3
4	Space 4	Space 4	Space 4	Space 4	Space 4	Space 4

3

	A	B	C	D	E	
1	Name	Floor Reflectance	Wall Reflectance	Ceiling Reflectance	Number of People	Sensible Hea
2	Name	Floor Reflectance	Wall Reflectance	Ceiling Reflectance	Number of People	Sensible Heat
3	Name	Floor Reflectance	Wall Reflectance	Ceiling Reflectance	Number of People	Sensible Hea
4	Name	Floor Reflectance	Wall Reflectance	Ceiling Reflectance	Number of People	Sensible Hea

4

	A	B	C	D	E	F
1	Name	Floor Reflectance	Wall Reflectance	Ceiling Reflectance	Number of People	Sensible Heat Ga
2	Office	0.2	0.5	0.75	1	
3	Break Room	0.2	0.5	0.75	4	
4	Office	0.2	0.5	0.75	1	
5	Conference Room	0.2	0.5	0.75	10	

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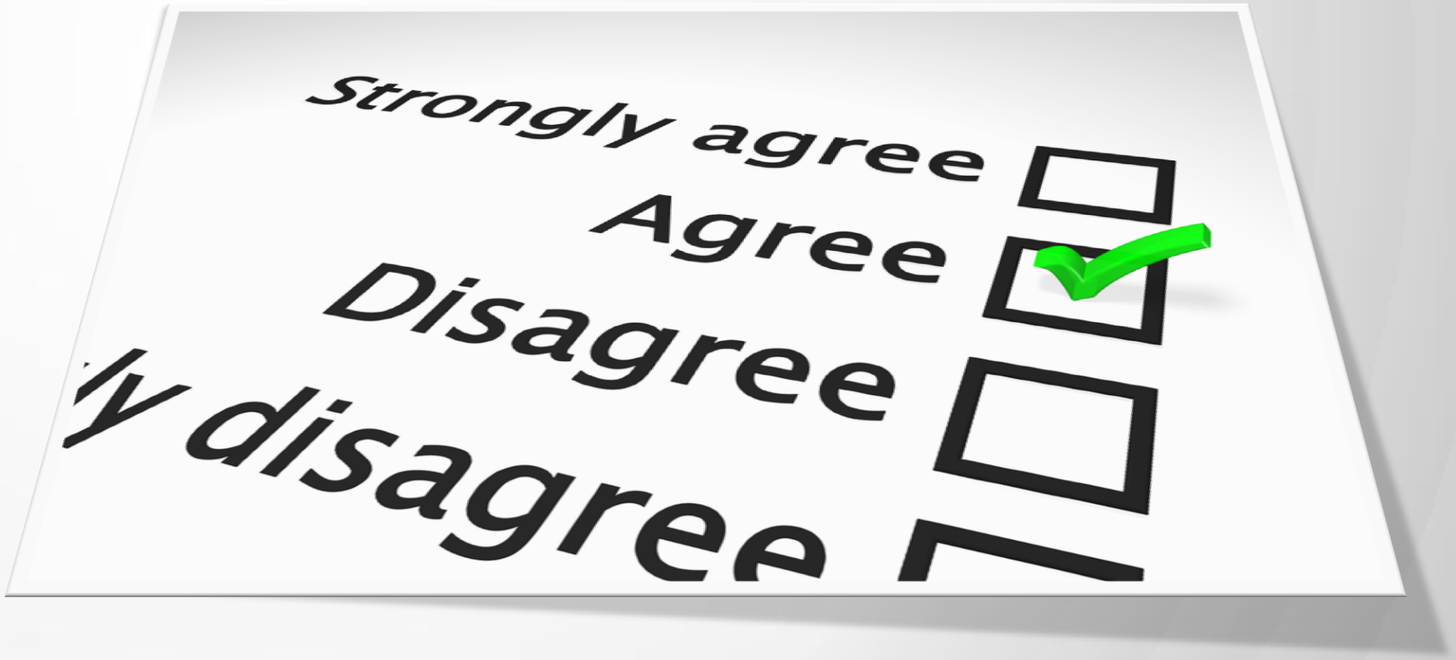
- Via the Survey Stations, email or mobile device.
- AU 2016 passes awarded daily!
- Give your feedback after each session.
- Give instructors feedback in real-time.



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Let's Talk More!