

Dynamo for Revit

More Baby Steps for the Non-Genius

Jay Polding & Hany Iwamura

Overview

How do you go from crawling to running Dynamo for Revit?

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- **You can expect to walk out of this class with...**
 - Practical Dynamo example files
 - Confidence and inspiration needed to run with Dynamo

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- We have completely updated this follow-up to our 2016 AU presentation.
- Link to presentation on AU website...
- <https://www.autodesk.com/autodesk-university/class/Dynamo-Revit-Baby-Steps-Non-Genius-2016>

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- <https://www.autodesk.com/autodesk-university/class/Dynamo-Revit-Baby-Steps-Non-Genius-2016>
- There will be a **live QA session during AU2020**, please check the website for details
- We are 'recording live in one take'



About the speaker

Jay Polding

Registered Designer in Ontario, Canada

AEC Industry Account Manager

SolidCAD, Largest Canadian Platinum Autodesk Reseller

Help people in the AEC Industry succeed in their use of design technology.

- Project BIM consulting totaling over 1,000,000 SF (100 000 m2)
- Trained over 2500 professionals in BIM i.e. Revit, Navisworks
- Author of 6 Best-Selling Revit Instructional Videos for Infinite Skills
- Revit in Plain English Blog over 10 years with over 700,000 visits



About the speaker

Hany Iwamura

- **Director of Digital Practice at Henriquez Partners Architects in Vancouver, Canada**
- **Lead HPA vision of digital design technologies**
- **Co-founder of the Vancouver Computational Design User Group**
- **Focus on how we can use technology to recruit and retain talent**

Dynamo is ideal when...

Dynamo is ideal when...

AUTOMATING REPETITIVE TASKS

Rename Views

Renumbering

Create Sheets

COMMUNICATE WITH OTHER APPLICATIONS

Importing data from Excel

Importing geometry from Rhino

AUTOMATE QUALITY CONTROL TASKS

Delete all Imported Line

Finding CAD imports in model

Change all Text notes to Uppercase

Intuitively Review Warnings

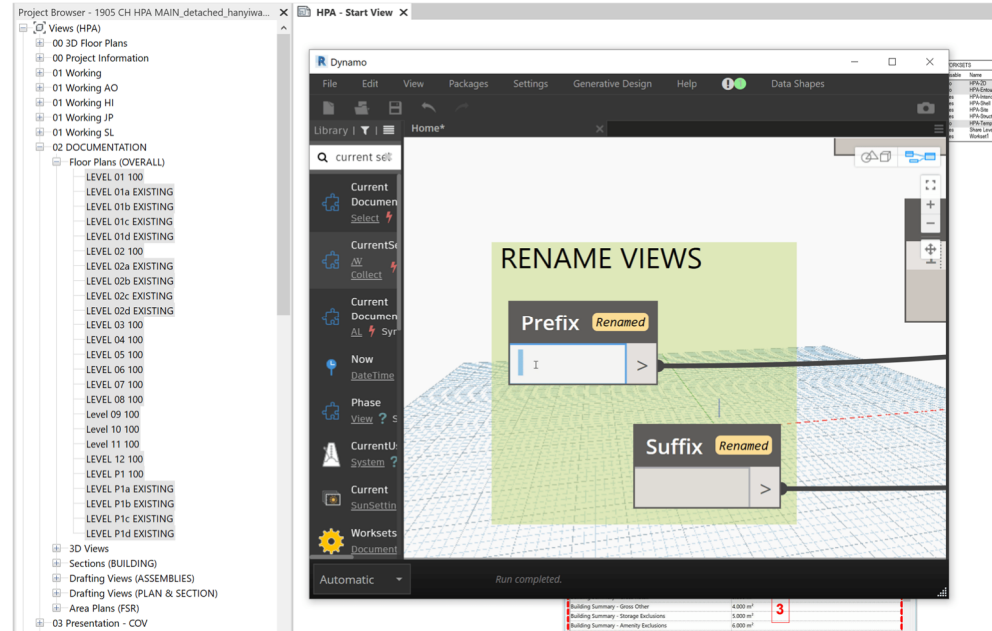
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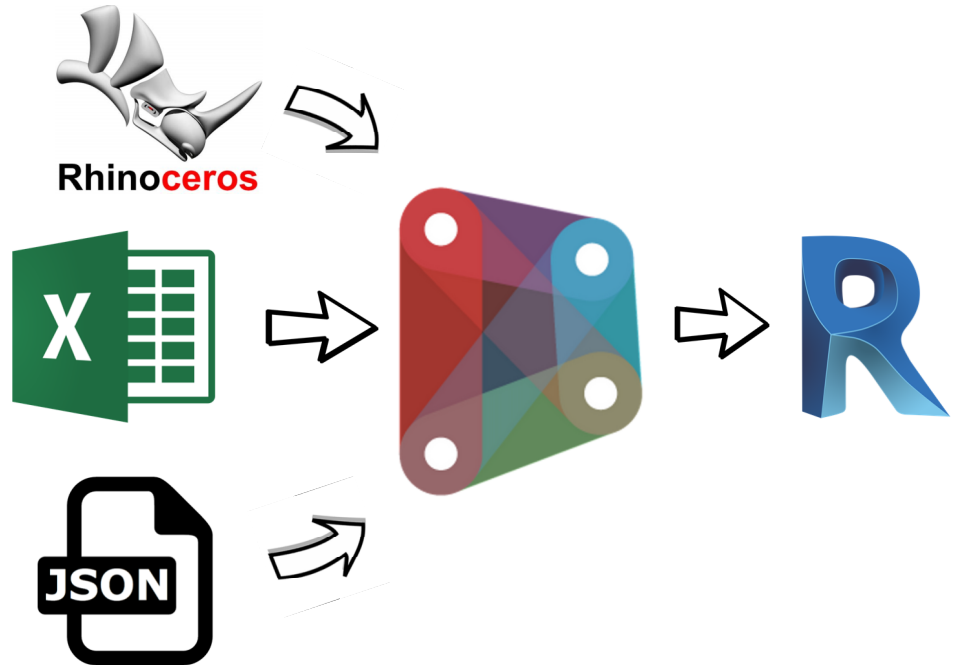
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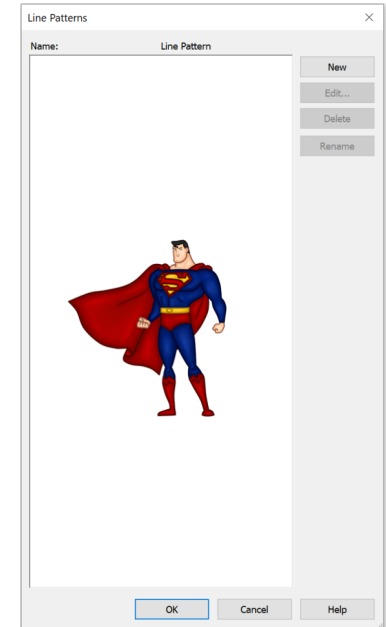
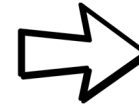
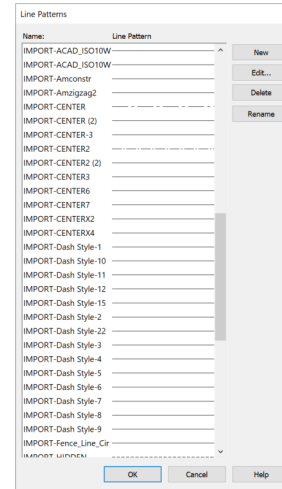
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Intuitively Review Warnings



Dynamo is NOT ideal when...

Dynamo is NOT ideal when...

- LESS TIME IN REVIT, OR A TOOL ALREADY EXISTS
- DISTRIBUTING TO MANY PEOPLE WITHOUT TRAINING
- YOU TRY TO DO TOO MUCH IN ONE GRAPH
- TRACKING LIVE DATA IN THE MODEL

How much do you really
need to know?

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English Language

How much do you really need to know?

150,000

WORDS

2000

MOST COMMON
WORD

160

MOST COMMON
PHRASES

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Dynamo

How much do you really need to know?

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NODES

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MOST COMMON
WORD

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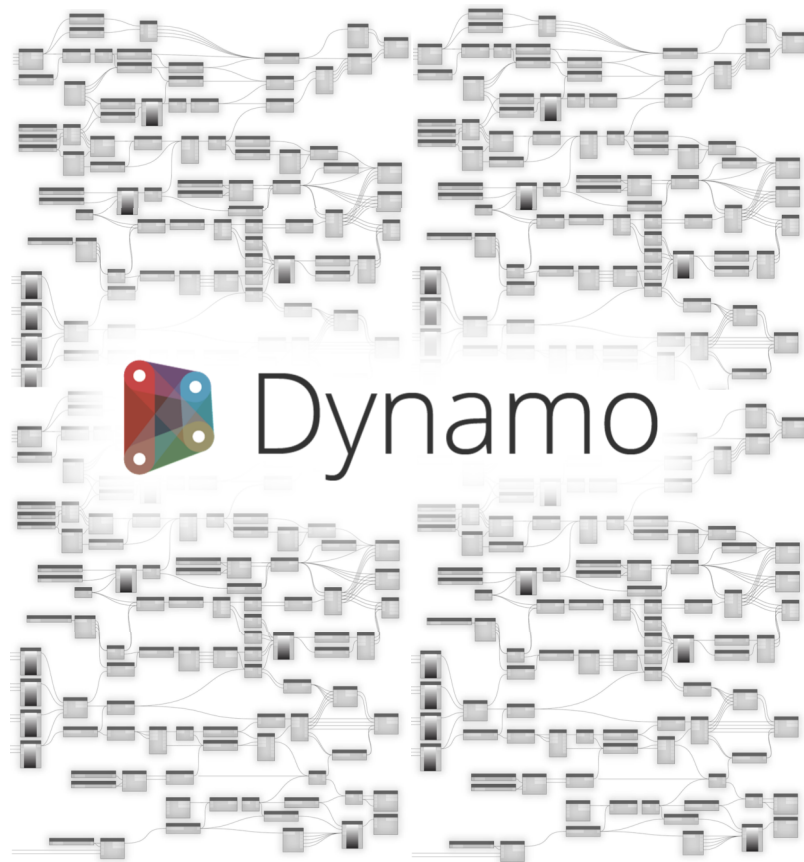
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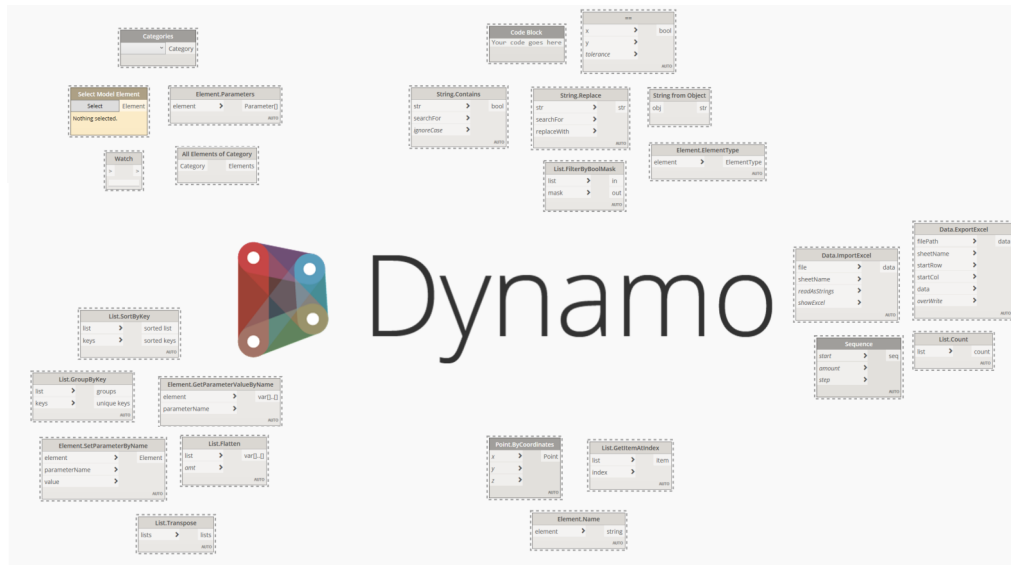
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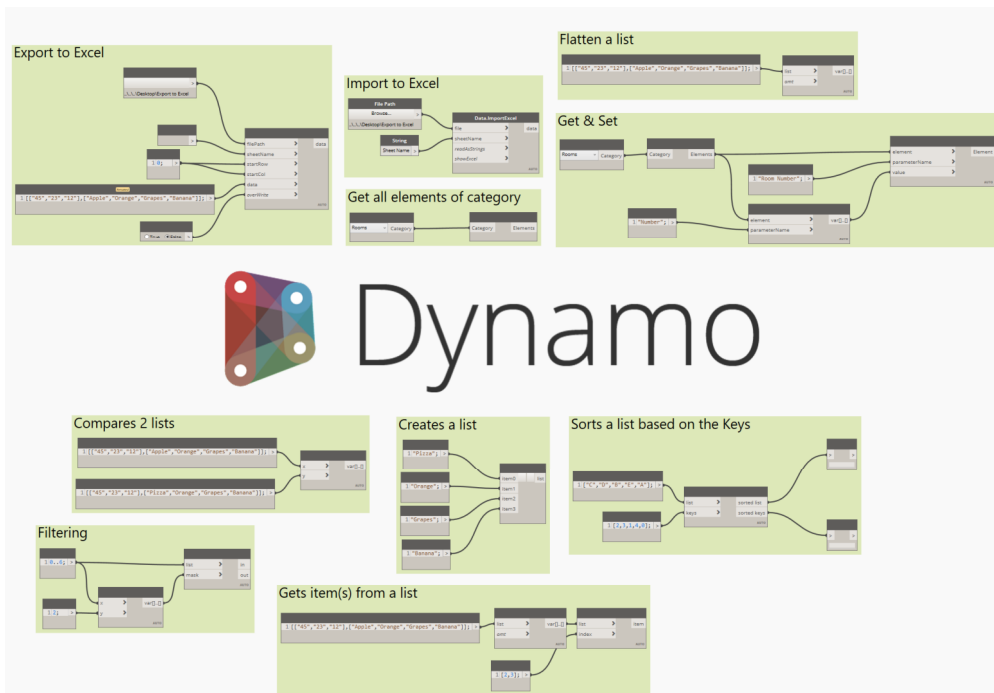
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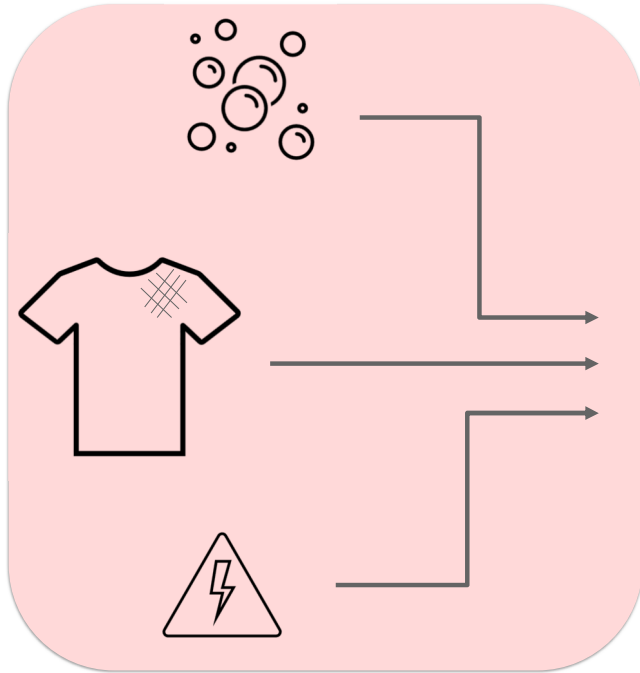
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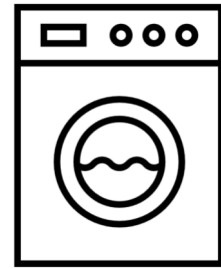
Dynamo

INPUT/OUTPUT

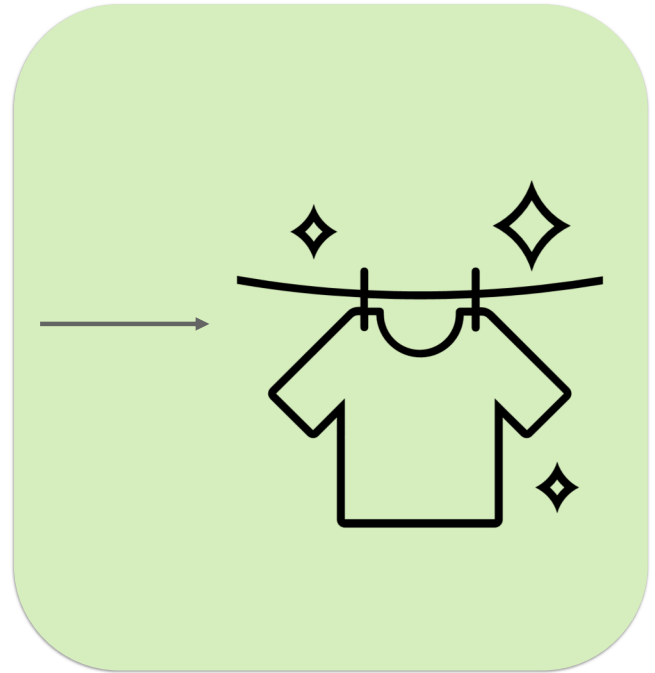
INPUT/OUTPUT



INPUT

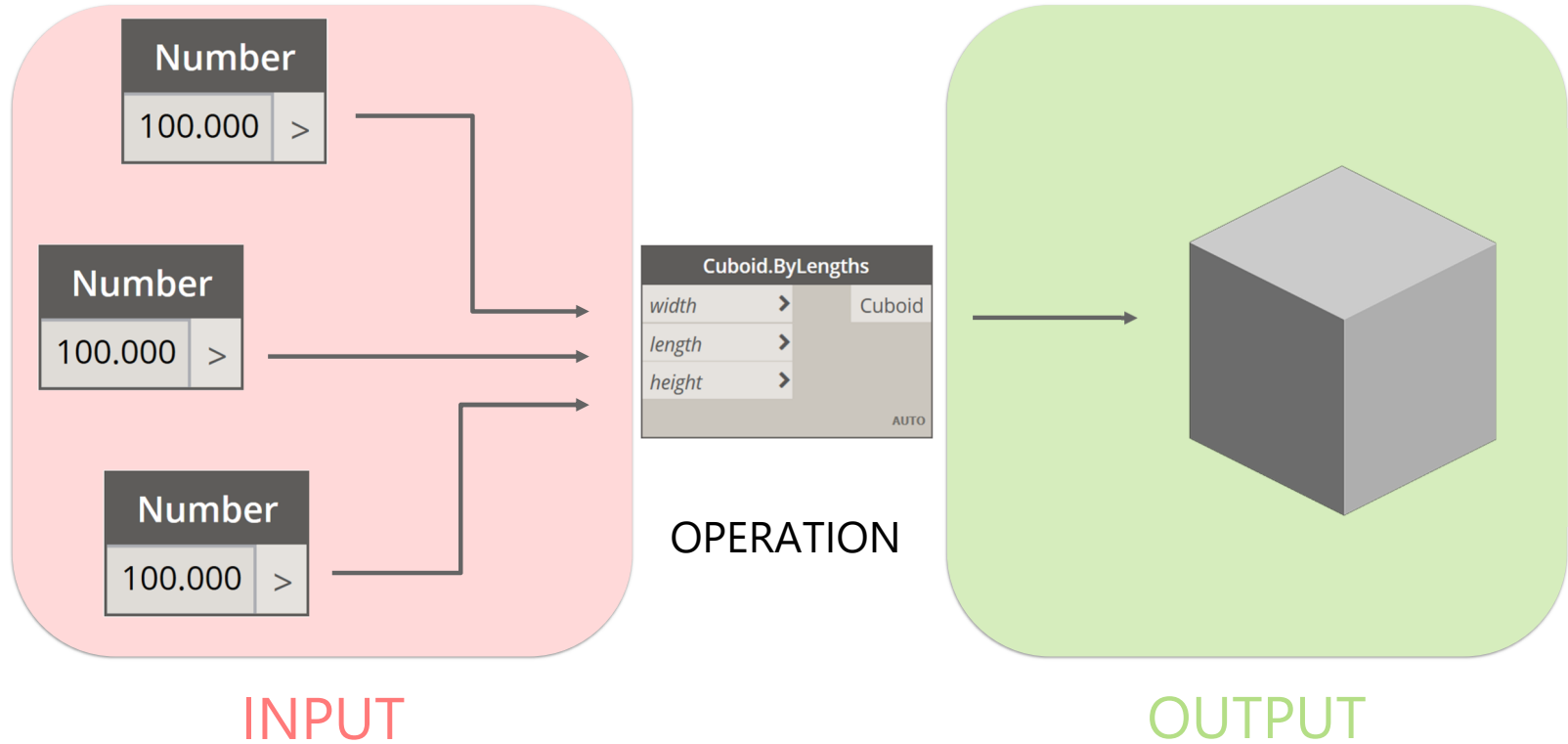


OPERATION

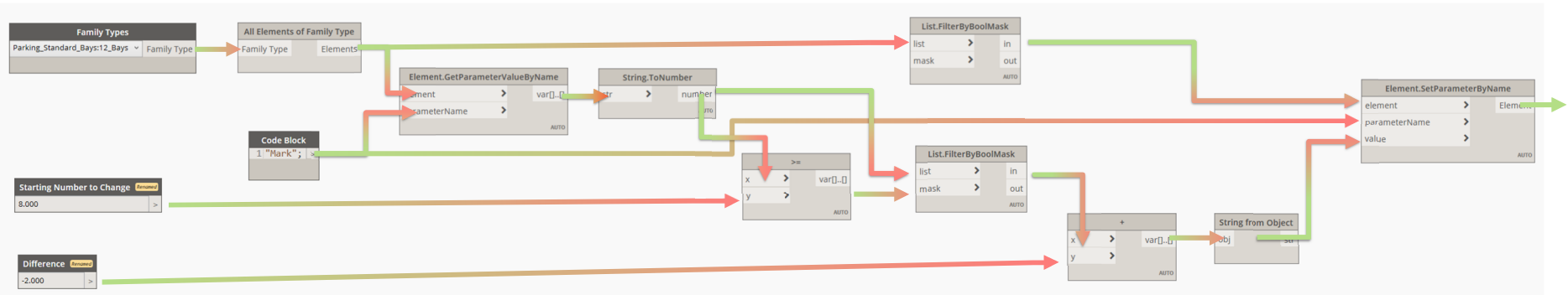


OUTPUT

INPUT/OUTPUT



INPUT/OUTPUT



INPUT

OUTPUT

Live Examples

- Revit is great at number things automatically. But renumbering is not automatic.
- Class example: Dynamo Graph that renumbers parking spaces and more.
- Most common task, called Get and Set
- User-friendly interface of Dynamo Player
- Review the Excel features of Dynamo.

Example 1: Get and Set

Numbers & Strings

Numbers & Strings

Numbers

150

+

150

=

300

Numbers & Strings

Numbers

$$150 + 150 = 300$$

Strings



F-150

+



F-150

=



F-150



F-150

Filter

Filter

- Filtering using BoolMask Node
- Add Groups for clarity
- Watch Node to see outputs and match list lengths
- SortbyKey Node sorts list automatically

Grocery List

- **Breakfast**
 - eggs
 - bacon
 - bread
- **Lunch**
 - salad
 - lettuce
 - croutons
 - dressing
 - cherry tomatoes
 - Sandwich
 - bread
 - chicken
 - mayo
- **Dinner**
 - App.
 - Coconut shrimp
 - Main
 - meat
 - potatoes
 - onions
 - rice
 - Dessert
 - ice cream
 - coffee



Filter

Only get Breakfast

- Breakfast

- eggs
- bacon
- bread

- Lunch

- salad
 - lettuce
 - croutons
 - dressing
 - cherry tomatoes
- Sandwich
 - bread
 - chicken
 - mayo

- Dinner

- App.
 - Coconut shrimp
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 - meat
 - potatoes
 - onions
 - rice
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Filter

Only get Veggies

- Breakfast
 - eggs
 - bacon
 - bread
- Lunch
 - salad
 - lettuce
 - croutons
 - dressing
 - cherry tomatoes
 - Sandwich
 - bread
 - chicken
 - mayo
- Dinner
 - App.
 - Coconut shrimp
 - Main
 - meat
 - potatoes
 - onions
 - rice
 - Dessert
 - ice cream
 - coffee



Filter

Only get items over \$5.99

- Breakfast
 - Eggs
 - bacon
 - Bread
- Lunch
 - Salad
 - Lettuce
 - Croutons
 - Dressing
 - cherry tomatoes
 - Sandwich
 - Bread
 - chicken
 - mayo
- Dinner
 - App.
 - Coconut shrimp
 - Main
 - meat
 - potatoes
 - onions
 - rice
 - Dessert
 - ice cream
 - coffee



Filter

Only get items over \$5.99

- Breakfast
 - Eggs \$3.29
 - **bacon** **\$6.99**
 - Bread \$3.29
- Lunch
 - Salad
 - Lettuce \$2.99
 - Croutons \$3.49
 - Dressing \$2.99
 - **cherry tomatoes** **\$5.99**
 - Sandwich
 - Bread \$3.49
 - **Chicken** **\$13.22**
 - Mayo \$3.99
- Dinner
 - App.
 - **Coconut shrimp** **\$10.99**
 - Main
 - **Meat** **\$16.99**
 - **Potatoes** **\$5.99**
 - Onions \$2.50
 - **Rice** **\$5.99**
 - Dessert
 - ice cream \$6.49
 - Coffee \$10.99



Filter

Only get items over \$5.99

- Breakfast
 - Eggs \$3.29 False
 - bacon \$6.99 True**
 - Bread \$3.29 False
- Lunch
 - Salad
 - Lettuce \$2.99 False
 - Croutons \$3.49 False
 - Dressing \$2.99 False
 - cherry tomatoes \$5.99 True**
 - Sandwich
 - Bread \$3.49 False
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 - Onions \$2.50 False
 - Rice \$5.99 True**
 - Dessert
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 - Coffee \$10.99 True**



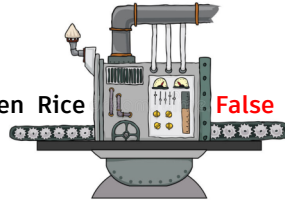
Filter

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 - Croutons \$3.49 False
 - Dressing \$2.99 False
 - **cherry tomatoes** **\$5.99** True
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 - **Chicken** **\$13.22** True
 - Mayo \$3.99 False
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 - Dessert
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 - Coffee \$10.99 True

Eggs Bacon Bread Chicken Rice

False True False True False True



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Eggs Bacon Bread Chick

5.99

	>=
x	>
y	>
AUTO	

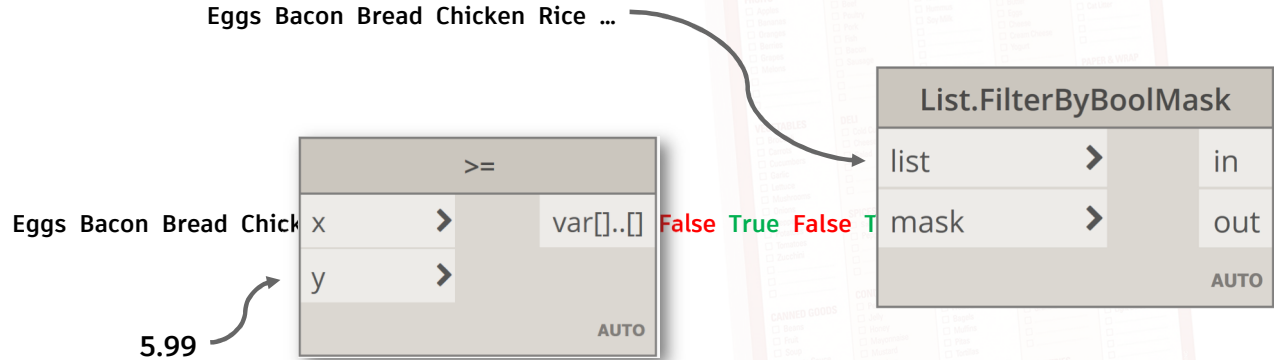
var[].[.] False True False True



Filter

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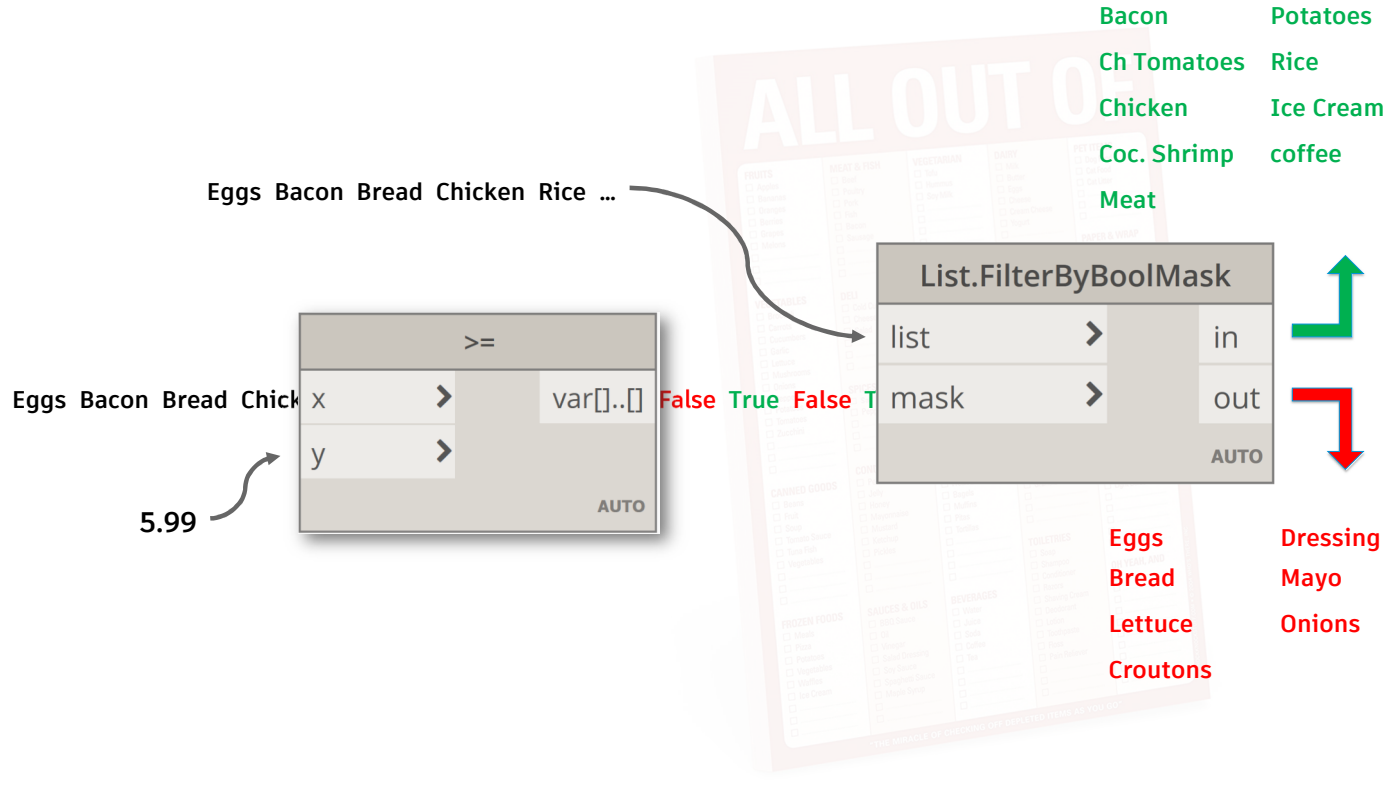
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Example 2: Filter

Getting Help on Dynamo Forum

- **What is it, Where is it?**
 - <https://forum.dynamobim.com/t/number-curtain-panels-based-on-model-line/15098/7>
 - Good way to know which Nodes to use
- **How to ask the questions**
 - Use search tool first, add to existing thread if needed
 - Clear explanation of the specific problem you are try to solve
 - Include an image of what you want to do
 - Include sample Dynamo graph
 - If you find the answer on your own, provide it in the Forum. Close the loop.

Dynamo Player

- **There are people who make Dynamo Graphs and people who USE Graphs. Not always the same person.**
- **Edit Inputs**
- **Rename nodes**
- **Example graphs**
 - Surface for Structure; Export to Excel
 - Duct Hangers Mech

Example 3: Dynamo Player and Export to Excel

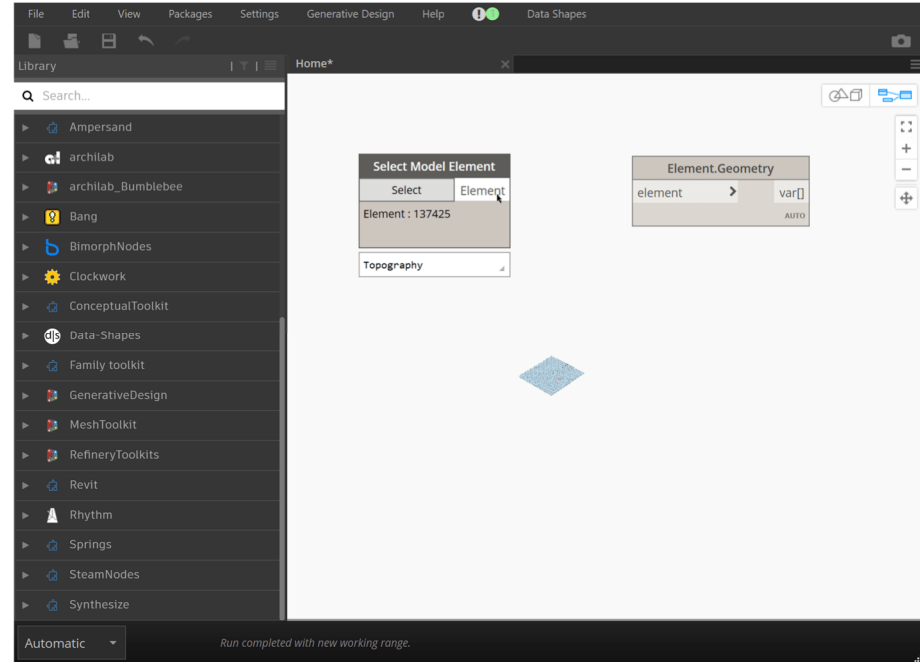
Dynamo “Gotcha’s”



Dynamo “Gotcha’s”

- **Geometry Scaling**

- Drop down lists – Might change on re-open
- Import Excel - file path (not so fast)
- In the middle of something?? Dynamo will wait
- Select model element(S). To complete, click FINISH in Revit
- Is Dynamo is slow? Try disabling your Add-ins.
- Math nodes are not limited to numbers.
- Dynamo script in batches (close/open dynamo file or cut /paste elements)
- Don’t panic, You can undo Dynamo tasks
- Save Dynamo AND Revit before running graph.
- Searching for node: sometimes there is a space, sometimes there is a period(.)
- Getpar & Setpar... no need to type the full name
- Shift to move many wires
- Some INPUTS have Default settings



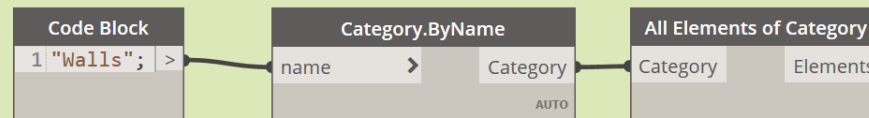
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Categories might change

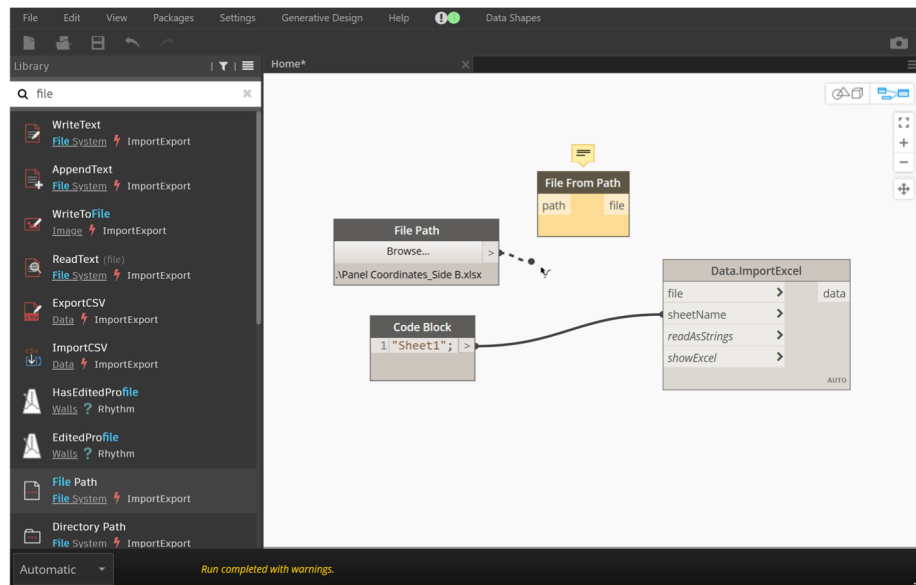


Category will NOT change



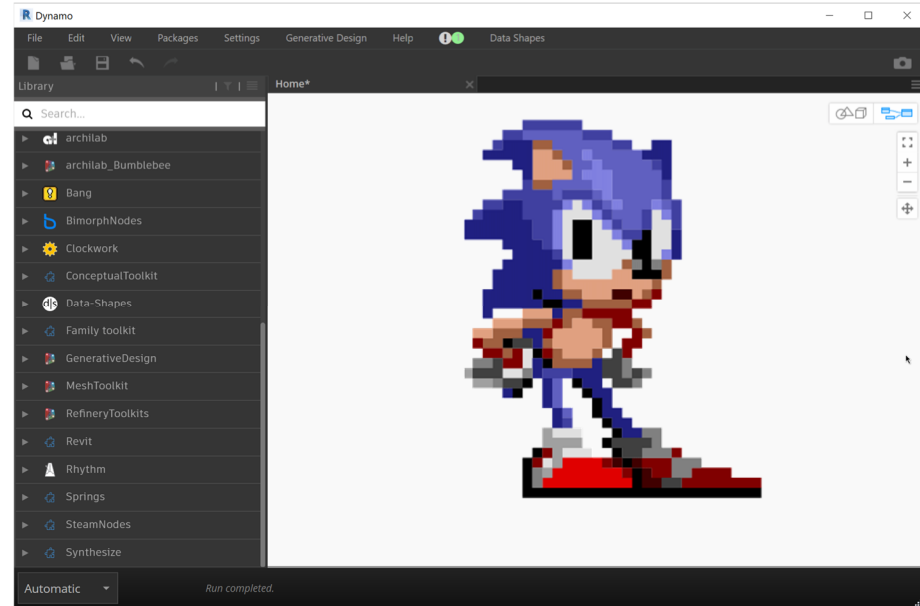
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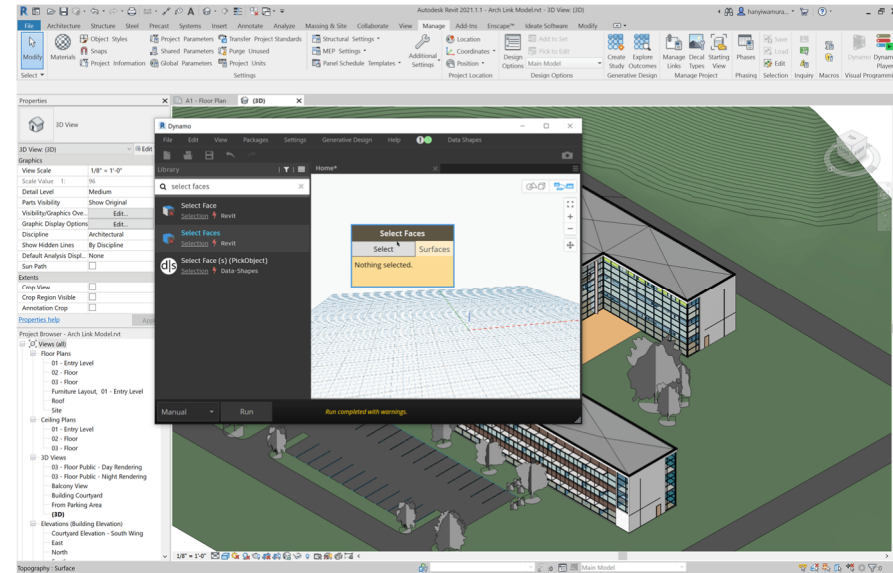
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How to disable add-ins for Revit

Products and versions covered ▼

By:  AUTODESK.Support

Sep 03 2020

SHARE ◀ ADD TO COLLECTION +

Issue:

How to disable add-ins for Revit.

Causes:

There may be an occasion where Revit needs to be tested with add-ins disabled. In some cases, Revit may fail to launch or will crash with certain add-ins or due to add-in corruption.

Solution:

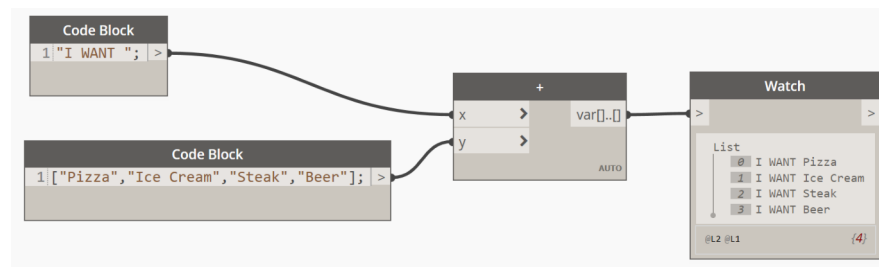
Do the following to disable add-ins:

1. Close Revit.
2. Locate the following folder: C:\ProgramData\Autodesk\Revit\Addins\[Version].
3. Temporarily move the add-in files from the folder above to another location.
4. Launch Revit. Add-ins will be disabled.



Dynamo “Gotcha’s”

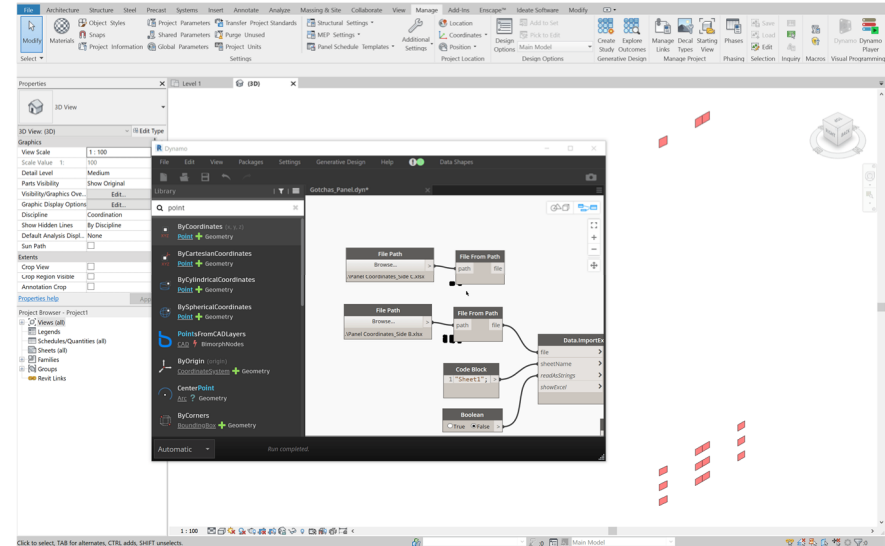
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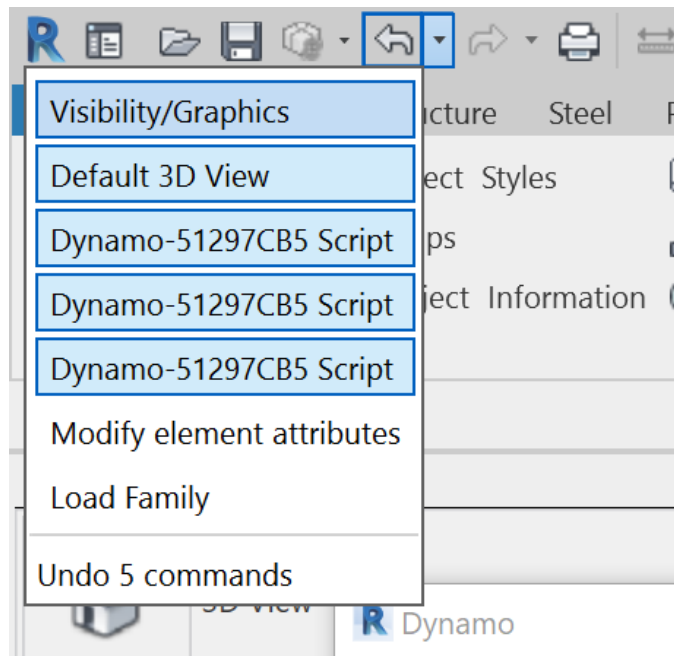


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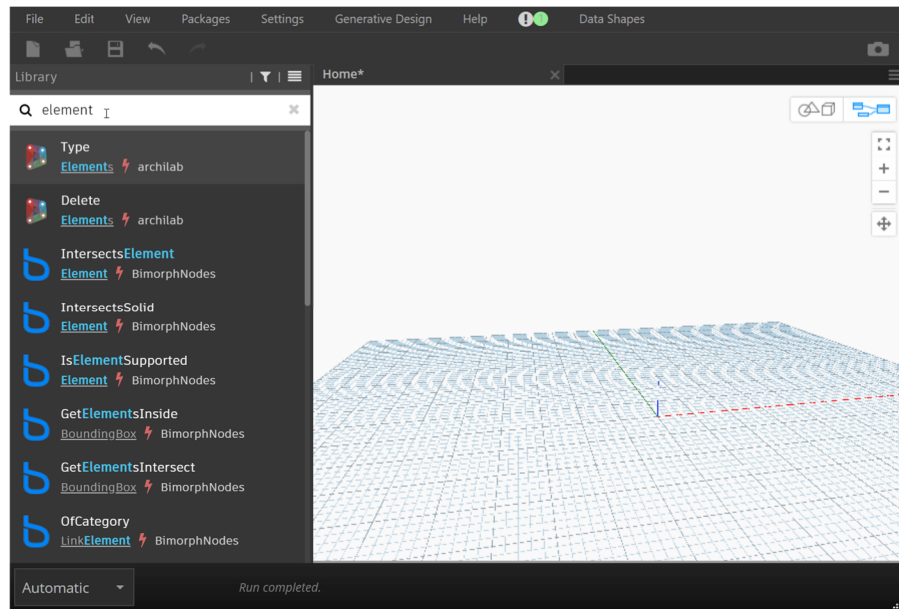
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- Dynamo script in batches (close/open dynamo file or cut /paste elements)
- Don’t panic, You can undo Dynamo tasks
- **Save Dynamo AND Revit before running graph.**
- Searching for node: sometimes there is a space, sometimes there is a period(.)
- Getpar & Setpar... no need to type the full name
- Shift to move many wires
- Some INPUTS have Default settings



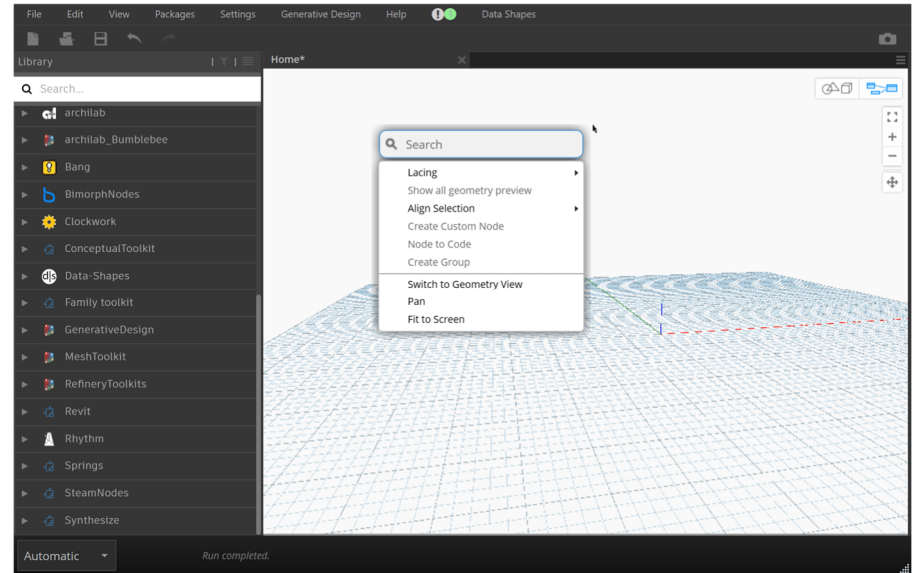
Dynamo “Gotcha’s”

- Geometry Scaling
- Drop down lists – Might change on re-open
- Import Excel - file path (not so fast)
- In the middle of something?? Dynamo will wait
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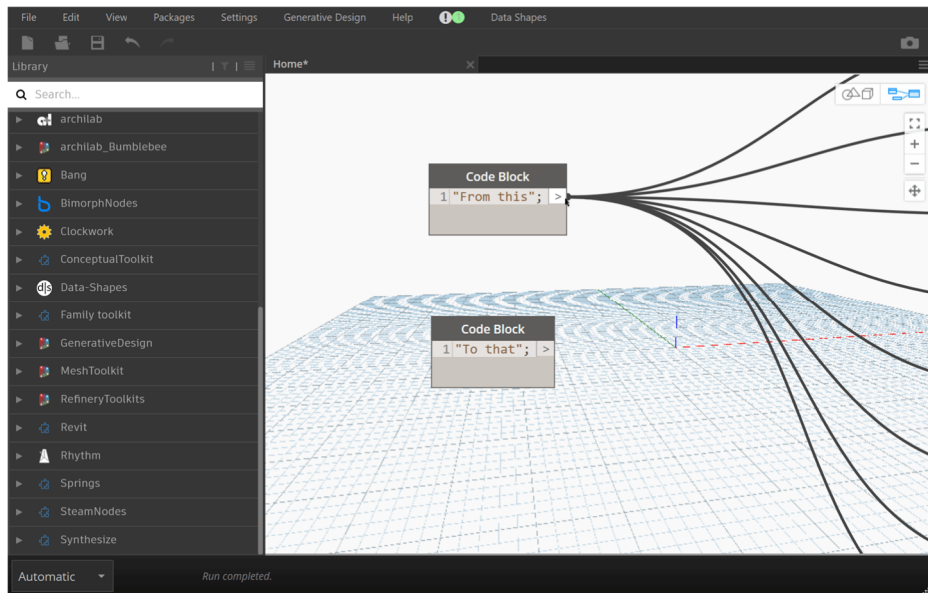
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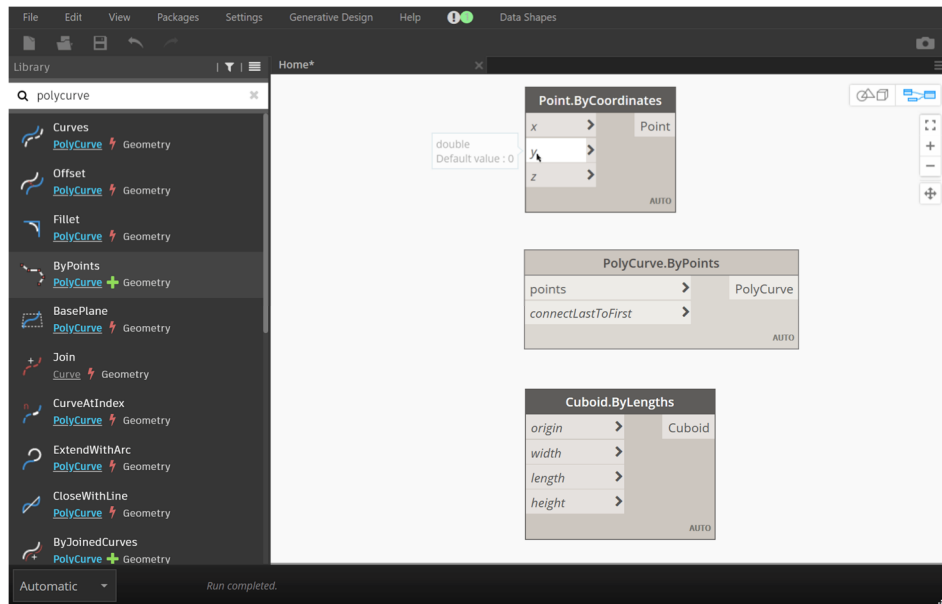
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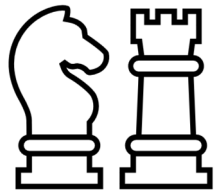
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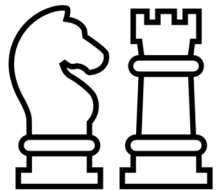
Conclusion

- **Deep Blue vs Garry Kasparov**



○ Deep Blue vs Garry Kasparov

- When you're working on a tough automation problem, stick at it. Once it's solved, it's solved forever and for everyone.

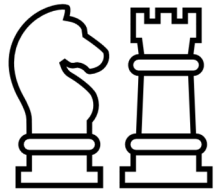


○ **Deep Blue vs Garry Kasparov**

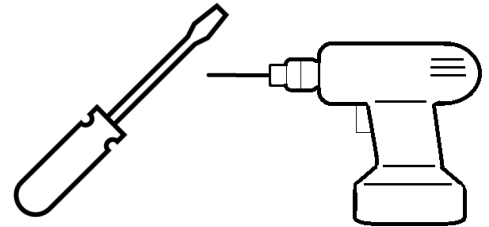
- When you're working on a tough automation problem, stick at it. Once it's solved, it's solved forever and for everyone.

○ **Pick your battles**

- Is there something made already? i.e. CTC Tools
- Does it need to be programmed by a pro?

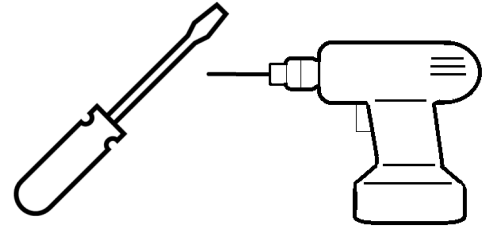


- Dynamo is a 'power-tool' for your craft



- **Dynamo is a ‘power-tool’ for your craft**

- Using a power tool can speed up your work and even improve quality
- Power tools allow you to build things that hand-tools do not. You may get fresh ideas.



Thank you!
Enjoy AU2020!



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