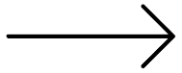
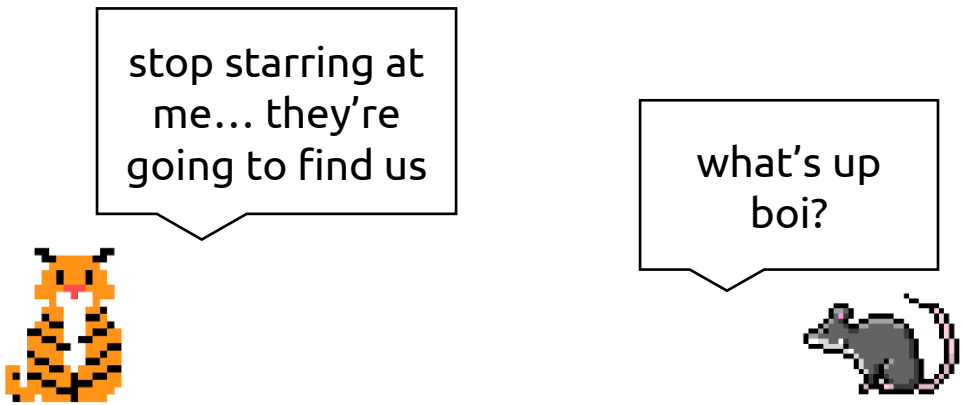
Block 2: From Theory to Practice



What it’s all about?

Conceptually

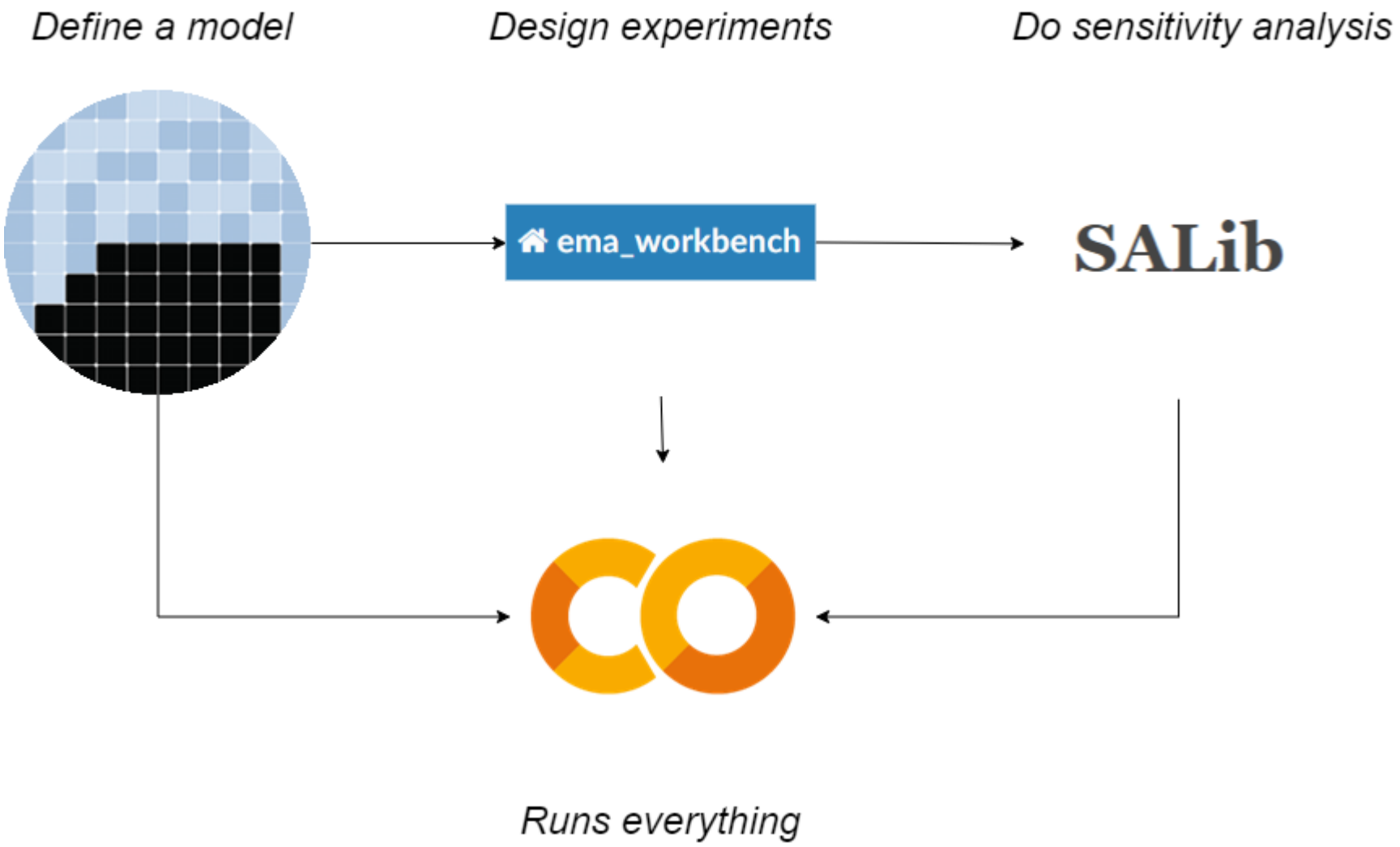
Find mice and tigers
in your model



“Technically”

Load the model ->
Design experiments ->
Analyse results ->
Interpretation

What are the tools?



Google Colab

What is Colaboratory?

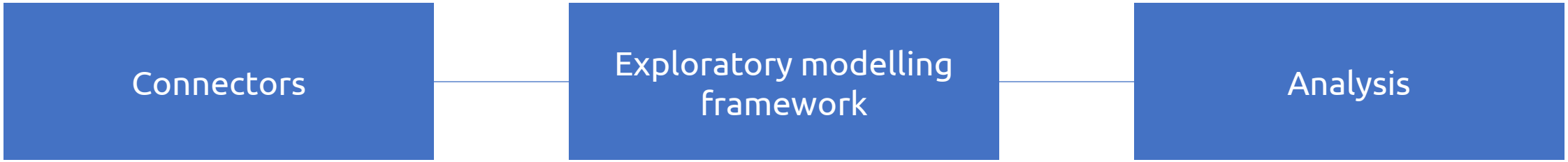
Colaboratory, or "Colab" for short, allows you to write and execute Python in your browser, with

- Zero configuration required
- Free access to GPUs
- Easy sharing

Whether you're a **student**, a **data scientist** or an **AI researcher**, Colab can make your work easier. Watch Introduction to Colab to learn more, or just get started below!


LET'S PRACTICE
imgflip.com

EMA Workbench: conceptual blocks

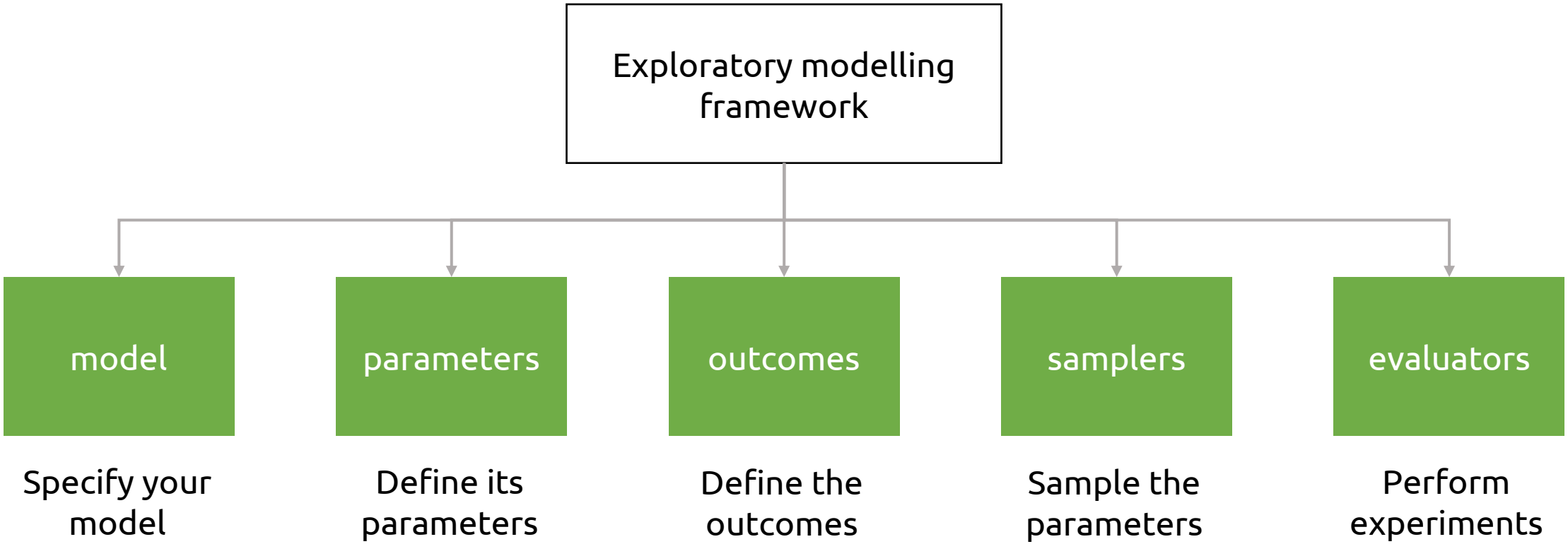


To connect NetLogo, Vensim, Excel models to Python

Define model parameters, outcomes, sampling, run experiments

To run Patient Rule Induction method, Classification Tree, …

EMA Workbench: software blocks




TIME TO PRACTICE?

EMA Workbench: which models?

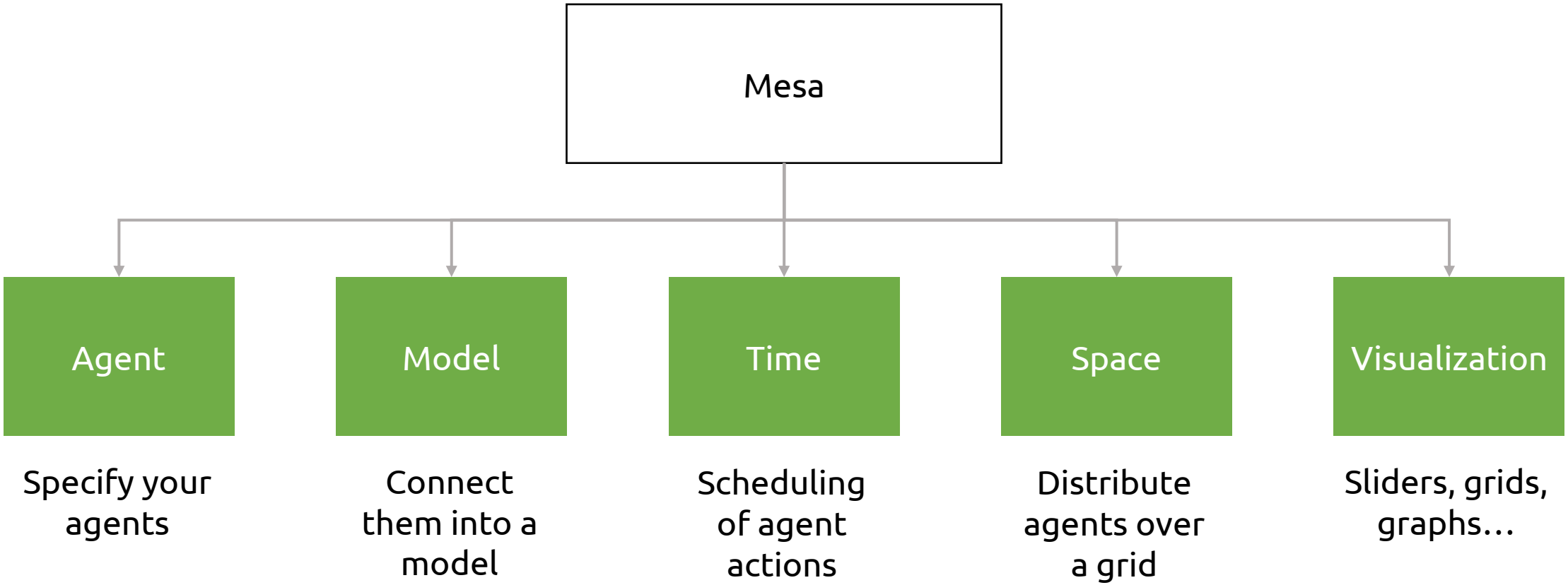
Mesa Agent-based modeling

Mesa: Agent-based modeling in Python 3+

Mesa is an Apache2 licensed agent-based modeling (or ABM) framework in Python.

It allows users to quickly create agent-based models using built-in core components (such as spatial grids and agent schedulers) or customized implementations; visualize them using a browser-based interface; and analyze their results using Python's data analysis tools. Its goal is to be the Python 3-based counterpart to NetLogo, Repast, or MASON.

Mesa: software blocks

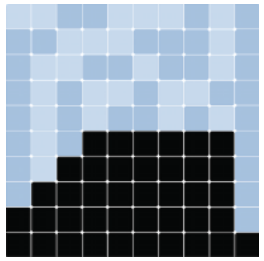


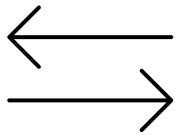
Mesa: Virus on a Network

Alternatives.to

ema_workbench

Rodium





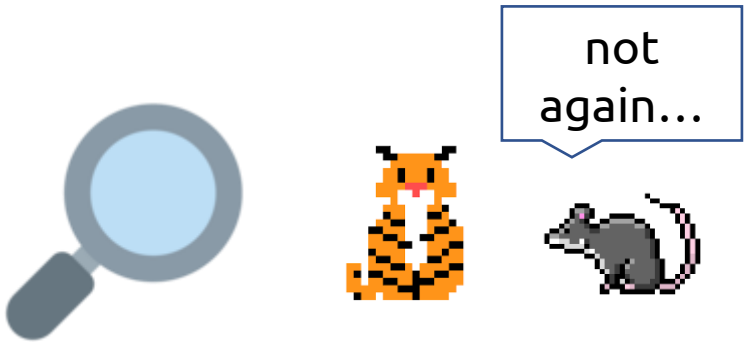
agentpy

Deepnote

What are we doing?

Conceptually

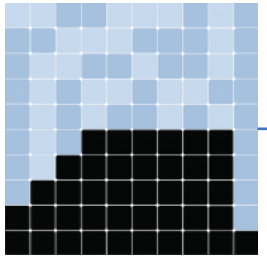
Find mice and tigers in your model



“Technically”

Load the model

Design and run experiments



ema_workbench

SALib

Perform Sobol SA

Setup I

kutt.it/sa-easy

Setup II

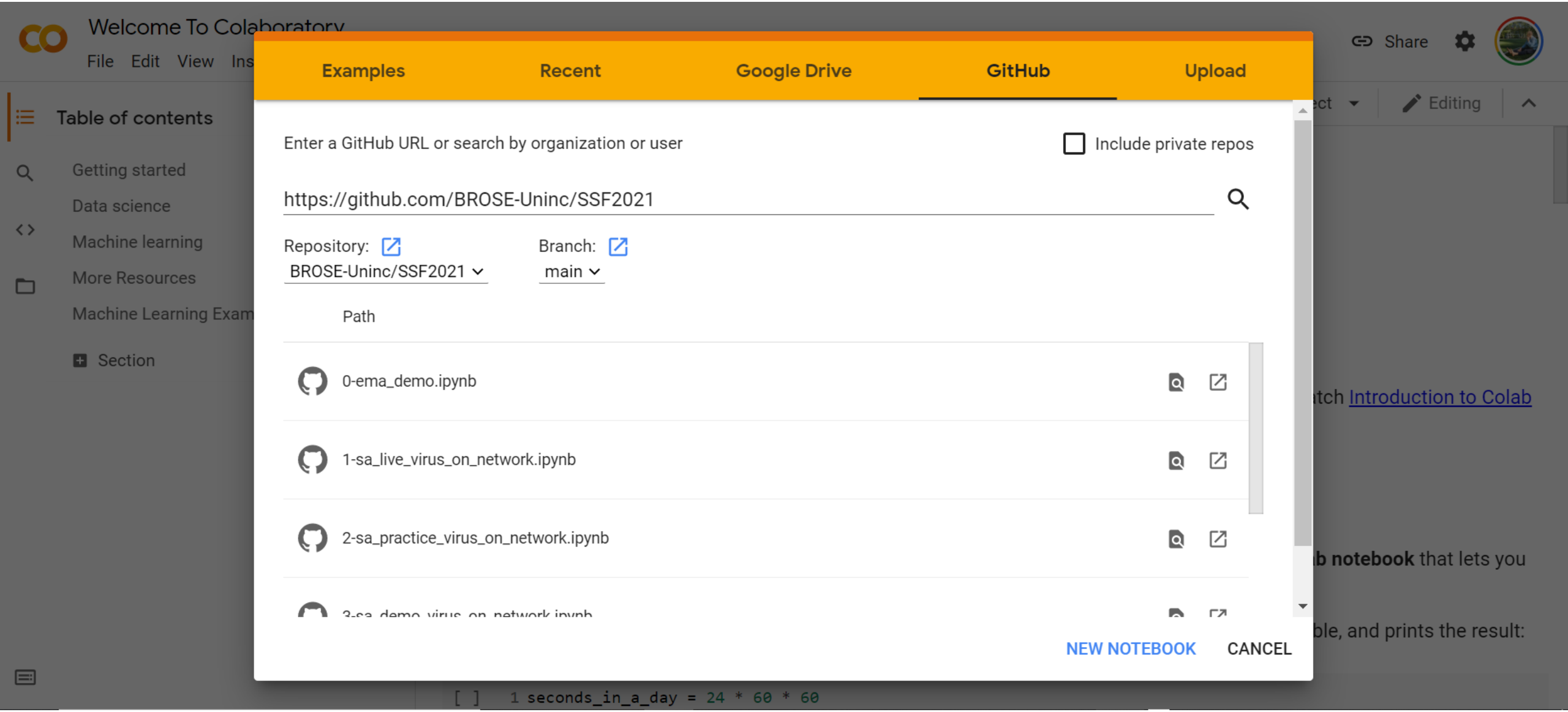
```
|   0-ema_demo.ipynb                        - short demo on how to use EMA Workbench
|   1-sa_live_virus_on_network.ipynb        - live-coding with Raphael Klein
|   2-sa_practice_virus_on_network.ipynb    - exercise for the participants
|   3-sa_demo_virus_on_network.ipynb        - complete SA on the Virus on a Network
|   4-sa_practice_wolf_sheep.ipynb          - second exercise for the participants
|   5-sa_demo_wolf_sheep.ipynb              - complete SA on the Wolf-Sheep
```

15-20 min

20-30 min

Bonus...


My job here is done.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Editing
Examples
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GitHub
Upload
Enter a GitHub URL or search by organization or user
Include private repos
https://github.com/BROSE-Uninc/SSF2021
Repository:
BROSE-Uninc/SSF2021
Branch:
main
Path
0-ema_demo.ipynb
1-sa_live_virus_on_network.ipynb
2-sa_practice_virus_on_network.ipynb
NEW NOTEBOOK
CANCEL
Introduction to Colab
notebook that lets you
ble, and prints the result:
[ ] 1 seconds_in_a_day = 24 * 60 * 60