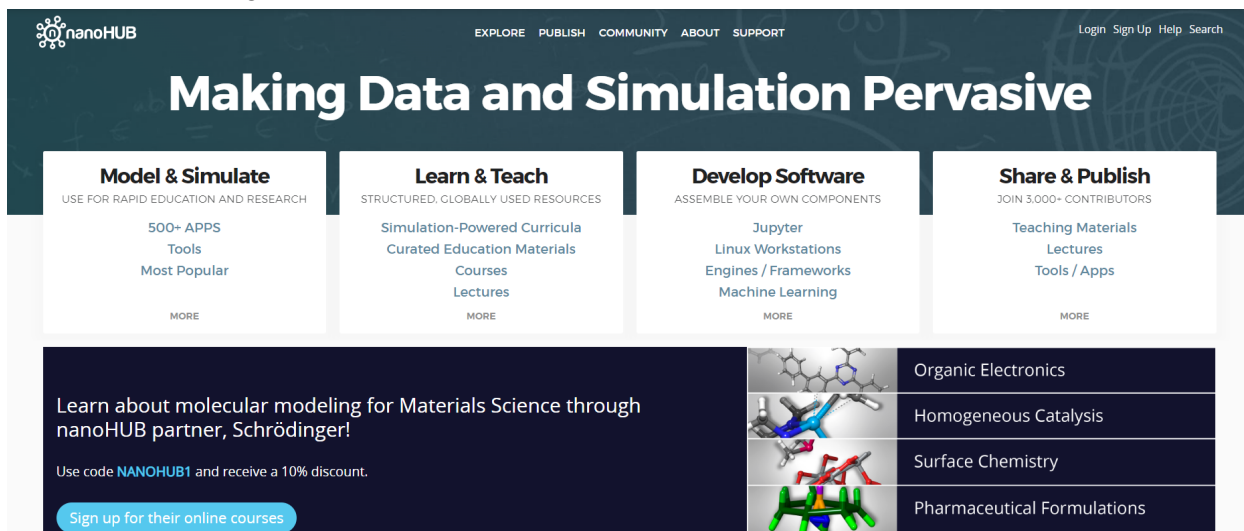


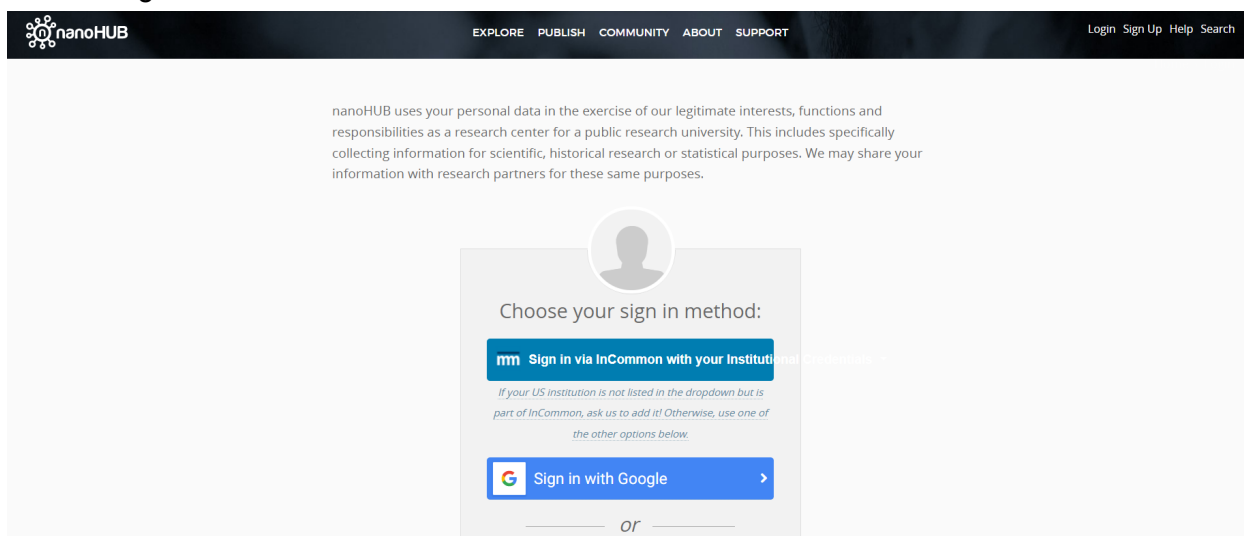
To Create an account on nanoHUB:

1. Go to nanoHUB.org



The screenshot shows the nanoHUB homepage with a dark blue header. The main navigation bar includes links for EXPLORE, PUBLISH, COMMUNITY, ABOUT, and SUPPORT. On the right, there are links for Login, Sign Up, Help, and Search. The main heading is "Making Data and Simulation Pervasive". Below this, there are four main sections: "Model & Simulate" (USE FOR RAPID EDUCATION AND RESEARCH), "Learn & Teach" (STRUCTURED, GLOBALLY USED RESOURCES), "Develop Software" (ASSEMBLE YOUR OWN COMPONENTS), and "Share & Publish" (JOIN 3,000+ CONTRIBUTORS). Each section lists various resources and a "MORE" link. At the bottom, there is a promotional banner for Schrödinger, stating "Learn about molecular modeling for Materials Science through nanoHUB partner, Schrödinger!" and offering a 10% discount with code NANOHUB1. To the right of the banner are four categories: Organic Electronics, Homogeneous Catalysis, Surface Chemistry, and Pharmaceutical Formulations, each with a corresponding molecular model image.

2. Click on log in



The screenshot shows the nanoHUB login page. The header is identical to the homepage. The main content area has a light gray background. At the top, there is a privacy notice: "nanoHUB uses your personal data in the exercise of our legitimate interests, functions and responsibilities as a research center for a public research university. This includes specifically collecting information for scientific, historical research or statistical purposes. We may share your information with research partners for these same purposes." Below this is a user profile icon. The main heading is "Choose your sign in method:". There are two primary sign-in buttons: "Sign in via InCommon with your Institution" and "Sign in with Google". Below the InCommon button, there is a note: "If your US institution is not listed in the dropdown but is part of InCommon, ask us to add it! Otherwise, use one of the other options below." At the bottom, there is a link for "Forgot your password?" and a separator line with the word "or" in the center.

3. Scroll down where it says create an account, and click on it

CONNECT WITH

Sign in via InCommon with your Institutional Credentials

If your US institution is not listed in the dropdown but is part of InCommon, ask us to add it! Otherwise, use one of the other options below.

Sign in with Google

--- OR ---

CREATE A NANOHUB ACCOUNT

Username **REQUIRED**

You can choose to log in via one of these services, and we'll help you fill in the info below!

Already have an account? [Log in here.](#)

Usernames cannot be changed. If this poses a serious problem or raises concerns please contact our [support](#).

Password may be changed any time after

4. Click on the first box that says “Sign in via InCommon with your Institutional Credentials”

CONNECT WITH

Sign in via InCommon with your Institutional Credentials

Search

part of InCommon, ask us to add it! Otherwise, use one of the other options below.

AGH University of Science and Technology

Albert Einstein College of Medicine

American University of Sharjah

Ames Laboratory

Amherst College

AMOLF

Appalachian State University

--- OR ---

CREATE A NANOHUB ACCOUNT

Username **REQUIRED**

You can choose to log in via one of these services, and we'll help you fill in the info below!

Already have an account? [Log in here.](#)

Usernames cannot be changed. If this poses a serious problem or raises concerns please contact our [support](#).

Password may be changed any time after

5. Type “Northern Illinois University” into the search bar

nanohUB

EXPLORE PUBLISH COMMUNITY ABOUT SUPPORT

Login Sign Up Help Search

Home > Register > Create New Account

Create New Account

CONNECT WITH

Sign in via InCommon with your Institutional Credentials

Northern Illinois University

Is not listed in the dropdown but is part of InCommon, ask us to add it! Otherwise, use one of the other options below.

Northern Illinois University

You can choose to log in via one of these services, and we'll help you fill in the info below!

Already have an account? Log in here.

--- OR ---

CREATE A NANOHUB ACCOUNT

Username **REQUIRED**

Usernames cannot be changed. If this poses a serious problem or raises concerns please contact our support.

Password may be changed any time after

6. Click on the option that appears

Northern Illinois University

NIU

Login to nanoHUB.org

Username

> Forgot your password?

> Need Help?

Password

☐ Don't Remember Login

☐ Clear prior granting of permission for release of your information to this service.

Login

nanohUB

7. Type your Zid into the username and your MyNIU password into the password
8. Click login



**Northern Illinois
University**



You are about to access the service:
nanoHUB.org of Purdue University Main
Campus

Description as provided by this service:

Online simulation and more for nanotechnology.

[Additional information about the service](#)

Information to be Provided to Service

Display name	Maria Corzo
Principal name	Z1911431@niu.edu
Given name	Maria
E-mail	Z1911431@students.niu.edu
surname	Corzo

[Data privacy information of the service](#)

The information above would be shared with the service if you proceed. Do you agree to release this information to the service every time you access it?

The information above would be shared with the service if you proceed. Do you agree to release this information to the service every time you access it?

Select an information release consent duration:

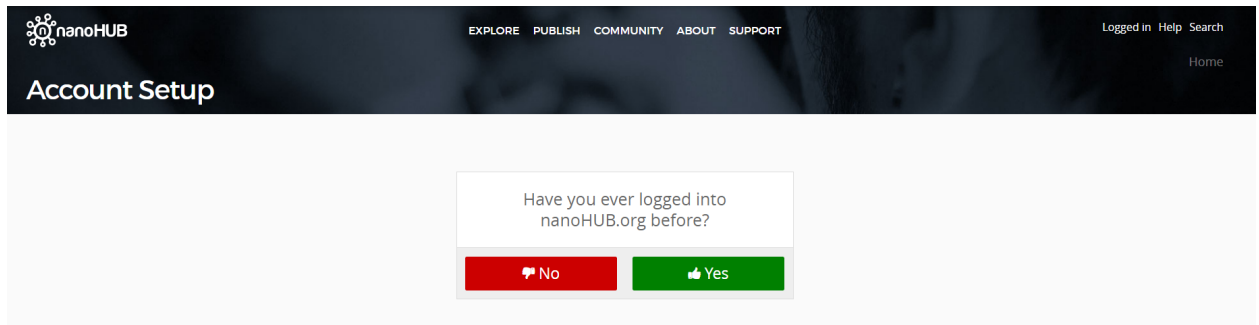
- ☐ Ask me again at next login
 - I agree to send my information this time.
- ☒ Ask me again if information to be provided to this service changes
 - I agree that the same information will be sent automatically to this service in the future.
- ☐ Do not ask me again
 - I agree that **all** of my information will be released to **any** service.

This setting can be revoked at any time with the checkbox on the login page.

Reject

Accept

9. Select any of the options from the information release consent duration, and then click Accept



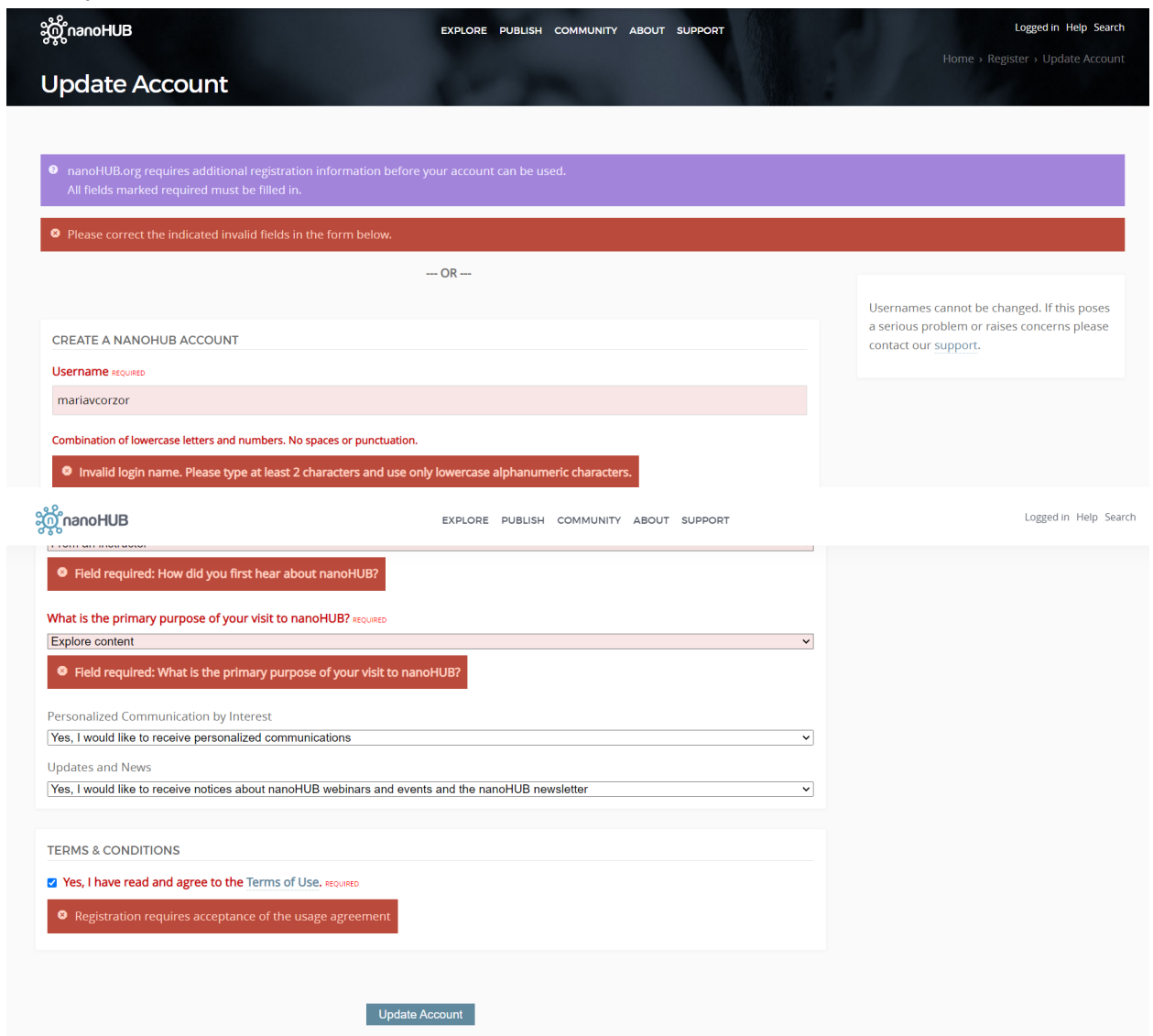
nanoHUB EXPLORE PUBLISH COMMUNITY ABOUT SUPPORT Logged in Help Search Home

Account Setup

Have you ever logged into nanoHUB.org before?

No Yes

10. Select yes or no



nanoHUB EXPLORE PUBLISH COMMUNITY ABOUT SUPPORT Logged in Help Search Home > Register > Update Account

nanoHUB.org requires additional registration information before your account can be used. All fields marked required must be filled in.

Please correct the indicated invalid fields in the form below.

--- OR ---

CREATE A NANOHUB ACCOUNT

Username REQUIRED

mariavcorzor

Combination of lowercase letters and numbers. No spaces or punctuation.

Invalid login name. Please type at least 2 characters and use only lowercase alphanumeric characters.

Names cannot be changed. If this poses a serious problem or raises concerns please contact our [support](#).

What is the primary purpose of your visit to nanoHUB? REQUIRED

Explore content

Field required: What is the primary purpose of your visit to nanoHUB?

Personalized Communication by Interest

Yes, I would like to receive personalized communications

Updates and News

Yes, I would like to receive notices about nanoHUB webinars and events and the nanoHUB newsletter

TERMS & CONDITIONS

☒ Yes, I have read and agree to the [Terms of Use](#). REQUIRED

Registration requires acceptance of the usage agreement

Update Account

11. Fill out the required information, start by changing your username then once all the required information is filled out click on update account
12. You will receive an Account Confirmation email to your student account, click on the link in the email to confirm your account

nanoHUB.org Account Confirmation



Account Confirmation

Created: 2023-05-27 20:20:43 (UTC)

Name: Maria Corzo;maria Corzo

Username: mariavcorzor

This message is to confirm the email address for the account on nanoHUB.org! You must click the activation link to confirm your email address and activate your account. After clicking the link, you will be asked to login. Use the credentials you registered with this account and you're done!

<https://nanohub.org/members/confirm?confirm=939865522&email=Z1911431@students.niu.edu>

nanoHUB.org sent this email because you were added to the list of recipients on <https://nanohub.org/>. Visit our [Privacy Policy](#) and [Support Center](#) if you have any questions.

13. Now you have an account in nanoHUB where you can access Jupyter Notebook, to find it hover mouse over Explore to open the drop down menu, then click on tools.

The image shows two screenshots of the nanoHUB website. The top screenshot displays the main navigation bar with the 'EXPLORE' menu open, showing options like 'What's New', 'Tools', 'Education Center', 'Resources', 'Courses', 'nanoHUB-U', 'Tags', and 'Citations'. Below the navigation bar, there are four main sections: 'Model & Simulate', 'Learn', 'Develop Software', and 'Share & Publish'. The 'Learn' section is highlighted, showing 'Simulation' and 'Curated Ex'. Below these sections, there is a banner for 'Learn about molecular modeling for Materials Science through nanoHUB partner, Schrödinger!' with a 'Sign up for their online courses' button. The bottom screenshot shows the 'Resources: Tools' page, which has a search bar and a list of tools including '1-D Chain Dispersions', '1-D Phonon BTE Solver', and '1D Drift Diffusion Model for Crystalline Solar Cells'.

Top Screenshot: nanoHUB Home Page

Logo: nanoHUB

Navigation: EXPLORE PUBLISH COMMUNITY ABOUT SUPPORT

Logged in Help Search

Making Data Simulation Pervasive

Model & Simulate
USE FOR RAPID EDUCATION AND RESEARCH
500+ APPS
Tools
Most Popular
MORE

Learn
STRUCTURED, CL
Simulation
Curated Ex
Courses
nanoHUB-U
Tags
Citations
Courses
Lectures
MORE

Develop Software
ASSEMBLE YOUR OWN COMPONENTS
Jupyter
Linux Workstations
Engines / Frameworks
Machine Learning
MORE

Share & Publish
JOIN 3,000+ CONTRIBUTORS
Teaching Materials
Lectures
Tools / Apps
MORE

Learn about molecular modeling for Materials Science through nanoHUB partner, Schrödinger!
Use code **NANOHUB1** and receive a 10% discount.
[Sign up for their online courses](#)

<https://nanohub.org/overview/explore>

Bottom Screenshot: Resources: Tools

EXPLORE PUBLISH COMMUNITY ABOUT SUPPORT

Logged in Help Search

Home > Resources > Tools

[Start a new Tool](#)

Browse Browse by Tags Browse Visually

search tools

[1-D Chain Dispersions](#)
1-D Chain of atoms, bases and layers to produce phonon dispersion

[1-D Phonon BTE Solver](#)
Simulate heat transport by solving one dimensional Boltzmann transport equation.

[1D Drift Diffusion Model for Crystalline Solar Cells](#)
Simulate a 1D solar cell of crystalline material with drift diffusion equations

14. Search jupyter notebook on search bar

The screenshot shows the nanoHUB website's 'Resources: Tools' section. At the top, there's a navigation bar with links: EXPLORE, PUBLISH, COMMUNITY, ABOUT, SUPPORT. On the right, it says 'Logged in Help Search'. Below the navigation bar, the page title is 'Resources: Tools'. There are three tabs: 'Browse', 'Browse by Tags', and 'Browse Visually'. A search bar contains the text 'jupyter notebook'. Below the search bar, there are three search results:


- [Bayesian optimization tutorial using Jupyter notebook](#)
Active learning via Bayesian optimization for materials discovery
- [Jupyter Examples - Jupyter Notebook \(202105\)](#)
Users Manual and Examples for Jupyter
- [Jupyter Notebook \(201707\)](#)
Starts the Jupyter notebook server in your home directory.

15. Scroll down to find Jupyter Notebook (202105), the newest version.

This screenshot shows a scrollable list of Jupyter Notebook resources on the nanoHUB website. The list includes:

- [Bayesian optimization tutorial using Jupyter notebook](#)
Active learning via Bayesian optimization for materials discovery
- [Jupyter Examples - Jupyter Notebook \(202105\)](#)
Users Manual and Examples for Jupyter
- [Jupyter Notebook \(201707\)](#)
Starts the Jupyter notebook server in your home directory.
- [Jupyter Notebook \(201708\)](#)
Starts the Jupyter notebook server in your home directory.
- [Jupyter Notebook \(201803\)](#)
Starts the Jupyter notebook server in your home directory.
- [Jupyter Notebook \(201904\)](#)
Starts the Jupyter notebook server in your home directory.
- [Jupyter Notebook \(202105\)](#)
Starts the Jupyter notebook server in your home directory.
- [Jupyter Notebook \(Deprecated\)](#)

16. Click on Jupyter Notebook (202105)

EXPLORE PUBLISH COMMUNITY ABOUT SUPPORT

Logged in Help Search

Home > Tools > Jupyter Notebook (202105) > About

Collect

Jupyter Notebook (202105)

Starts the Jupyter notebook server in your home directory.

Launch Tool

Version 2.0 - published on 24 Jan 2023
doi:10.21981/5SP6-9N34 [cite this](#)
This tool is closed source.
[View All Supporting Documents](#)

701 users, detailed usage

0 Citation(s)

0 questions ([Ask a question](#))

0 review(s) ([Review this](#))

0 wish(es) ([New Wish](#))


Share: [f](#) [t](#) [v](#) [p](#) ...

About Usage Citations Questions Reviews Wishlist Versions Supporting Docs

Category: Tools

Published on: 24 Jan 2023

17. Click on Launch Tool, and it will redirect you to the following page

Jupyter

Submit a ticket Terminate Session

Files Running

Select items to perform actions on them.

Upload New

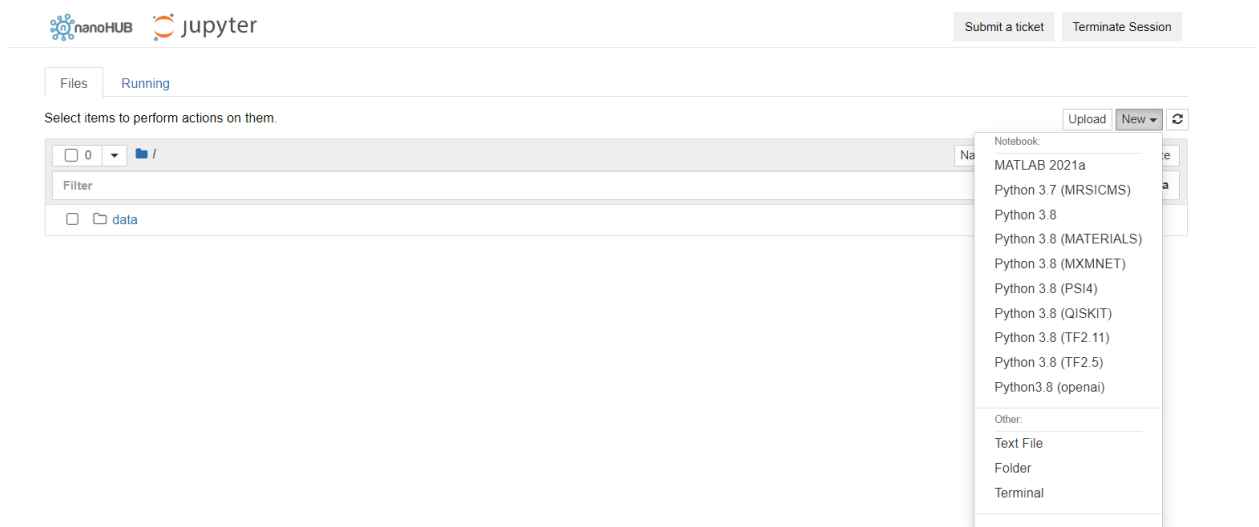
0 /

Name Last Modified File size

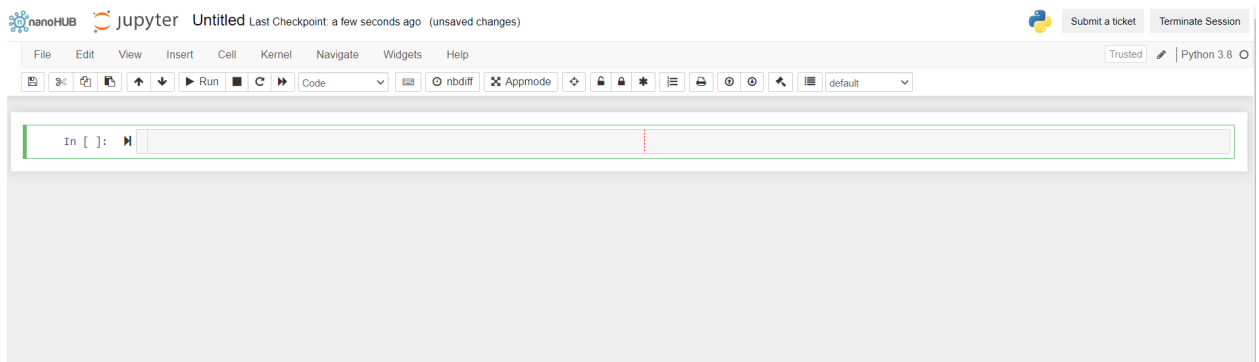
Filter

seconds ago

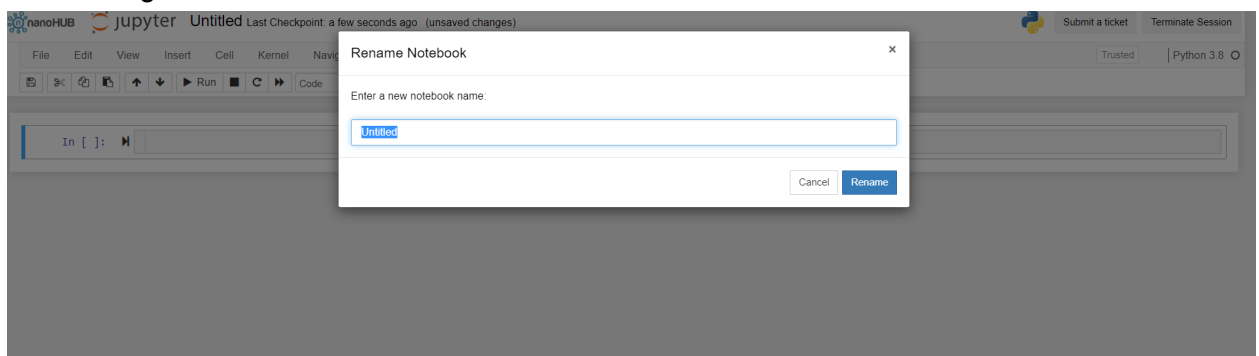
18. To create a new file click on New



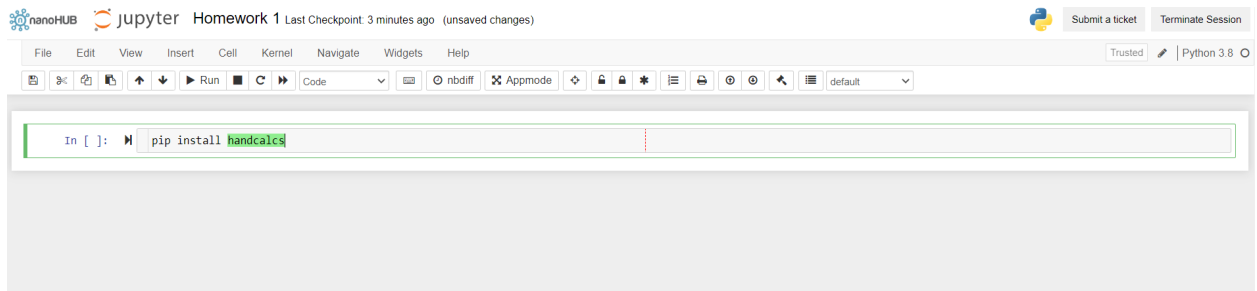
19. Then click on Python 3.8



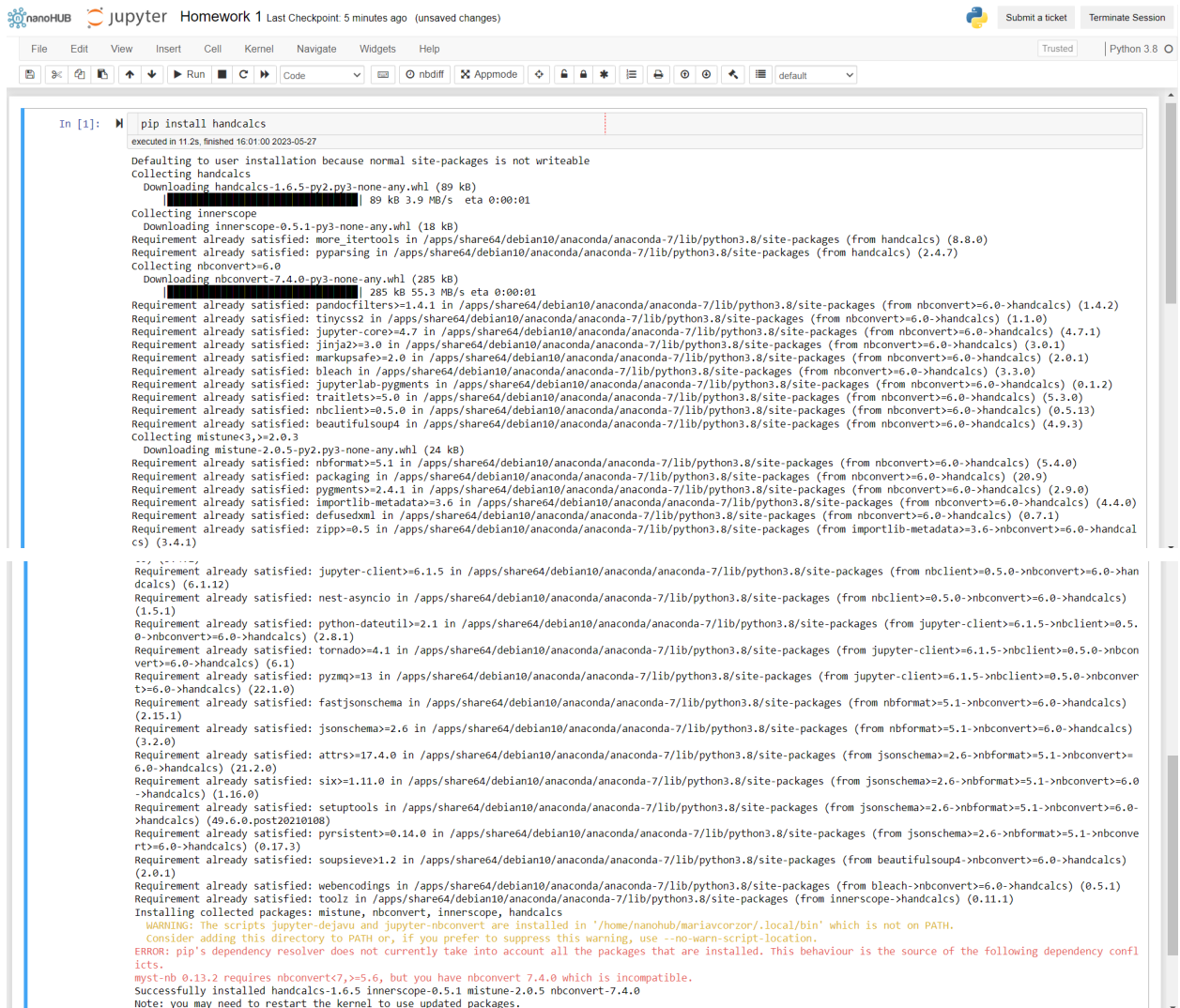
20. You can rename this notebook by clicking on Untitled, then typing on the new pop-up bar and clicking rename.



21. To use Handcalcs, you must download the library onto the Jupyter system, to do this type : “pip install handcalcs” and either click run on the menu above or the arrow next to the bar

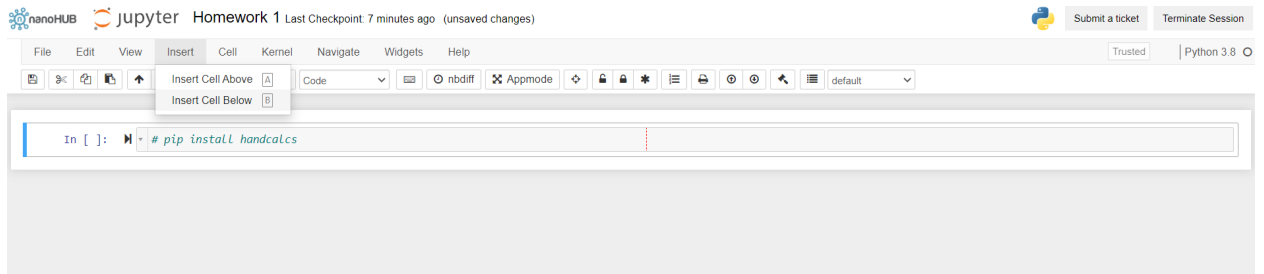


22. This will run the command and download the library, which will look like the following:



23. This only needs to be done once, and afterwards refresh the page

24. To add another cell, click on insert and then cell below or on the downward arrow next to the printer in the menu

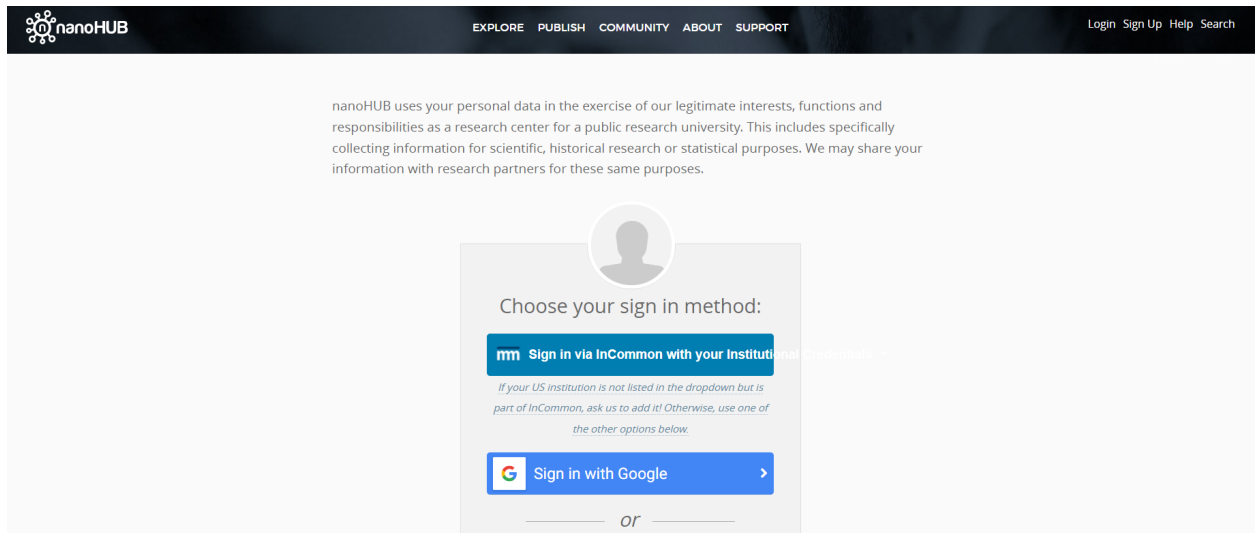


25. Now you can use the tools available in the Handcalcs library

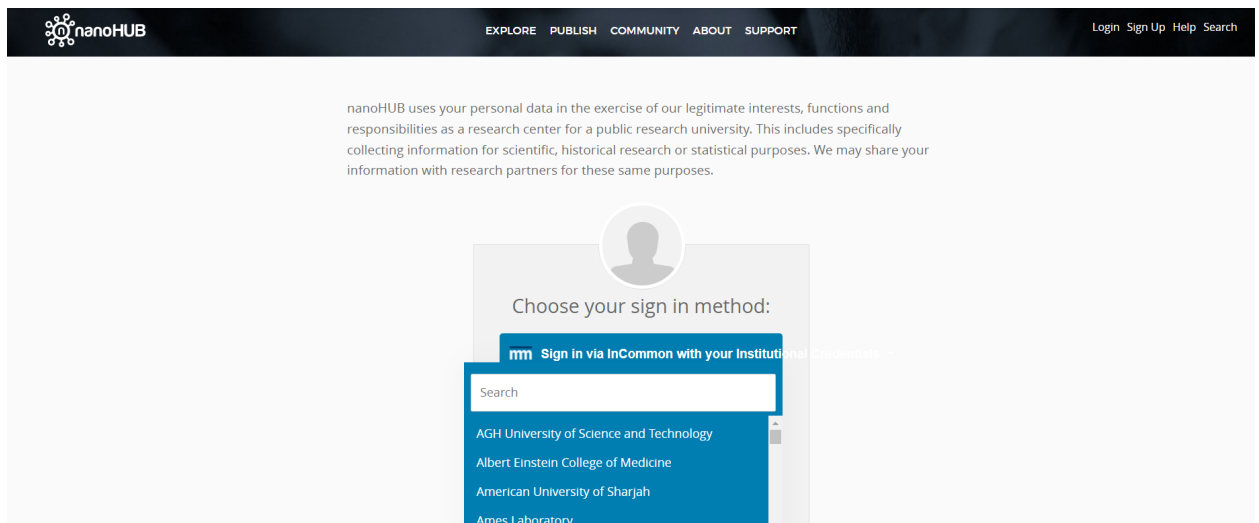
```
In [2]: %render
x = 5
y = 6
# run the code below in a new Jupyter cell
z = x + y
executed in 31ms, finished 16:08:22 2023-05-27
x = 5
y = 6
z = x + y = 5 + 6 = 11
```

To log into an already created account:

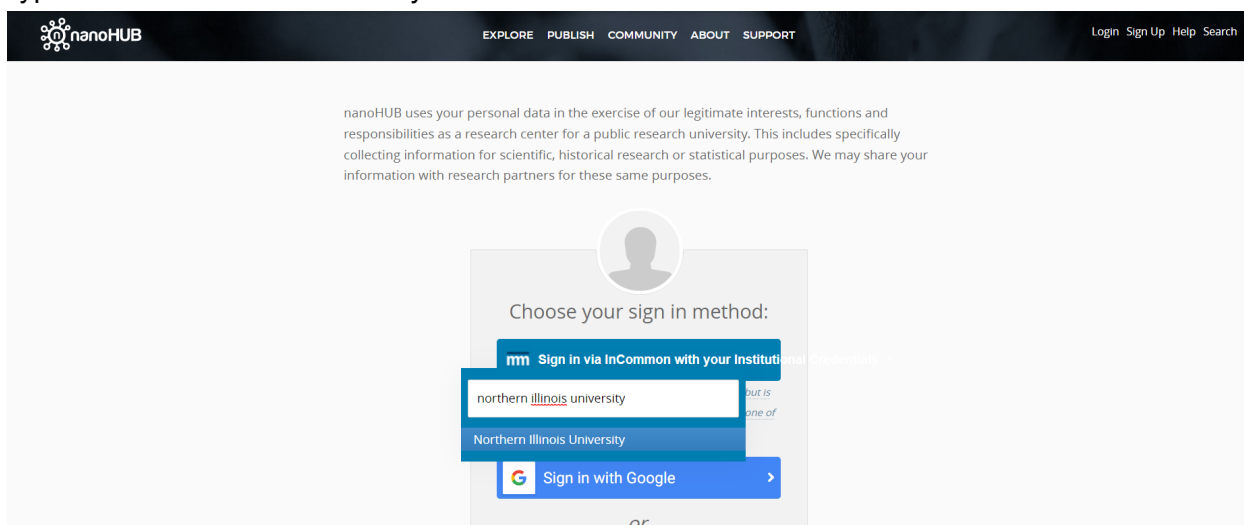
1. Click log in on the nanoHUB.org website



2. Then click on the first box under Choose your sign in method, “Sign in via InCommon with your Institutional Credentials”

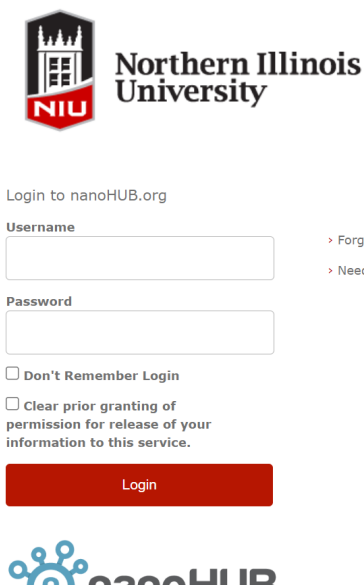


3. Type “Northern Illinois University” into the search bar




The screenshot shows the nanoHUB website's login interface. At the top, there is a dark navigation bar with the nanoHUB logo on the left and links for EXPLORE, PUBLISH, COMMUNITY, ABOUT, and SUPPORT on the right. Below the navigation bar, a privacy notice states: "nanoHUB uses your personal data in the exercise of our legitimate interests, functions and responsibilities as a research center for a public research university. This includes specifically collecting information for scientific, historical research or statistical purposes. We may share your information with research partners for these same purposes." The main content area features a sign-in prompt: "Choose your sign in method:". Below this, there are two primary options: "Sign in via InCommon with your Institutional Credentials" and "Sign in with Google". The InCommon option is currently selected, and a search bar within it contains the text "northern illinois university". A dropdown menu is open below the search bar, displaying "Northern Illinois University" as a suggestion. The Google option includes a right-pointing arrow. At the bottom of the sign-in area, there is a separator line with the word "OR" in the center.


4. Click on the option that appears



This screenshot displays the login page for Northern Illinois University on the nanoHUB.org platform. At the top left is the Northern Illinois University logo, which consists of a red shield with a white building icon and the letters "NIU" in white, followed by the text "Northern Illinois University" in a bold, black, sans-serif font. Below the logo, the text "Login to nanoHUB.org" is centered. The login form includes a "Username" field, a "Password" field, and a "Login" button. To the right of the password field, there are two links: "> Forgot your password?" and "> Need Help?". Below the password field, there are two checkboxes: "Don't Remember Login" and "Clear prior granting of permission for release of your information to this service." At the bottom of the page, the nanoHUB logo is displayed, featuring a stylized blue molecular structure icon and the text "nanoHUB" in a bold, blue, sans-serif font.

5. Type your Zid into the username and your MyNIU password into the password
6. Click login

**Northern Illinois University**

**nanoHUB**

You are about to access the service:
nanoHUB.org of Purdue University Main Campus

Description as provided by this service:
Online simulation and more for nanotechnology.

[Additional information about the service](#)

Information to be Provided to Service	
Display name	Maria Corzo
Principal name	Z1911431@niu.edu
Given name	Maria
E-mail	Z1911431@students.niu.edu
surname	Corzo

[Data privacy information of the service](#)

The information above would be shared with the service if you proceed. Do you agree to release this information to the service every time you access it?

The information above would be shared with the service if you proceed. Do you agree to release this information to the service every time you access it?

Select an information release consent duration:

☐ Ask me again at next login

- I agree to send my information this time.

☒ Ask me again if information to be provided to this service changes

- I agree that the same information will be sent automatically to this service in the future.

☐ Do not ask me again

- I agree that **all** of my information will be released to **any** service.

This setting can be revoked at any time with the checkbox on the login page.

Reject

Accept

7. Select any of the options from the information release consent duration, and then click Accept

If you have not used nanoHUB before look for Jupyter Notebook by:

1. Hovering your mouse over Explore to open the drop down menu, then click on tools.

The top screenshot shows the nanoHUB homepage with the 'Explore' dropdown menu open. The menu options are: What's New, Tools, Education Center, Resources, Courses, nanoHUB-U, Tags, Citations, Courses, and Lectures. The 'Tools' option is highlighted. The homepage also features sections for 'Model & Simulate', 'Learn', 'Develop Software', and 'Share & Publish'. A banner for Schrödinger molecular modeling is also visible.

The bottom screenshot shows the 'Resources: Tools' page. It has a search bar labeled 'search tools' and a list of tools:

- [1-D Chain Dispersions](#)
1-D Chain of atoms, bases and layers to produce phonon dispersion
- [1-D Phonon BTE Solver](#)
Simulate heat transport by solving one dimensional Boltzmann transport equation.
- [1D Drift Diffusion Model for Crystalline Solar Cells](#)
Simulate a 1D solar cell of crystalline material with drift diffusion equations

2. Search jupyter notebook on search bar

The screenshot shows the nanoHUB website's 'Resources: Tools' section. At the top, there's a navigation bar with links for EXPLORE, PUBLISH, COMMUNITY, ABOUT, and SUPPORT. On the right, it says 'Logged in Help Search' and 'Home > Resources > Tools'. Below the navigation bar, there's a search bar with the text 'jupyter notebook' entered. Below the search bar, there are three search results listed:

- [Bayesian optimization tutorial using Jupyter notebook](#)
Active learning via Bayesian optimization for materials discovery
- [Jupyter Examples - Jupyter Notebook \(202105\)](#)
Users Manual and Examples for Jupyter
- [Jupyter Notebook \(201707\)](#)
Starts the Jupyter notebook server in your home directory.

3. Scroll down to find Jupyter Notebook (202105), the newest version.

This screenshot shows the same search results as the previous one, but with more results visible due to scrolling. The results are:

- [Bayesian optimization tutorial using Jupyter notebook](#)
Active learning via Bayesian optimization for materials discovery
- [Jupyter Examples - Jupyter Notebook \(202105\)](#)
Users Manual and Examples for Jupyter
- [Jupyter Notebook \(201707\)](#)
Starts the Jupyter notebook server in your home directory.
- [Jupyter Notebook \(201708\)](#)
Starts the Jupyter notebook server in your home directory.
- [Jupyter Notebook \(201803\)](#)
Starts the Jupyter notebook server in your home directory.
- [Jupyter Notebook \(201904\)](#)
Starts the Jupyter notebook server in your home directory.
- [Jupyter Notebook \(202105\)](#)
Starts the Jupyter notebook server in your home directory.
- [Jupyter Notebook \(Deprecated\)](#)

4. Click on Jupyter Notebook (202105)

The screenshot shows the nanoHUB interface for the Jupyter Notebook (202105) tool. At the top, there's a navigation bar with links: EXPLORE, PUBLISH, COMMUNITY, ABOUT, SUPPORT. The user is logged in. The main header displays the tool name 'Jupyter Notebook (202105)' and a 'Collect' button. Below the header, a description states: 'Starts the Jupyter notebook server in your home directory.' A prominent 'Launch Tool' button is present. To the right of the button, it says 'Version 2.0 - published on 24 Jan 2023' and provides a DOI: 10.21981/5SP6-9N34. A note indicates 'This tool is closed source.' and a link to 'View All Supporting Documents'. On the far right, a statistics box shows: 701 users, detailed usage; 0 Citation(s); 0 questions (Ask a question); 0 review(s) (Review this); 0 wish(es) (New Wish). Below this is a 'Share' button with social media icons. A horizontal menu bar contains tabs: About, Usage, Citations, Questions, Reviews, Wishlist, Versions, and Supporting Docs. At the bottom, it shows the category 'Tools' and the publication date '24 Jan 2023'.

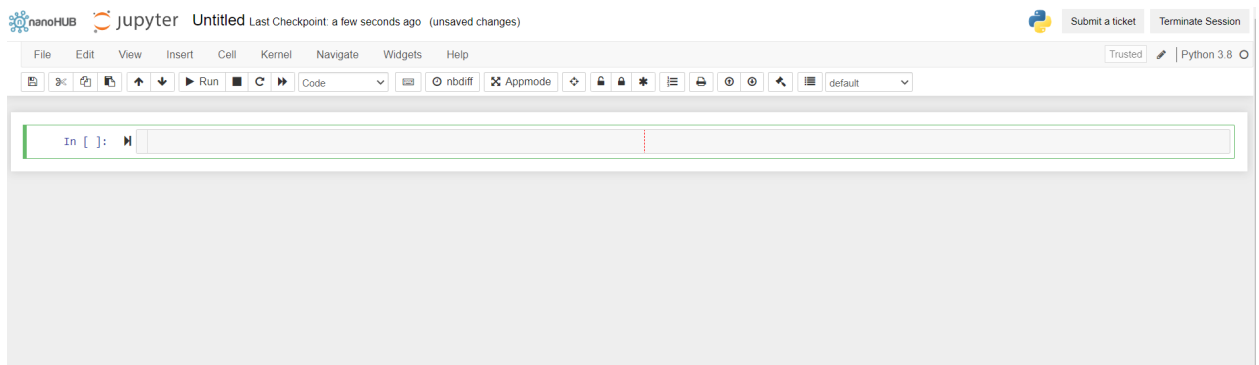
5. Click on Launch Tool, and it will redirect you to the following page

The screenshot shows the nanoHUB Jupyter interface after launching the tool. The top bar includes the nanoHUB and Jupyter logos, and buttons for 'Submit a ticket' and 'Terminate Session'. Below the logos are tabs for 'Files' and 'Running'. The main area is titled 'Select items to perform actions on them.' and contains a file manager interface. It shows a directory structure with a root folder '/' and a subfolder 'data'. The 'data' folder is selected. The interface includes a search bar, a filter input, and a table with columns for 'Name', 'Last Modified', and 'File size'. The 'data' folder is listed with a timestamp of 'seconds ago'.

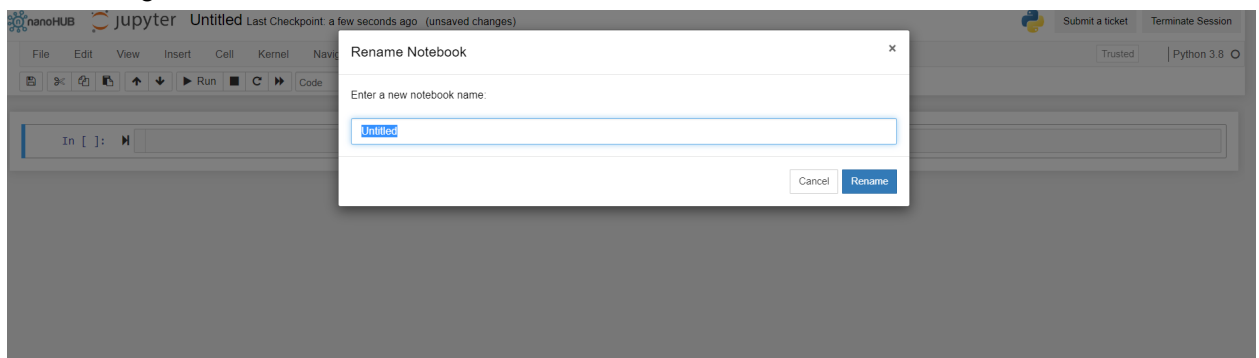
6. To create a new file click on New

The screenshot shows the nanoHUB Jupyter interface with the 'New' dropdown menu open. The menu lists various options for creating a new file or folder. The options are: Notebook, MATLAB 2021a, Python 3.7 (MRSICMS), Python 3.8, Python 3.8 (MATERIALS), Python 3.8 (MXMNET), Python 3.8 (PSI4), Python 3.8 (QISKIT), Python 3.8 (TF2.11), Python 3.8 (TF2.5), Python3.8 (openai), Other: Text File, Folder, and Terminal. The 'New' button is highlighted in the top right corner of the file manager interface.

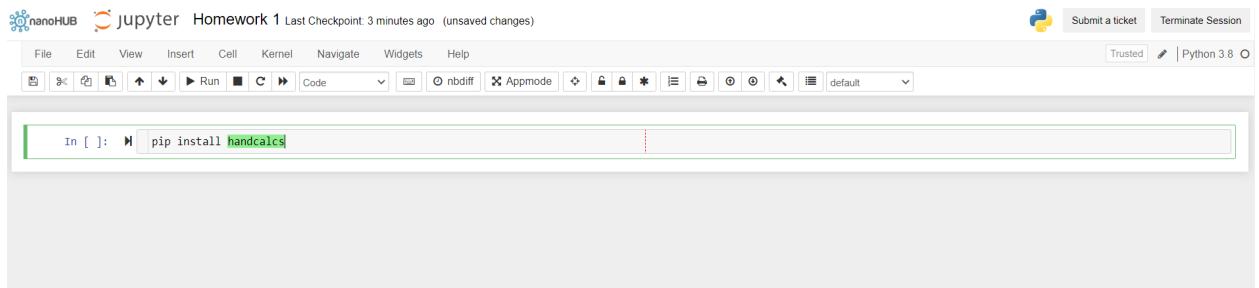
7. Then click on Python 3.8



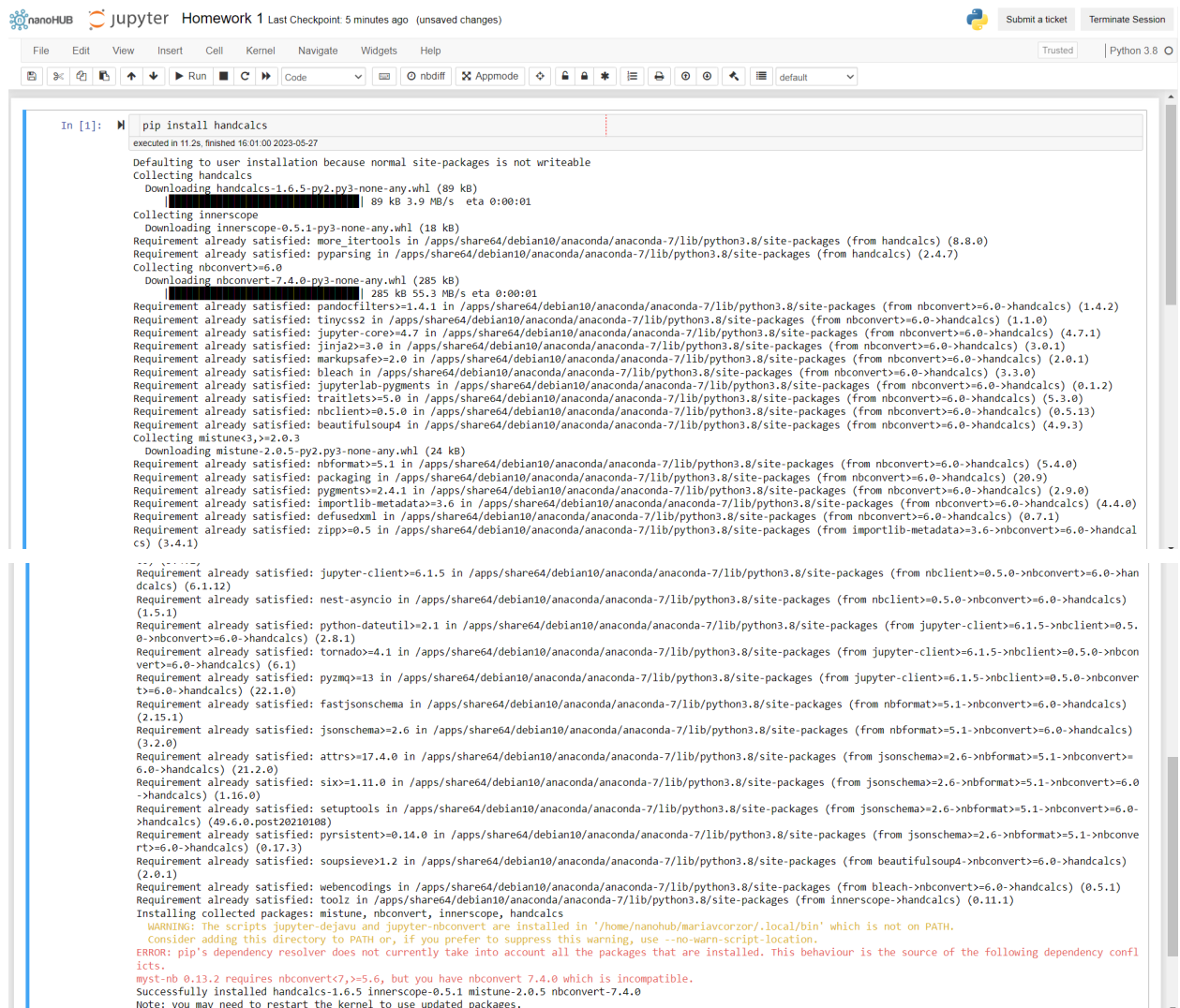
8. You can rename this notebook by clicking on Untitled, then typing on the new pop-up bar and clicking rename.



9. To use Handcalcs, you must download the library onto the Jupyter system, to do this type : “pip install handcalcs” and either click run on the menu above or the arrow next to the bar



10. This will run the command and download the library, which will look like the following:

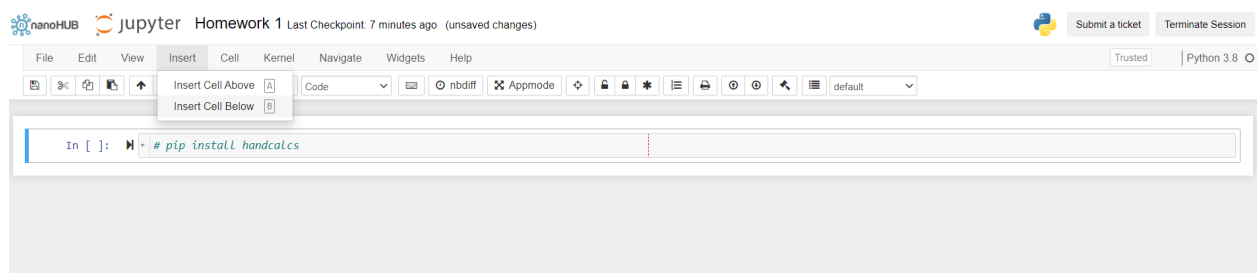


The screenshot shows a Jupyter Notebook interface with a single code cell. The cell contains the command `pip install handcalcs`. The output of this command is displayed below the cell, showing the installation process for `handcalcs` and its dependencies. The output includes the following information:

- Defaulting to user installation because normal site-packages is not writeable
- Collecting `handcalcs`
- Downloading `handcalcs-1.6.5-py2.py3-none-any.whl` (89 kB)
- Requirement already satisfied: `nbconvert<7.4.0-py3-none-any.whl` (285 kB)
- Requirement already satisfied: `pandocfilters>=1.4.1` in `/apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages` (from `nbconvert>=6.0->handcalcs`) (1.4.2)
- Requirement already satisfied: `tinycss2` in `/apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages` (from `nbconvert>=6.0->handcalcs`) (1.1.0)
- Requirement already satisfied: `jupyter-core>=4.7` in `/apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages` (from `nbconvert>=6.0->handcalcs`) (4.7.1)
- Requirement already satisfied: `jinja2>=3.0` in `/apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages` (from `nbconvert>=6.0->handcalcs`) (3.0.1)
- Requirement already satisfied: `markupsafe>=2.0` in `/apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages` (from `nbconvert>=6.0->handcalcs`) (2.0.1)
- Requirement already satisfied: `bleach` in `/apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages` (from `nbconvert>=6.0->handcalcs`) (3.3.0)
- Requirement already satisfied: `jupyterlab-pygments` in `/apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages` (from `nbconvert>=6.0->handcalcs`) (0.1.2)
- Requirement already satisfied: `traitlets>=5.0` in `/apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages` (from `nbconvert>=6.0->handcalcs`) (5.3.0)
- Requirement already satisfied: `nbclient>=0.5.0` in `/apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages` (from `nbconvert>=6.0->handcalcs`) (0.5.13)
- Requirement already satisfied: `beautifulsoup4` in `/apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages` (from `nbconvert>=6.0->handcalcs`) (4.9.3)
- Collecting `mistune>=2.0.3`
- Downloading `mistune-2.0.5-py2.py3-none-any.whl` (24 kB)
- Requirement already satisfied: `nbformat>=5.1` in `/apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages` (from `nbconvert>=6.0->handcalcs`) (5.4.0)
- Requirement already satisfied: `packaging` in `/apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages` (from `nbconvert>=6.0->handcalcs`) (20.9)
- Requirement already satisfied: `pygments>=2.4.1` in `/apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages` (from `nbconvert>=6.0->handcalcs`) (2.9.0)
- Requirement already satisfied: `importlib-metadata>=3.6` in `/apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages` (from `nbconvert>=6.0->handcalcs`) (4.4.0)
- Requirement already satisfied: `defusedxml` in `/apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages` (from `nbconvert>=6.0->handcalcs`) (0.7.1)
- Requirement already satisfied: `zipp>=0.5` in `/apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages` (from `importlib-metadata>=3.6->nbconvert>=6.0->handcalcs`) (3.4.1)
- Requirement already satisfied: `jupyter-client>=6.1.5` in `/apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages` (from `nbclient>=0.5.0->nbconvert>=6.0->handcalcs`) (6.1.12)
- Requirement already satisfied: `nest-asyncio` in `/apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages` (from `nbclient>=0.5.0->nbconvert>=6.0->handcalcs`) (1.5.1)
- Requirement already satisfied: `python-dateutil>=2.1` in `/apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages` (from `jupyter-client>=6.1.5->nbclient>=0.5.0->nbconvert>=6.0->handcalcs`) (2.8.1)
- Requirement already satisfied: `tornado>=4.1` in `/apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages` (from `jupyter-client>=6.1.5->nbclient>=0.5.0->nbconvert>=6.0->handcalcs`) (6.1)
- Requirement already satisfied: `pyzmq>=13` in `/apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages` (from `jupyter-client>=6.1.5->nbclient>=0.5.0->nbconvert>=6.0->handcalcs`) (22.1.0)
- Requirement already satisfied: `fastjsonschema` in `/apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages` (from `nbformat>=5.1->nbconvert>=6.0->handcalcs`) (2.15.1)
- Requirement already satisfied: `jsonschema>=2.6` in `/apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages` (from `nbformat>=5.1->nbconvert>=6.0->handcalcs`) (3.2.0)
- Requirement already satisfied: `attrs>=17.4.0` in `/apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages` (from `jsonschema>=2.6->nbformat>=5.1->nbconvert>=6.0->handcalcs`) (21.2.0)
- Requirement already satisfied: `six>=1.11.0` in `/apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages` (from `jsonschema>=2.6->nbformat>=5.1->nbconvert>=6.0->handcalcs`) (1.16.0)
- Requirement already satisfied: `setuptools` in `/apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages` (from `jsonschema>=2.6->nbformat>=5.1->nbconvert>=6.0->handcalcs`) (49.6.0.post20210808)
- Requirement already satisfied: `pyrsistent>=0.14.0` in `/apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages` (from `jsonschema>=2.6->nbformat>=5.1->nbconvert>=6.0->handcalcs`) (0.17.3)
- Requirement already satisfied: `soupsieve>=1.2` in `/apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages` (from `beautifulsoup4->nbconvert>=6.0->handcalcs`) (2.0.1)
- Requirement already satisfied: `webencodings` in `/apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages` (from `bleach->nbconvert>=6.0->handcalcs`) (0.5.1)
- Requirement already satisfied: `toolz` in `/apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages` (from `innerscope->handcalcs`) (0.11.1)
- Installing collected packages: `mistune`, `nbconvert`, `innerscope`, `handcalcs`
- WARNING: The scripts `jupyter-dejavu` and `jupyter-nbconvert` are installed in `'/home/nanohub/mariavcorzon/.local/bin'` which is not on PATH.
- Consider adding this directory to PATH or, if you prefer to suppress this warning, use `--no-warn-script-location`.
- ERROR: pip's dependency resolver does not currently take into account all the packages that are installed. This behaviour is the source of the following dependency conflicts.
- `myst-nb 0.13.2` requires `nbconvert<7,>=5.6`, but you have `nbconvert 7.4.0` which is incompatible.
- Successfully installed `handcalcs-1.6.5` `innerscope-0.5.1` `mistune-2.0.5` `nbconvert-7.4.0`
- Note: you may need to restart the kernel to use updated packages.

11. This only needs to be done once, and afterwards refresh the page

12. To add another cell, click on insert and then cell below or on the downward arrow next to the printer in the menu



The screenshot shows a Jupyter Notebook interface with a single code cell. The cell contains the command `# pip install handcalcs`. The 'Insert' menu is open, and 'Insert Cell Below' is selected. The interface also shows the 'File', 'Edit', 'View', 'Cell', 'Kernel', 'Navigate', 'Widgets', and 'Help' menus. The 'Code' button is highlighted in the toolbar.

13. Now you can use the tools available in the Handcalcs library

```
In [2]: %render
x = 5
y = 6

# run the code below in a new Jupyter cell

z = x + y

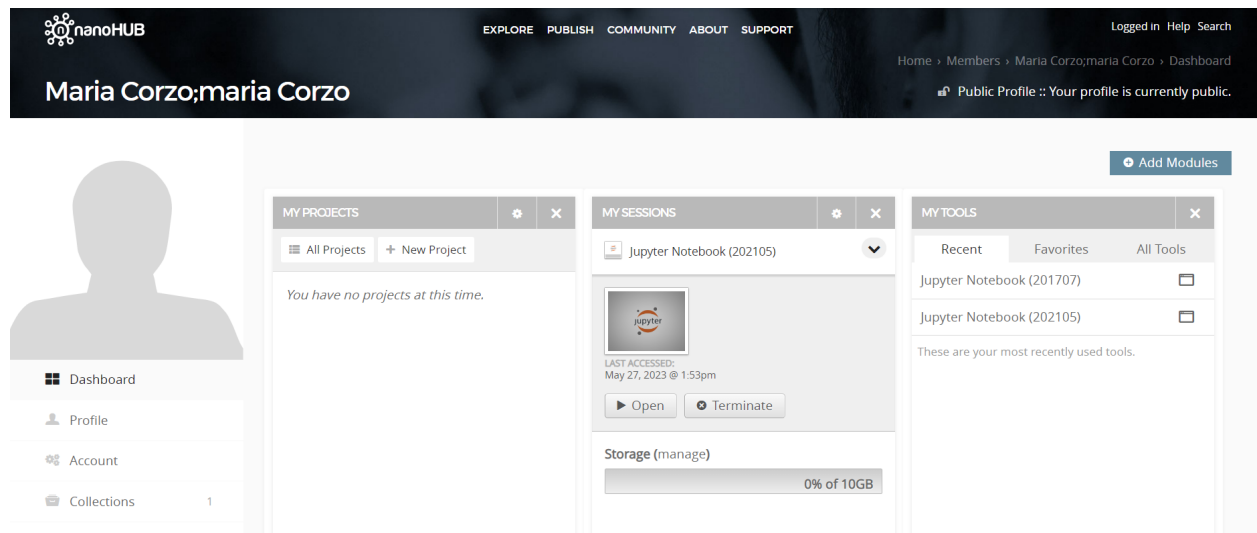
executed in 31ms, finished 16:06:22 2023-05-27

x = 5

y = 6

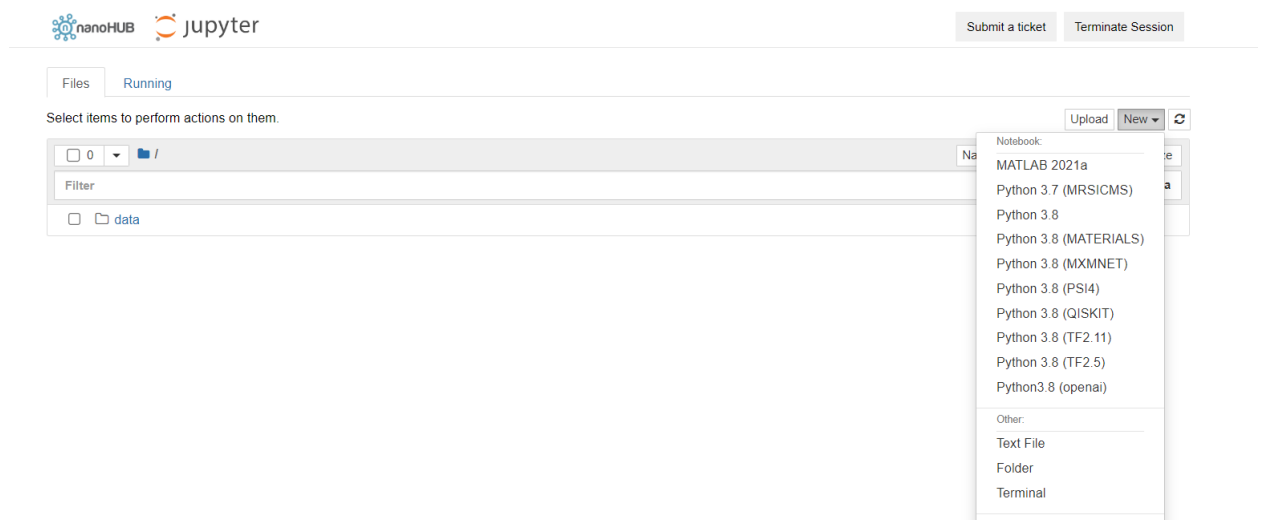
z = x + y = 5 + 6    = 11
```

If you have already used nanoHUB for Jupyter you can easily access it on your dashboard under “My Session”

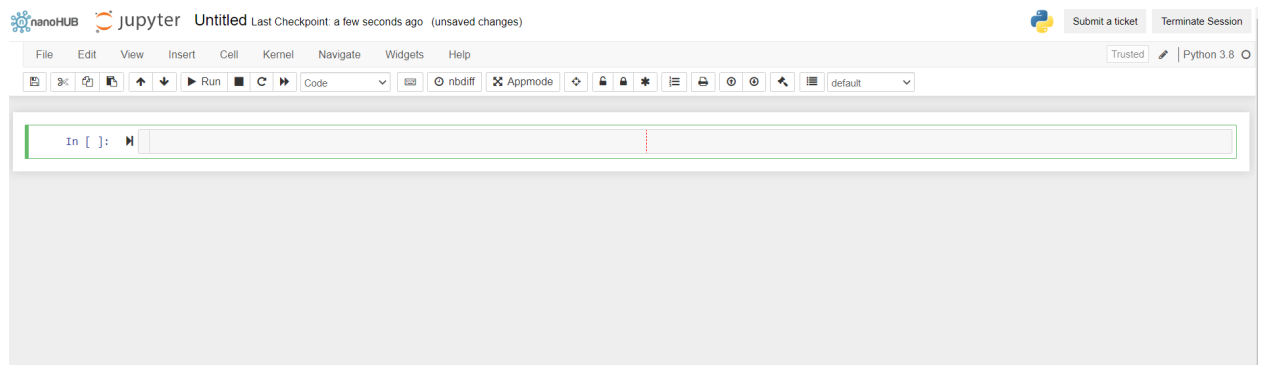


You can open it by clicking on “Open” under Jupyter Notebook, if you have not downloaded the Handcalcs library before this must be done:

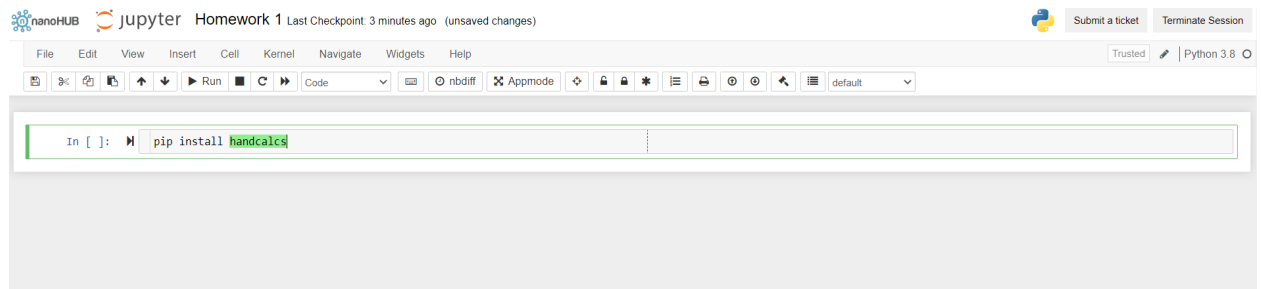
1. Create a new file click on New



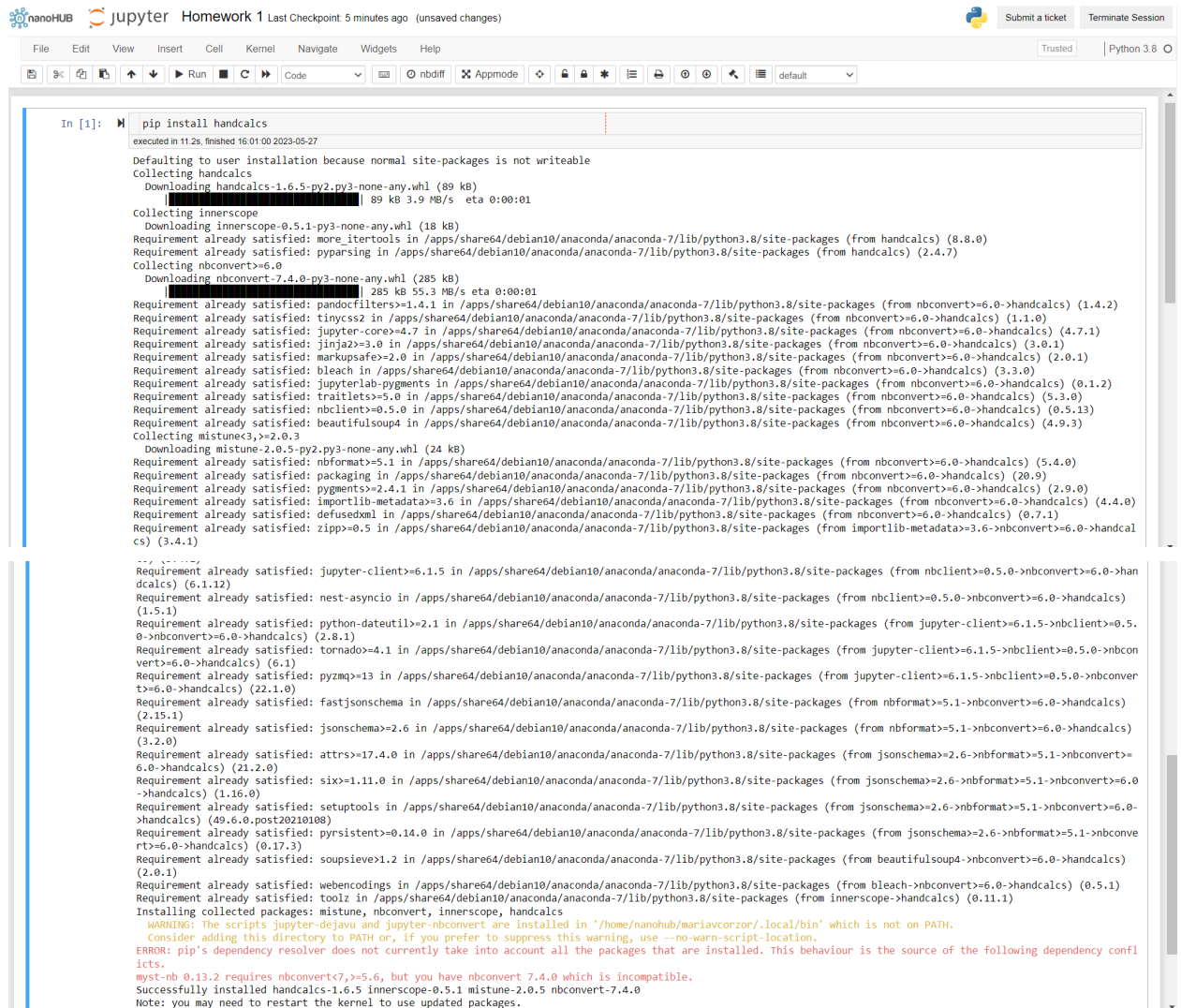
2. Then click on Python 3.8



3. To use Handcalcs, you must download the library onto the Jupyter system, to do this type : “pip install handcalcs” and either click run on the menu above or the arrow next to the bar



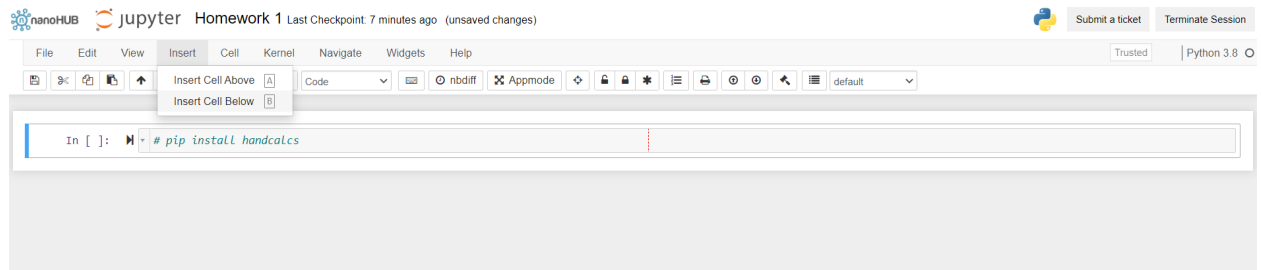
4. This will run the command and download the library, which will look like the following:



```
In [1]: pip install handcalcs
executed in 11.2s, finished 16:01:00 2023-05-27

Defaulting to user installation because normal site-packages is not writeable
collecting handcalcs
  Downloading handcalcs-1.6.5-py2.py3-none-any.whl (89 kB)
    ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 89 kB 3.9 MB/s eta 0:00:01
collecting innerscope
  Downloading innerscope-0.5.1-py3-none-any.whl (18 kB)
Requirement already satisfied: more_itertools in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from handcalcs) (8.8.0)
Requirement already satisfied: pyparsing in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from handcalcs) (2.4.7)
collecting nbconvert
  Downloading nbconvert-7.4.0-py3-none-any.whl (285 kB)
    ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 285 kB 55.3 MB/s eta 0:00:01
Requirement already satisfied: pandocfilters>=1.4.1 in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from nbconvert=>6.0->handcalcs) (1.4.2)
Requirement already satisfied: tinycss2 in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from nbconvert=>6.0->handcalcs) (1.1.0)
Requirement already satisfied: jupyter-core>=4.7 in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from nbconvert=>6.0->handcalcs) (4.7.1)
Requirement already satisfied: Jinja2>=3.0 in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from nbconvert=>6.0->handcalcs) (3.0.1)
Requirement already satisfied: MarkupSafe>=2.0 in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from nbconvert=>6.0->handcalcs) (2.0.1)
Requirement already satisfied: bleach in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from nbconvert=>6.0->handcalcs) (3.3.0)
Requirement already satisfied: jupyterlab-pygments in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from nbconvert=>6.0->handcalcs) (0.1.2)
Requirement already satisfied: traitlets>=5.0 in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from nbconvert=>6.0->handcalcs) (5.3.0)
Requirement already satisfied: nbclient>=0.5.0 in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from nbconvert=>6.0->handcalcs) (0.5.13)
Requirement already satisfied: BeautifulSoup4 in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from nbconvert=>6.0->handcalcs) (4.9.3)
collecting mistune>=2.0.3
  Downloading mistune-2.0.5-py2.py3-none-any.whl (24 kB)
Requirement already satisfied: nbformat>=5.1 in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from nbconvert=>6.0->handcalcs) (5.4.0)
Requirement already satisfied: packaging in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from nbconvert=>6.0->handcalcs) (20.9)
Requirement already satisfied: pygments>=2.4.1 in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from nbconvert=>6.0->handcalcs) (2.9.0)
Requirement already satisfied: importlib-metadata>=3.6 in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from nbconvert=>6.0->handcalcs) (4.4.0)
Requirement already satisfied: defusedxml in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from nbconvert=>6.0->handcalcs) (0.7.1)
Requirement already satisfied: zipp>=0.5 in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from importlib-metadata=>3.6->nbconvert=>6.0->handcalcs) (3.4.1)
Requirement already satisfied: jupyter-client>=6.1.5 in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from nbclient=>0.5.0->nbconvert=>6.0->handcalcs) (6.1.12)
Requirement already satisfied: nest-asyncio in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from nbclient=>0.5.0->nbconvert=>6.0->handcalcs) (1.5.1)
Requirement already satisfied: python-dateutil>=2.1 in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from jupyter-client=>6.1.5->nbclient=>0.5.0->nbconvert=>6.0->handcalcs) (2.8.1)
Requirement already satisfied: tornado>=4.1 in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from jupyter-client=>6.1.5->nbclient=>0.5.0->nbconvert=>6.0->handcalcs) (6.1)
Requirement already satisfied: pyzmq>=13 in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from jupyter-client=>6.1.5->nbclient=>0.5.0->nbconvert=>6.0->handcalcs) (22.1.0)
Requirement already satisfied: fastjsonschema in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from nbformat=>5.1->nbconvert=>6.0->handcalcs) (2.15.1)
Requirement already satisfied: jsonschema>=2.6 in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from nbformat=>5.1->nbconvert=>6.0->handcalcs) (3.2.0)
Requirement already satisfied: attrs>=17.4.0 in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from jsonschema=>2.6->nbformat=>5.1->nbconvert=>6.0->handcalcs) (21.2.0)
Requirement already satisfied: six>=1.11.0 in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from jsonschema=>2.6->nbformat=>5.1->nbconvert=>6.0->handcalcs) (1.16.0)
Requirement already satisfied: setuptools in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from jsonschema=>2.6->nbformat=>5.1->nbconvert=>6.0->handcalcs) (49.6.0.post20210808)
Requirement already satisfied: pyparsing in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from jsonschema=>2.6->nbformat=>5.1->nbconvert=>6.0->handcalcs) (2.4.7)
Requirement already satisfied: soupsieve>=1.2 in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from BeautifulSoup4->nbconvert=>6.0->handcalcs) (2.0.1)
Requirement already satisfied: webencodings in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from bleach->nbconvert=>6.0->handcalcs) (0.5.1)
Requirement already satisfied: toolz in /apps/share64/debian10/anaconda/anaconda-7/lib/python3.8/site-packages (from innerscope->handcalcs) (0.11.1)
Installing collected packages: mistune, nbconvert, innerscope, handcalcs
WARNING: The scripts jupyter-dejavu and jupyter-nbconvert are installed in '/home/nanohub/mariavcorzon/.local/bin' which is not on PATH.
Consider adding this directory to PATH or, if you prefer to suppress this warning, use --no-warn-script-location.
ERROR: pip's dependency resolver does not currently take into account all the packages that are installed. This behaviour is the source of the following dependency conflicts
myst-nb 0.13.2 requires nbconvert<7,>=5.6, but you have nbconvert 7.4.0 which is incompatible.
Successfully installed handcalcs-1.6.5 innerscope-0.5.1 mistune-2.0.5 nbconvert-7.4.0
Note: you may need to restart the kernel to use updated packages.
```

5. This only needs to be done once, and afterwards refresh the page
6. To add another cell, click on insert and then cell below or on the downward arrow next to the printer in the menu



```
In [ ]: # pip install handcalcs
```

7. Now you can use the tools available in the Handcalcs library

```
In [2]: %%render
x = 5
y = 6

# run the code below in a new Jupyter cell

z = x + y

executed in 31ms, finished 16:06:22 2023-05-27
x = 5

y = 6

z = x + y = 5 + 6    = 11
```