deal.ii Installation on Ubuntu:

The installation guidance of deal.ii can be found at: https://www.dealii.org/download.html
In the case of Ubuntu Linux and Mac, these are the instructions. Ubuntu is the one I tested myself and it is recommended for now.

Ubuntu:

First, you want to make sure that your packages are all update by typing in terminal:

sudo apt update

sudo apt upgrade

And copy the following block of commands (as one block) and paste it in your terminal.

*sudo apt-get install lsb-release git subversion wget bc libgmp-dev *
*build-essential autoconf automake cmake libtool gfortran python *
*zlib1g-dev *
*openmpi-bin openmpi-common libopenmpi-dev *
libblas3 libblas-dev liblapack3 liblapack-dev libsuitesparse-dev

If you have Ubuntu, you can use the candi package which is straightforward. You can just follow the suggestions. The link for candi package is: https://github.com/dealii/candi or you can git clone it as (type in terminal):

git clone https://github.com/dealii/candi.git

Then, you need to go to the candi folder.

cd candi

The only change you should make is you need to compile deal.ii without unnecessary package.

To do that, you can turn it off in candi.cfg by commenting that as #PACKAGES="${PACKAGES} once:trilinos" in line 80 and #PACKAGES="${PACKAGES} once:slepc" in line 82. By commenting, I mean you need to add # at the start of the lines 80 and 82.

To do this, you can type the following command in Terminal:

vim candi.cfg

and comment lines 80 and 82, save it, and exit from the vim. Or alternatively, you can comment it in the text editor.

Also, the only required packages for PRISMS-Plasticity are the **hdf5**, **p4est**, **petsc**, and **dealii**, and the rest of the packages should be commented out in *candi.cfg* file similar to trilinos and slepc as just explained. This makes the installation faster.

Then you can type:

./candi.sh

You can also use Multiple build processes:

For example:

to use 2 build processes type:

./candi.sh -j 2.

Be careful with this option! You need to have enough system memory (e.g. at least 8GB for 2 or more processes).

At the end, it will ask you to type some lines in terminal. Do as it says.
After the installation is finished, you need to type:

source /pathToFolder/deal.ii-candi/configuration/deal.II-v9.2.0

source /*pathToFolder*/deal.ii-candi/configuration/enable.sh

You need to replace *pathToFolder* with the path you have deal.ii-candi on your PC or Laptop.

Be careful that this two commands may change for later versions of deal.ii. These two commands will be shown after the deal.ii installation is finished.

You can add these two lines to your bashrc, so you do not have to redo these two commands every time you open a new terminal.

Windows 10 (Ubuntu)

If you're using Windows 10, you can get the ubuntu from the store.

I think this is the package:

https://www.microsoft.com/store/productId/9N6SVWS3RX71

After you get Ubuntu from the store, you can repeat the procedure described above. You should note that you need to have sudo permission, you should have administration access for the pc you're using to install it this way. You cannot use this procedure to install on the supercomputers.

Mac:

Also, if you have Mac, you can use this link: https://github.com/dealii/dealii/wiki/MacOSX
Again, make sure that you compile deal.ii without trilinos package.

PRISMS-Plasticity Installation:

The installation of PRISMS-Plasticity will be straightforward after the deal.ii installation. First, you need to git clone it as follows:

git clone https://github.com/prisms-center/plasticity.git

Then, you need to go to the plasticity folder as:

cd plasticity

Then type in the terminal:

cmake .

[Dot (.) is a part of the above command, don't miss it]

Then:

make –j 4

This compile the code with 4 processors. If you have a single processor, jut type:

make

Then:

cd applications

cd crystalPlasticity

cmake .

[Dot (.) is a part of the above command, don't miss it]

make release

Paraview Installation:

For visualization, we are using Paraview, which can be installed using the following command:

sudo apt-get install paraview

If one is using windows, Paraview can be simply download from:

https://www.paraview.org/download/