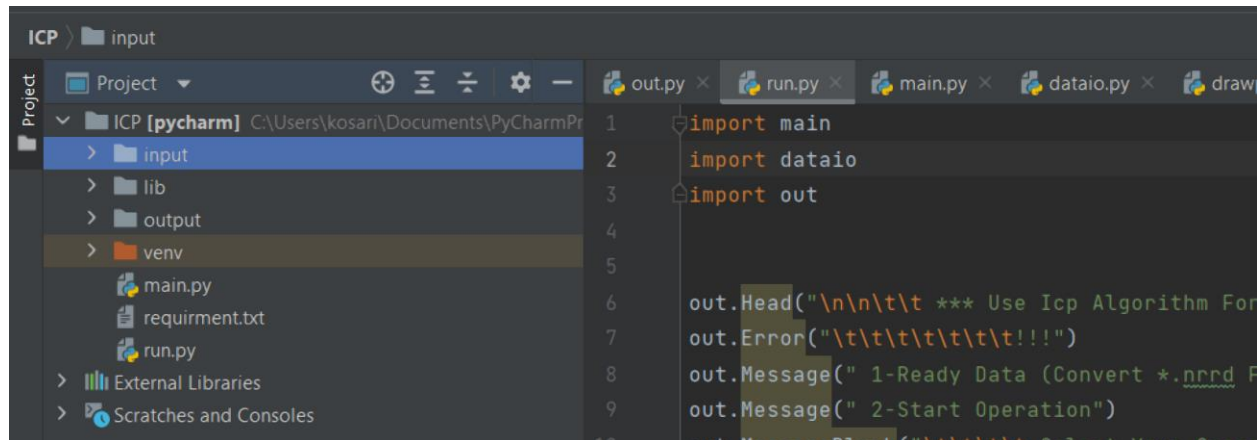


Note: Before working with this project, read the following article






Use Visual ICP





Project Folder Included:



 Input contains data file required for the project. Include:

-  **primary** Contains the basic raw data file we need for this project
-  **ready** Converts raw files of primary folder to project readable file

 **lib** contains Python files and libraries that are used for project sorting.
Include:

-  **dataio** contains methods for reading, writing and convert data's
-  **icp** reading primary data, calculate this and saved data
-  **drawpoint** draw points for visual comparison of algorithm
-  **output** contains methods for print results

 **Output** contains Save the files calculated by the program

- **draw** contains readable files by the **drawpoint** library
- **result** contains result files calculated by the **icp** library

Run:

Libraries required for this project

Python version 3.7

```
.....  
pip install numpy  
pip install pynrrd  
.....  
pip install pandas  
pip install pptk  
.....  
pip install vtk  
.....  
pip install termcolor
```

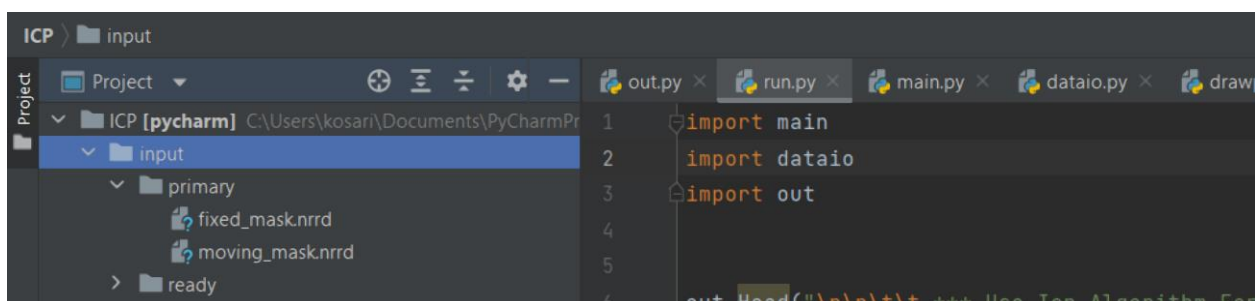
Note: Some libraries cannot be installed on other versions of Python.

Run  `run.py`

the menu is displayed for you.

```
*** Use Icp Algorithm For Moving image ***  
!!!  
1-Ready Data (Convert *.nrrd File To Usable Project Format)  
2-Start Operation  
Select Your Operation :
```

Put the files in the `input/primary` folder as shown below:



Select the [Ready Data] method (1)

Enter the *.nrrd file name in the input

Start `[/]Start Converting` is showed

Wait for `[-]Converted Successfully`

```
*** Use Icp Algorithm For Moving image ***
!!!
1-Ready Data (Convert *.nrrd File To Usable Project Format)
2-Start Operation
    Select Your Operation :
        1
    Enter Your Address File (include *.nrrd file) :
        moving_mask.nrrd
[/] Start Converting ...
[-] Converted Successfully
```

Note: Convert both files

Then Select the [Start Operation] method (2)

[?]which data wants to draw?

- Initial data and calculated data (s)
- final data and calculated data (d)
- all points (default)

```
*** Use Icp Algorithm For Moving image ***
!!!
1-Ready Data (Convert *.nrrd File To Usable Project Format)
2-Start Operation
    Select Your Operation :
        2
    .....
    [?] Which data want to draw? :
        (s) source points &&  calculated points
        (d) target points &&  calculated points
        (a) All points Drawing (default)
```

Note: Not selecting the option means selecting the default mode

Display a list of available files

Enter the desired file

```
..... List Converted Your Files .....
mk10fix.txt
mk10mov.txt
mk1fix.txt
mk1mov.txt
mk2fix.txt
mk2mov.txt
mk3fix.txt
mk3mov.txt
mk4fix.txt
mk4mov.txt
mk5fix.txt
mk5mov.txt
mk6fix.txt
mk6mov.txt
mk7fix.txt
mk7mov.txt
mk8fix.txt
mk8mov.txt
mk9fix.txt
mk9mov.txt
.....
Input Source And Target Files Points
For Example => mk1mov.txt mk1fix.txt'
Enter Your File
mk1mov.txt mk1fix.txt
```

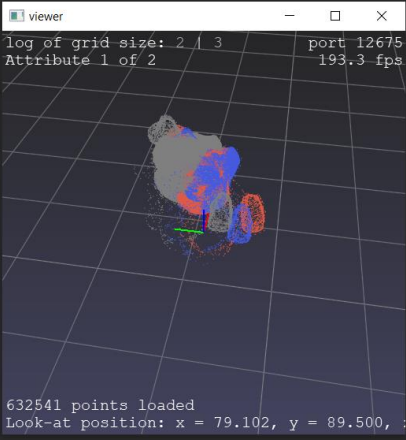
Note: Enter the file format correctly

After selecting the file, the calculation process begins

Displays project steps during the process

Display results after completing the process

```
[!]. .....
[/] Start Operations...
[/] Import Source Points...
[/] Save Drawing Source Points ...
[-] Saved Successfully
[/] Import Target Points...
[/] Save Target Points For Drawing...
[-] Saved Successfully
[/] start ICP...
[/] Save All Calculated Data...
[-] Saved Successfully
[-] Saved Successfully
[-] Saved Successfully
[-] Saved Successfully
[-] Saved Successfully
[-] Saved All Calculated Data
[/] Drawing Chart Points
[?] .....Help Chart.....[?]
[Source Points : Grey ]
[Calculate Points : Blue ]
[Target Points : Red ]
[?] ..... [H] .....[?]
[/] <--- Mean distance For This Data Calculated --->
[->] ( 2.7511988503770223e-07 )
[-] Complete Calculations
```



Note: The calculated files are stored as *.txt in the [output/result](#) folder