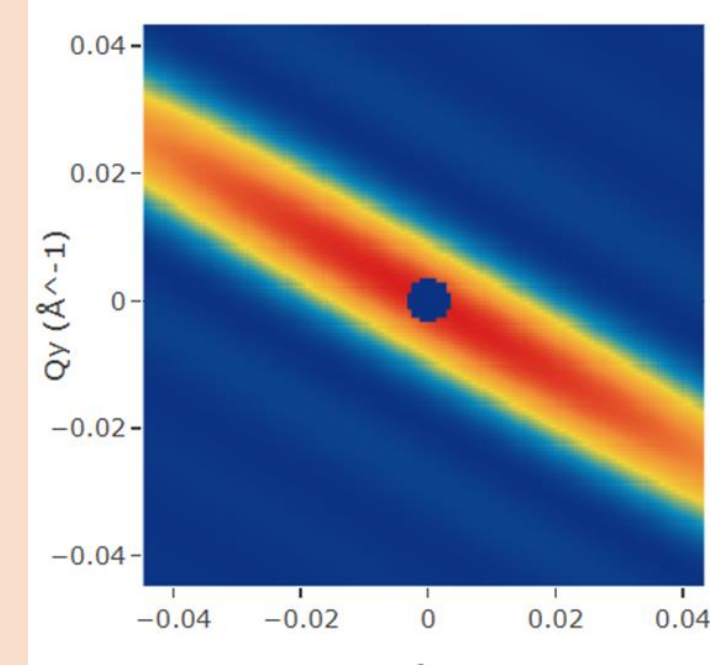


## WHAT IS SASVIEW?

NIST Center of Neutron Research is a user facility that uses neutron scattering to observe particle elements. One subdivision is Small Angle Neutron Scattering (SANS):

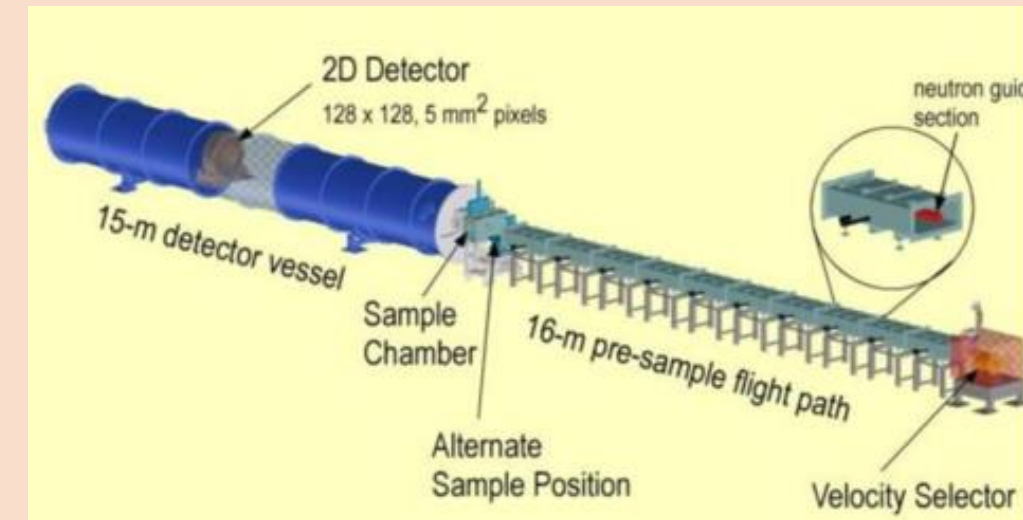
- Instrument shoots neutron through a sample
- Neutron scatters after collision with sample particles and hit detector
- Scattering pattern, scattering length density, intensity, and more elements are measured



Sasview is analysis software that takes the data collected and analyzes it into derivable data.

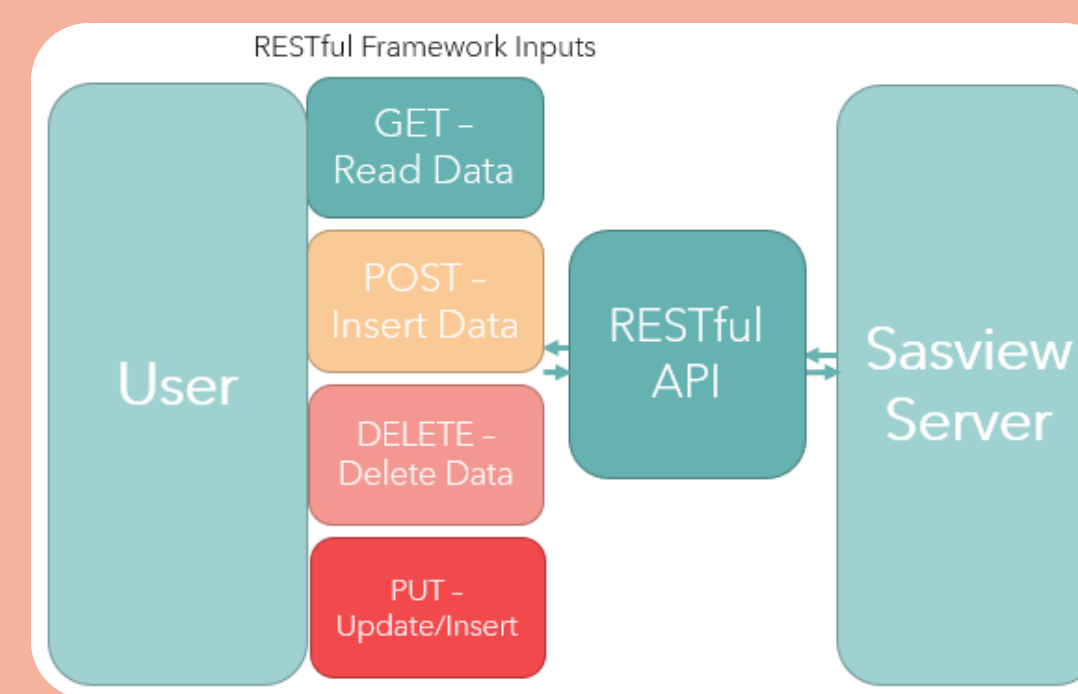
Two category of tools:

- Analysis Tools: Fit, Inversion, Invariant, Corfunc
- Calculation Tools



## WHAT IS AN API

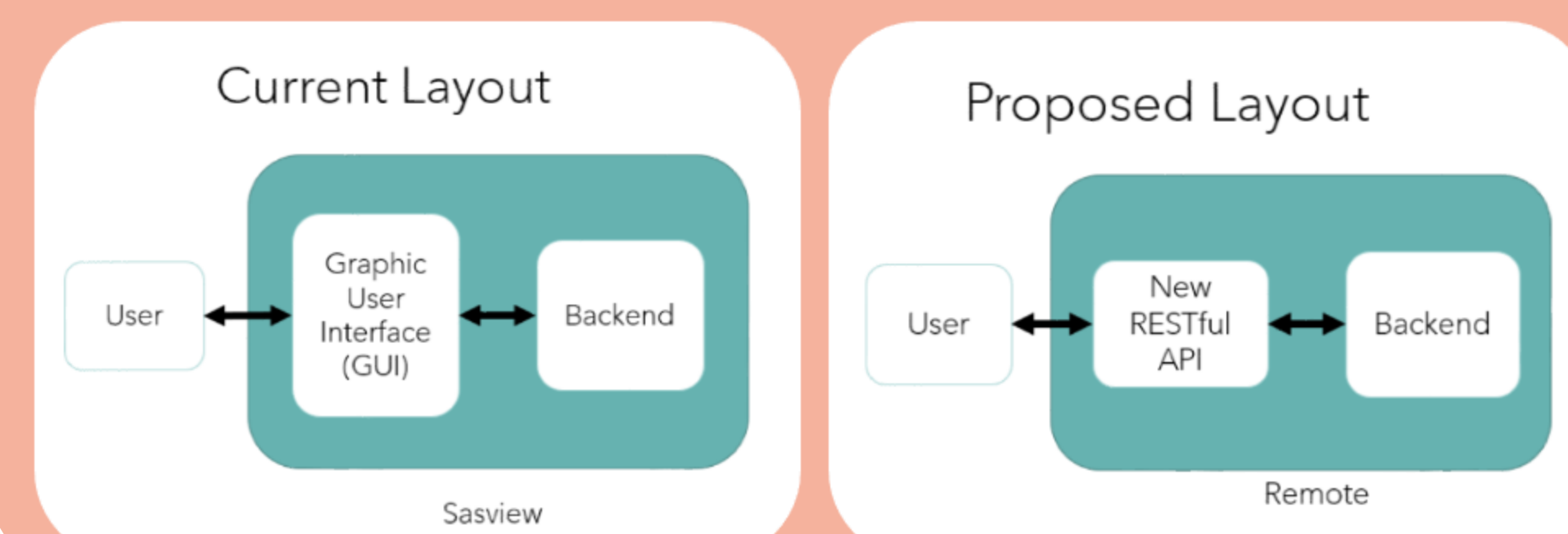
An API is an application programming interface. It acts as a "translator" so the user can "communicate" with the server. The user and server do not send the same data format, so translation is necessary.



Petfinder is an example of a user-friendly API:



Currently, Sasview has a Graphic User Interface (GUI) – allows user to interact using icons, buttons, and text. The API act parallel to GUI as second way to communicate to the server.



## BENEFITS OF AN API FOR SASVIEW

### Alleviate Resources

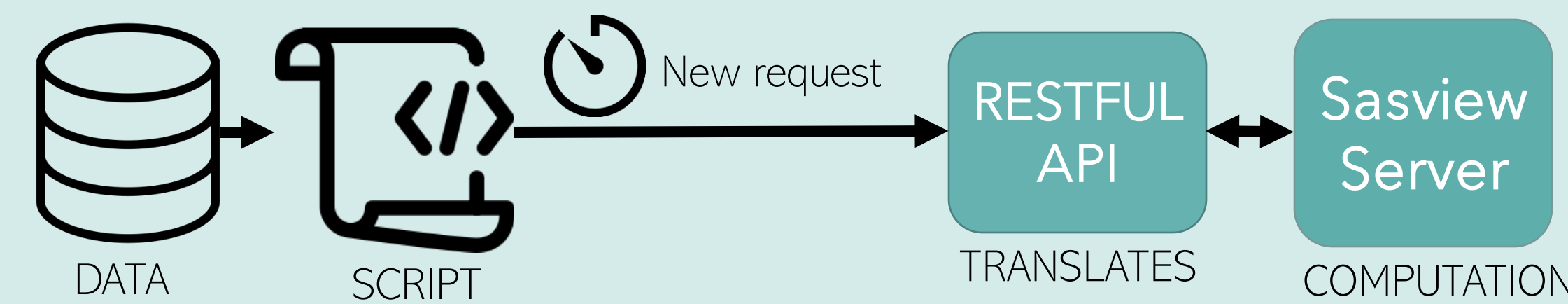
Analysis tools can take weeks with too much data. Calculations are done remotely, does not use user's GPU/CPU

### Experimental benefits

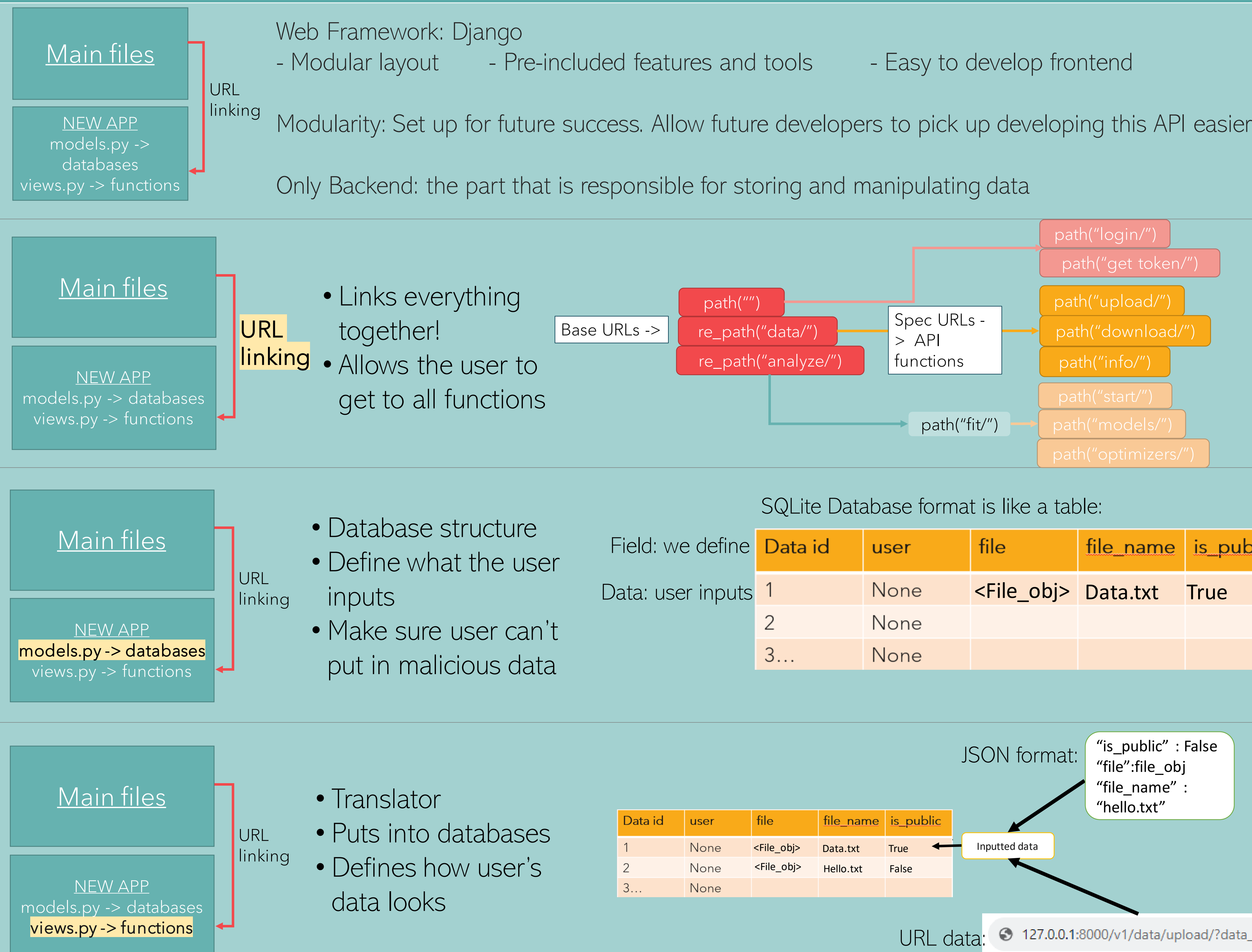
Automation! The API allows experimenters to continuously ask the server to update their analysis with code.

### Operating System Deployment

Overcomes Window, Linux, Mac Requirements as the computation is being done elsewhere.

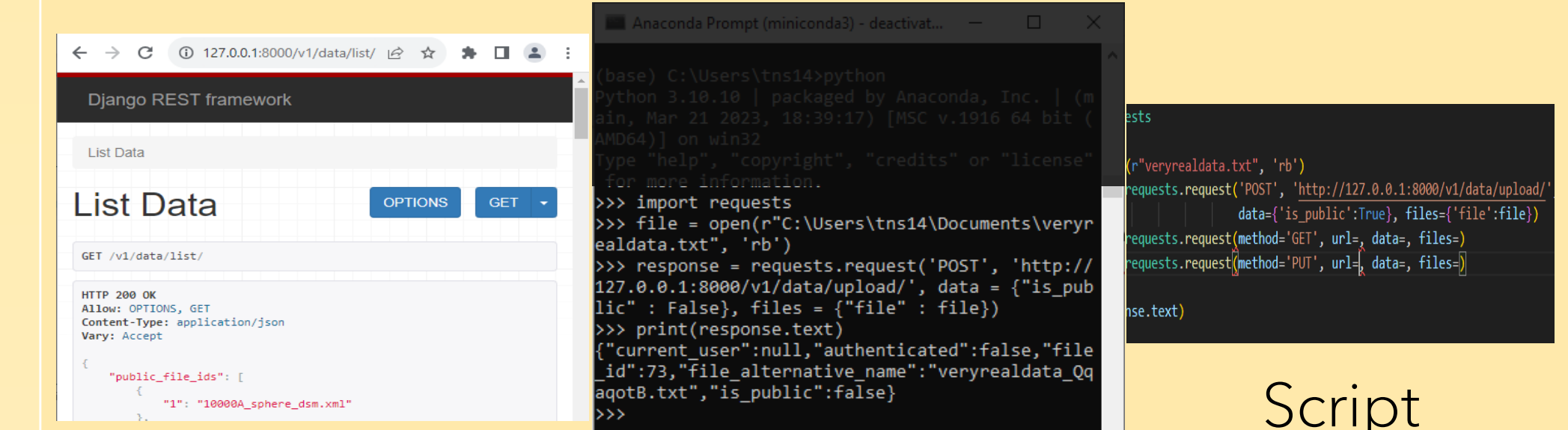


## DEVELOPING AN API FROM SCRATCH



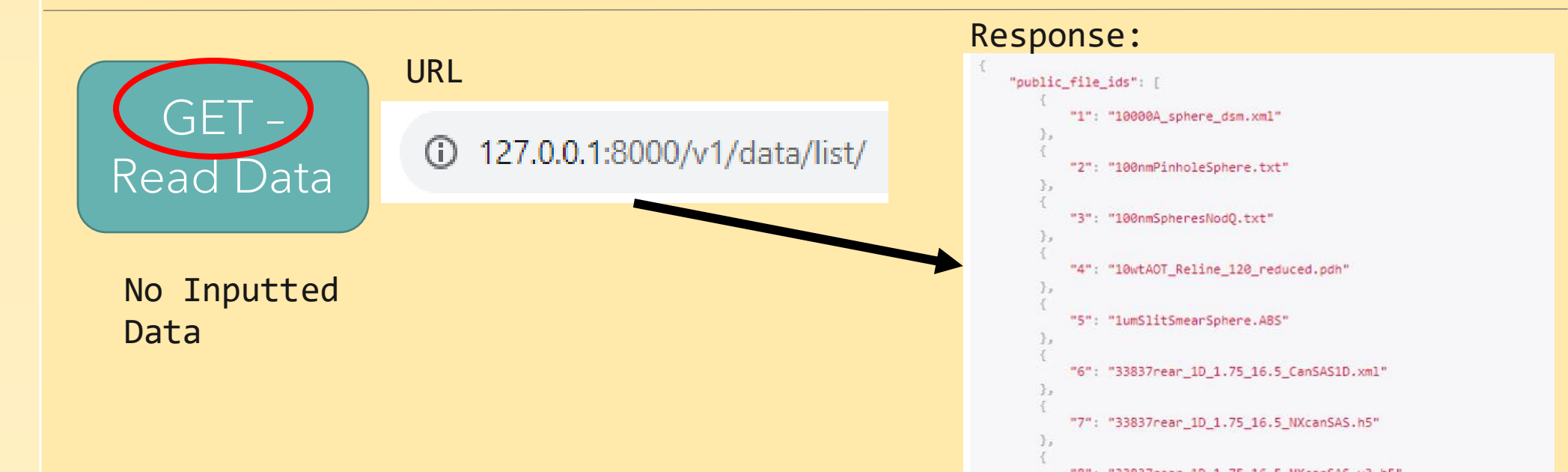
## USER SIDE

There are multiple ways to be a user. The primarily ones are:



Development Server: API view Terminal/Command pallet

This demonstration of the working model is using the development server, as it is the most readable



## FUTURE

WHAT WILL HAPPEN TO THIS AFTER THIS SUMMER?

This will continue to live as an in-progress project for Remote fitting interface in Sasview GitHub

NEXT STEPS:

- Add constraints to Fit
- Implement calculation tools
- Implement other analysis tools
- Wrap and create frontend tools

WHAT WILL I CONTRIBUTE AFTER?

- Use API to analyze bicelle data
- Get API approved to merge into Sasview package