

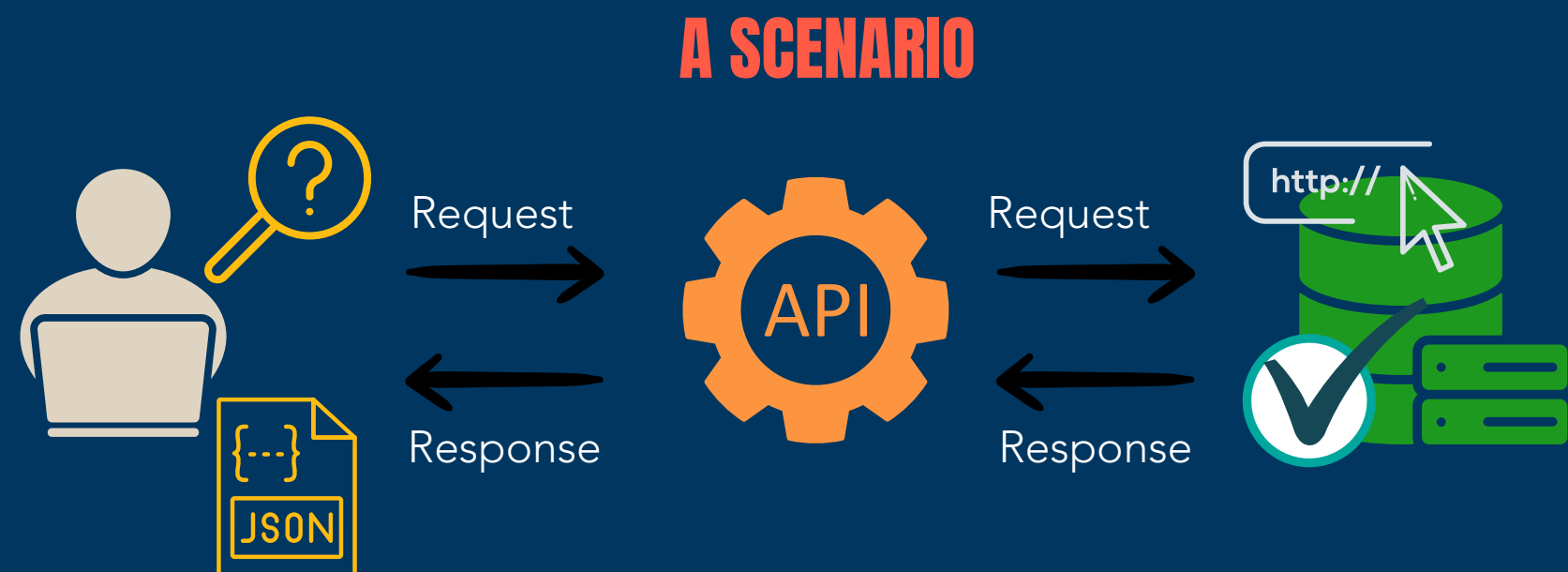
# The ABCs of Web APIs

APIs or Application Programming Interfaces have become increasingly popular in academic research. They simplify data access, streamline data collection and analysis processes, enable real-time updates, support collaboration, provide access to specialized tools, and more.

## HOW DO APIS WORK?

APIs serve as a set of rules and protocols that define how two software applications communicate with each other by “exposing” some of a program’s internal functions to the outside world.

It can be compared to a formal contract outlining the interaction terms between these applications, specifying how they exchange requests (a.k.a. calls) and responses.



Instead of scraping multiple web pages, researchers studying Nobel Prize Awardees could use the website's API to more efficiently access and gather detailed data. They can submit custom queries and retrieve specific data points of interest in convenient formats (e.g., JSON, CSV) while saving time and avoiding website disruptions.

## ADVANTAGES OF USING APIS

- Automated data collection
- More detailed and stable data retrieval
- Batch access to data
- Pull data in analysis-ready formats
- Real-time updates
- Access to time-series data
- Custom analytical tools
- Integration with R and Python

## WHERE CAN I FIND THEM?

Databases and websites typically list their API documentation on a dedicated developers’ webpage. Always check if an API is available before considering other approaches to access data.

### The Public APIs List

Search over 1,400 public APIs in over 50 categories, including health, finance, social media, and news.

[github.com/public-apis](https://github.com/public-apis)

## INTERACTING WITH APIS

Simple APIs can be accessed using web browsers or graphical tools. Programming languages like R and Python have libraries and packages to make HTTP requests to APIs, process their responses, and help streamline data analysis. Popular options are:



### DID YOU KNOW?

UCSB has an API Developer Portal for accessing campus information:  
[developer.ucsb.edu](https://developer.ucsb.edu)