

# BRIDGES Tutorial

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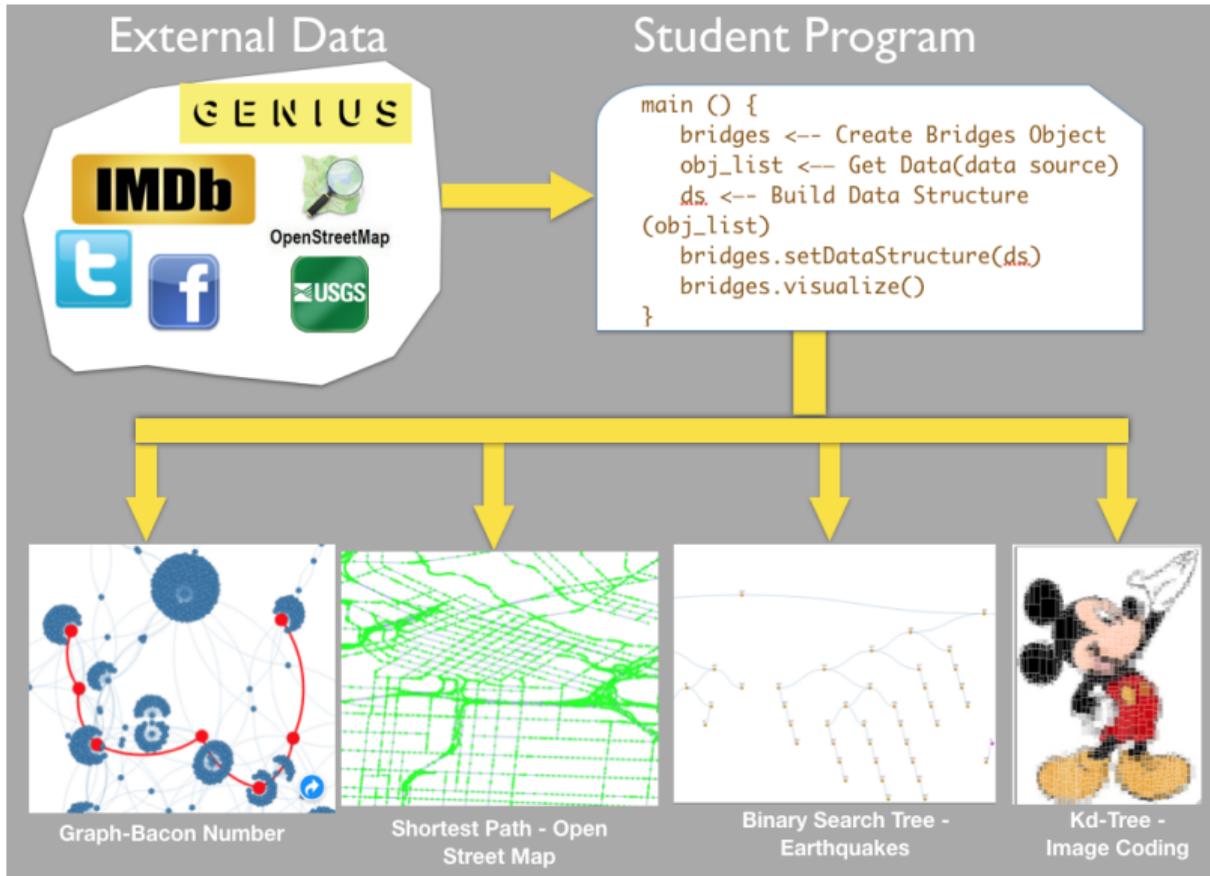
<sup>2</sup>Temple University

BRIDGES Workshop, June 24-26, 2024

# What is BRIDGES?

- An API to facilitate engaging assignments
- BRIDGES provides **engaging input and output**
- Easily incorporate **real world datasets into routine class assignments** that are more meaningful and span current interests of today's learners.
- BRIDGES can produce **visualizations of student generated data structures, algorithm outputs/performance benchmarks, and support interactive games.**
- BRIDGES provides the **building blocks** for implementing data structures and algorithms, **not their implementations!**

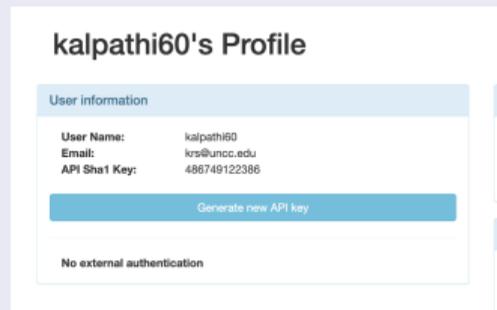
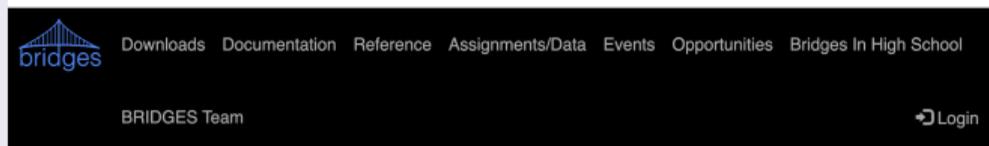
# What is BRIDGES?



# BRIDGES: Getting Started

## BRIDGES Account, Credentials

- Go to the [\[BRIDGES Home Page\]](#) and create an account by using the login button (you can use your email id as user name).
- Click on Profile button (in the upper right corner); you will see your credentials, user name, email and API Key; you will need this API key for every BRIDGES program you write (for authentication, data set access).



- Every BRIDGES program will create the Bridges object and use the credentials as follows:  
*Bridges bridges = new Bridges(ASSIGNMENT\_NUMBER, "USER\_ID", "API\_KEY")*

## BRIDGES Configuration/Installation

- **Java [JDK 8.0 and above]:**

- Download the BRIDGES JAR file from the Downloads link on the Bridges website.
- Augment your Java class path to include the path to the BRIDGES JAR file.

- **C++ [C++ 14 and above]:**

- Download the BRIDGES C++ archive from the Downloads link on the Bridges website.
- BRIDGES C++ uses the Curl library. This will need to be installed and BRIDGES programs need to be linked to the Curl library.
- BRIDGES programs must be compiled with paths to the include and lib folders (the bridges library is only needed for the Game API).

- **Python [v. 3.8 and above:]**

- Use the following command to install the Bridges python sources:  
*pip install bridges*

# BRIDGES: A Concrete Example

## A BRIDGES Example Program: Linked List Using IMDB Actor Movie Data

```
int main() {
    //create the Bridges object, set credentials
    Bridges bridges(1, "BRIDGES_USER_ID", "BRIDGES_API_KEY");
    bridges.setTitle("Singly Liked List using IMDB Actor Movie Data");
    DataSource ds;
    std::vector< ActorMovieIMDB > am_list = ds.getActorMovieIMDBData(100);
    //building linked list
    SElement<ActorMovieIMDB>* head = nullptr;
    for (auto im : am_list) {
        SElement<ActorMovieIMDB>* am_node = new SElement<ActorMovieIMDB> (
            im, im.getActor() + " - " + im.getMovie());
        am_node->setNext(head);
        // style nodes related to Cary Grant
        if (im.getActor() == "Cary_Grant") {
            am_node->setColor(Color("cyan"));
            am_node->setSize(30.);
            am_node->setShape(SQUARE);
        }
        head = am_node;
    }
}
```

# BRIDGES: A Concrete Example

## A BRIDGES Example Program: Linked List Using IMDB Actor Movie Data

```
// style beginning node of list
head->setColor(Color("red"));
head->setSize(49.0);
// send data structure to server, visualize
bridges.setDataStructure(head);
bridges.visualize();

return 0;
}
```

