

BRIDGES Tutorial

Kalpathi Subramanian¹, Erik Saule, and Matthew Mcquaigue
krs@uncc.edu, esaule@uncc.edu, mmcquaig@uncc.edu

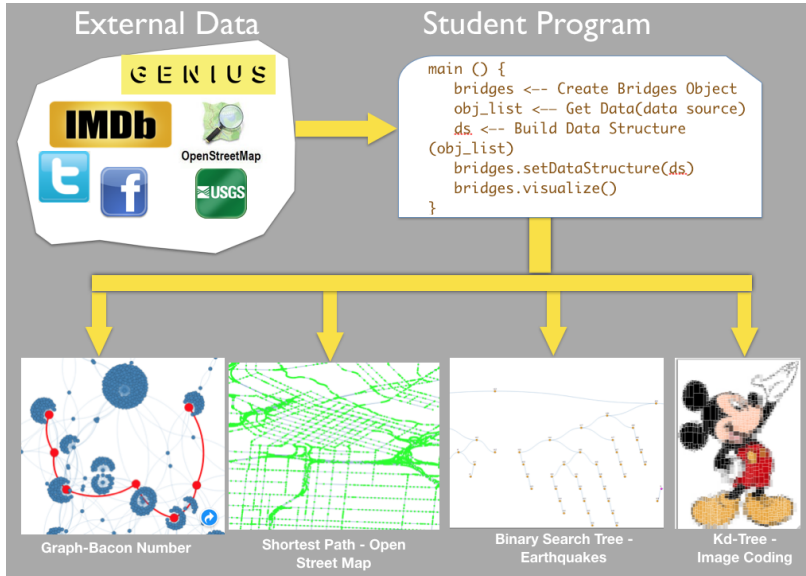
The University of North Carolina at Charlotte

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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!*

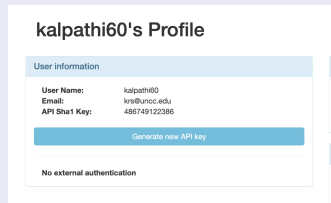
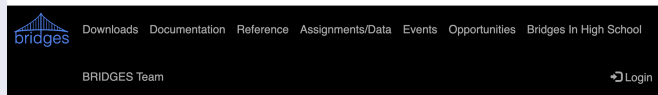
What is BRIDGES?



BRIDGES: Getting Started

BRIDGES Account, Credentials

- Go to the BRIDGES <http://bridgesuncc.github.io/index.html> 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.



- 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: Getting Started

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;
```

