BRIDGES Tutorial

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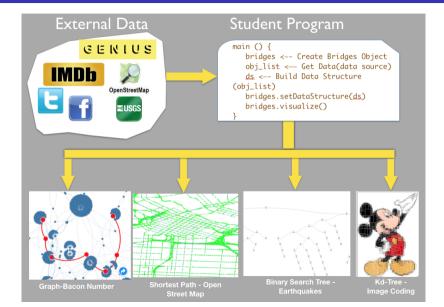
 1 The University of North Carolina at Charlotte 2 Temple University

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: 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
  SLelement < ActorMovieIMDB >* head = nullptr;
  for (auto im : am_list) {
    SLelement < ActorMovieIMDB > * am_node = new SLelement < 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, visual;
bridges.setDataStructure(head);
bridges.visualize();
return 0;
}
```

