



# BRIDGES

Giving CS Students the Tools to Engage With Real-World Data



Kalpathi Subramanian, Erik Saule, Jamie Payton

University of North Carolina at Charlotte



Temple University

## Select Your Dataset



## Organize

```
ArrayList<ActorMovieIMDB> movieList =
    (ArrayList<ActorMovieIMDB>) bridges.getActorMovieIMMDBData(1813);

GraphAdjListSimple<String> myList = new GraphAdjListSimple<String>();

String actor1 = "Kevin_Bacon", actor2 = "Denzel_Washington";

myList.addVertex(actor1, "");
myList.addVertex(actor2, "");

myList.addEdge(actor1, actor2, 1);

int countOne = 0, countTwo = 0;
for (int i = 0; i < actor_movie_data.size(); i++) {
    String actor = movieList.get(i).getActor();
    String movie = movieList.get(i).getMovie();

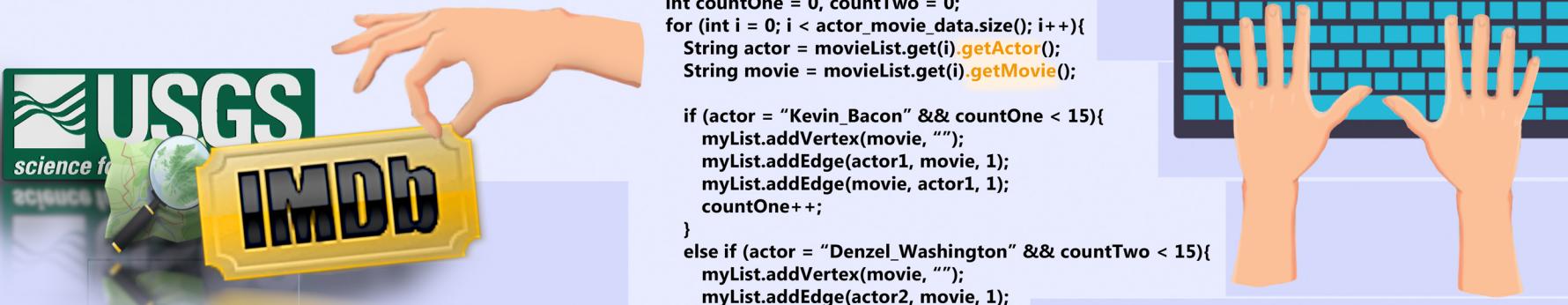
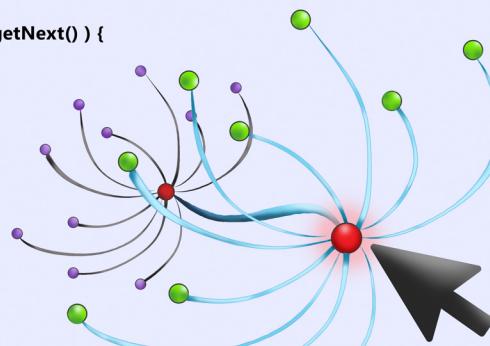
    if (actor == "Kevin_Bacon" && countOne < 15){
        myList.addVertex(movie, "");
        myList.addEdge(actor1, movie, 1);
        myList.addEdge(movie, actor1, 1);
        countOne++;
    }
    else if (actor == "Denzel_Washington" && countTwo < 15){
        myList.addVertex(movie, "");
        myList.addEdge(actor2, movie, 1);
        myList.addEdge(movie, actor2, 1);
        countTwo++;
    }
}
```

## Customize

```
SElement<Edge<String, String>> head = myList.getAdjacencyList().get("Kevin_Bacon_(I)");

for (SElement<Edge<String, String>> sle = head; sle != null; sle = sle.getNext() ) {
    String term_vertex = sle.getValue().getVertex();
    Element<String> el = myList.getVertices().get(term_vertex);

    if (!term_vertex.equals("Denzel_Washington")){
        el.getVisualizer().setColor("green");
    }
}
```

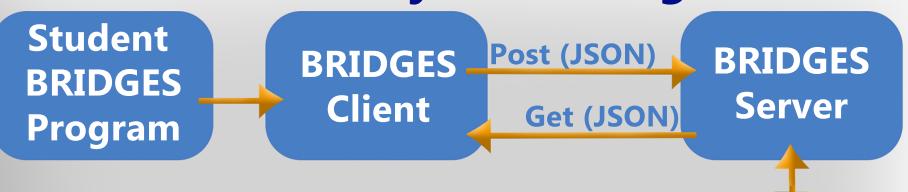


## Visualize

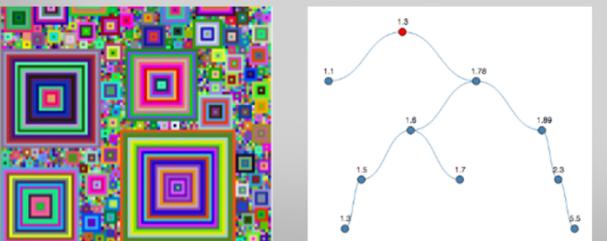
```
bridges.setDataStructure(myList);
bridges.visualize();
```



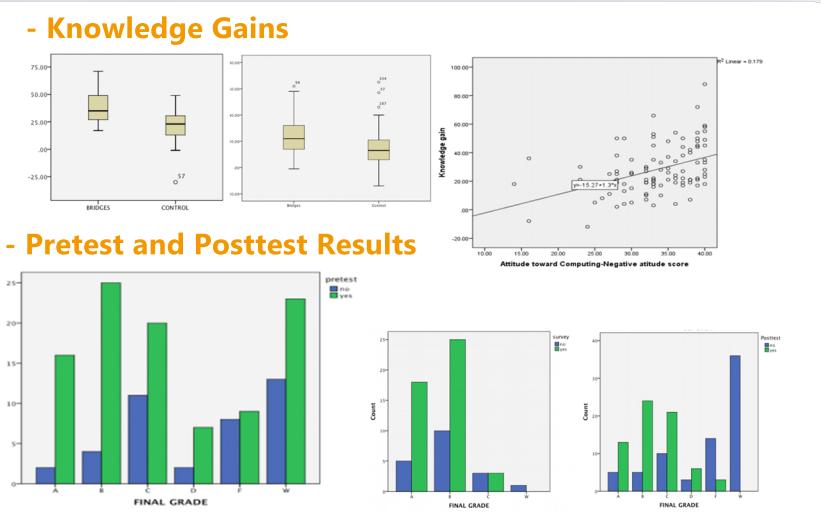
## BRIDGES System Design



## BRIDGES Visualization Gallery (Browser)



## BRIDGES Makes A Difference!



## Integrate BRIDGES into Your Classroom

- BRIDGES has been making it possible for early cs students to visualize real-world data structures since 2013.
- Enjoy multi-language support in Java, C++, and Python.
- Faculty stipends available for using BRIDGES and collecting student feedback.
- Datasets and assignments include, Open Street Map, Lyrics (Genius) API, Gutenberg Book Collection, and Android Application API (Coming Soon).
- For more information contact Dr. Kalpathi Subramanian at [krs@uncc.edu](mailto:krs@uncc.edu) or visit <http://bridgesuncc.github.io>.
- Sponsored by the National Science Foundation: DUE - 1245841 and DUE - 1726809