

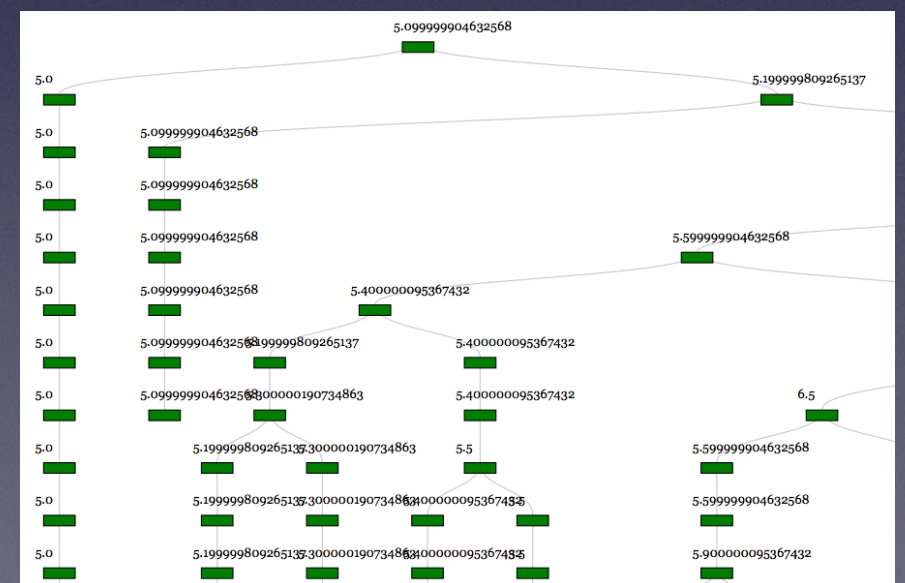
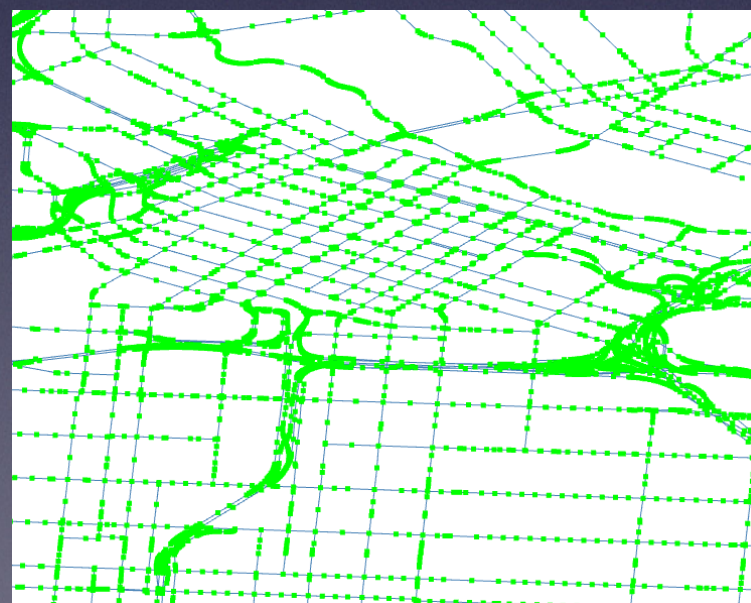
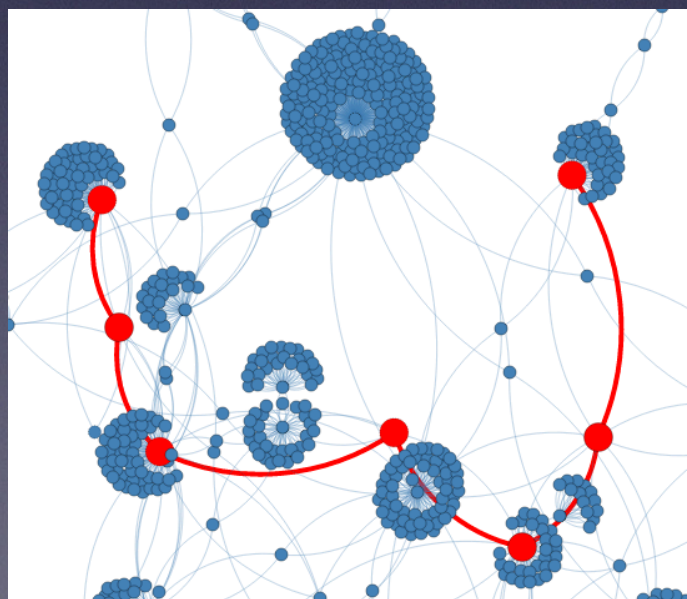


BRIDGES Setup Instructions

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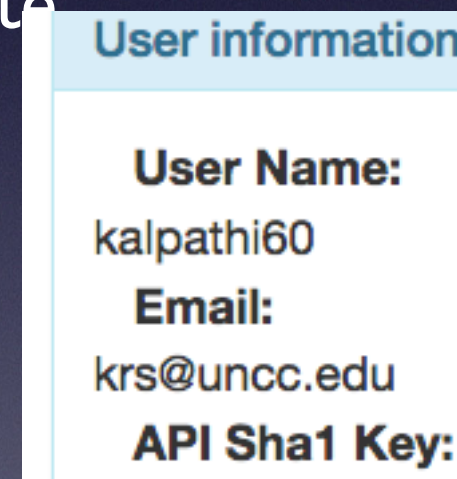
Download Workshop Materials/BRIDGES

Account Creation

1. Download the SIGCSE 2019 Workshop Materials [Zip] from the following link and unzip the file (note the download area):
<http://bridgesuncc.github.io/workshops/2019/minneapolis/index.html>
2. The unzipped file will have materials for use during the workshop, arranged in the following folders:
 - a. `./sw` : BRIDGES software (C++, Java, Python)
 - b. `./slides` : Presentation slides
 - c. `./exercises/Lyrics/{scaffold, answer}` : Song Lyrics exercise materials
 - d. `./exercises/OSM/{scaffold, answer}` : OSM (Open Street Map) exercise materials

BRIDGES Account Creation

1. Create a BRIDGES account from the following link:
<http://bridges-cs.herokuapp.com/login>
2. Once you login, you will see your (empty) Bridges assignment gallery; hit the **Profile button (top right)** and you will see your **BRIDGES credentials (user name and API key)**. You will need these for every BRIDGES program you write.



3. Note your credentials; you can always come back to this page, by logging into the BRIDGES site.

Workshop Materials (Details)

The downloaded Zip file has the following materials:

- a. `./software` : BRIDGES software (C++, Java, Python)
- b. Presentation slides - distributed in different folders
- c. `./exercises/Lyrics` : Song Lyrics exercise materials
- d. `./exercises/OSM` : OSM (Open Street Map) exercise materials

Running BRIDGES Programs (Java)

1. To run BRIDGES Java programs, you will need (a) BRIDGES Jar file (bridges-java-sigcse2019.jar) , (2) a sample program (array.java) both of which will be in the ./sw folder, and your BRIDGES account credentials.
2. **Requirement:** BRIDGES programs require Java 1.8 or higher; *make sure you are using Java 1.8 or higher in your IDE*
3. Install Sample Program (Array)
 - a. Using your favorite IDE (or even command line), bring the BRIDGES Jar file into your IDE
 - b. Copy/Paste the Array.java file into the IDE to test BRIDGES.
 - c. In the line : *Bridges bridges = new Bridges(YOUR_ASSIGNMENT_NUMBER, "YOUR_USER_ID", "YOUR_API_KEY")*
put in your BRIDGES credentials, assignment number is any positive integer, the user id and api key are strings.
4. Build and Run your program .You will see a web link printed to your console. Navigate to the page to view your Array visualization!

Running BRIDGES Programs (C++)

1. To run BRIDGES C++ programs, you will need (a) BRIDGES Include files (BRIDGES C++ API is a bunch of templates classes in header files) , (2) a sample program (array.cpp) both of which will be in the ./sw/C++ folder, and your BRIDGES account credentials.
2. **Requirement:** BRIDGES C++ uses C++ 11, so ensure your IDE is configured to use **C++11**.
3. **Install Curl.** To communicate with the BRIDGES server, we use lib curl, which needs to be installed. Download lib curl sources from <https://curl.haxx.se/download.html>
 - a. To **build curl** use the following commands (Linux/MacOSX, Preinstalled on VM):
 - i) ./configure
 - ii) make
 - iii) sudo make install
 - b. **Include file paths** to be specified for both BRIDGES and RapidJSON, both of which included in the workshop materials. **Bridges include files are under ./sw/c++/bridges and Rapidjson is under ./sw/c++/bridges/rapidjson**
 - c. **Curl Library:** Once libcurl is built and installed (/usr/local/lib by default), link your IDE with the curl library

Running BRIDGES Programs (C++)

I. Install Sample Program (Array)

- a. Configure your IDE to include BRIDGES include files (./sw/include), Rapidjson (./sw/bridges/rapidjson/include), and Curl (/usr/local/include/curl).
- b. Link against the Curl library (library by default at /usr/local/lib)
- c. Copy/Paste the Array.cpp file into the IDE to test BRIDGES.
- d. In the line : *Bridges bridges = new Bridges(YOUR_ASSIGNMENT_NUMBER, "YOUR_USER_ID", "YOUR_API_KEY")*
put in your BRIDGES credentials, assignment number is any positive integer, the user id and api key are strings.

2. Follow the instructions for the language you are using (as per the earlier slides).

Running BRIDGES Programs (Python)

I. Install Sample Program (Array)

- a. To install the python version of BRIDGES, run the following command:
pip install bridges (this installs from a public repo)
- b. Alternately, for a more direct install use the setup.py in the ./software/python folder:
python setup.py install
- c. Copy/Paste the ArrayID.py file into the IDE to test BRIDGES.
- d. In the line :
bridges = Bridges(YOUR_ASSIGNMENT_NUMBER, "YOUR_USER_ID", "YOUR_API_KEY");
put in your BRIDGES credentials, assignment number is any positive integer, the user id and api key are strings.

2. Follow the instructions for the language you are using (as per the earlier slides) to run your program. Note that python 3 (preferably 3.5 and above) is required.

Running BRIDGES Programs (VM)

1. If you are on Windows or you have difficulty with the install process, we provide an **Ubuntu VM** that you can download and install with Virtual Box (we will have the VMs on USB drives and on Google Drive. We will also have spare OS X laptops).
2. The VM will have all the needed Bridges software (for all languages).
3. To start the VM open Virtual Box and start the Ubuntu VM.
4. VM credentials: *login : user, password : user*