Team International
Deliverable #1
Project: Celestia (was mWater)
09.13.2016

Our team spent many hours struggling to download, compile, and run the source code for the mWater app. We worked independently during the week trying to understand the dependencies and permissions aspects of the mWater project and then met as a group on Sunday, September 11 at 8:30 pm to around 12:00 am trying to compile and run the mWater application. Unfortunately, time was lost due to searching for and installing correct versions of dependencies such as Grunt, Cordova, Bower, and Browserify. We were also having trouble with getting Minimatch, Lodash, and Graceful-fs to install successfully. However, we did get the mWater folders called "mWater-common" and "app_v3" to load to the team's Github repository successfully. After trying to install the mWater application for several more hours, Megan decided to email Dr. Bowring to explain to him that we could not get the application to run. She met with Dr. Bowring around 3:00 pm today, September 12 and he advised our team to choose another project. Megan suggested our team choose Celestia and we all agreed.

Update: 9:05pm

We went to the Celestia project website and clicked the download link and after a few minutes of loading the SourceForge website, the download would not run on the Ubuntu virtual machine. We went to this website: https://sourceforge.net/projects/celestia/, and downloaded the tar.gz file for the Celestia project. This file is for Celestia version 1.6.1 . After downloading the file, we extracted the file in the home directory and started to follow the instructions in the README file found in the Celestia 1.6.1 folder. Started installing the gtk version by using ./configure --with-gtk make and makefile and then ran into some problems. First, we learned how to use the make file and then some errors were shown on the terminal. Next, we continued to try the other versions of the simulator using KDE3 and GNOME. Currently, we are unsuccessful with getting the simulator running on Linux at 9:05pm, Monday September 12. We will keep you updated…

Update: 2:27 AM

After a few more hours attempting to build the project we finally were able to build and compile Celestia! The main problem we had was probably the repository we were using was outdated. We found a new repository at https://github.com/bgodard/celestia-g2 , which had an updated version of Celestia that supposedly was never released. After copying the new repository and trying to built it, it required additional libraries that the old built did not have. The libraries and instructions on how to build it were found at https://en.wikibooks.org/wiki/Celestia/Development/Qt4#NAIF_SPICE . The Cspice package was extremely difficult to install due to the specific path it had to be in order to Celestia to run properly. Cspice package was found at http://naif.jpl.nasa.gov/naif/toolkit_C.html. After compiling

everything we were able to run Celestia. It runs very sluggish on the virtual machine due to the demanding graphics.
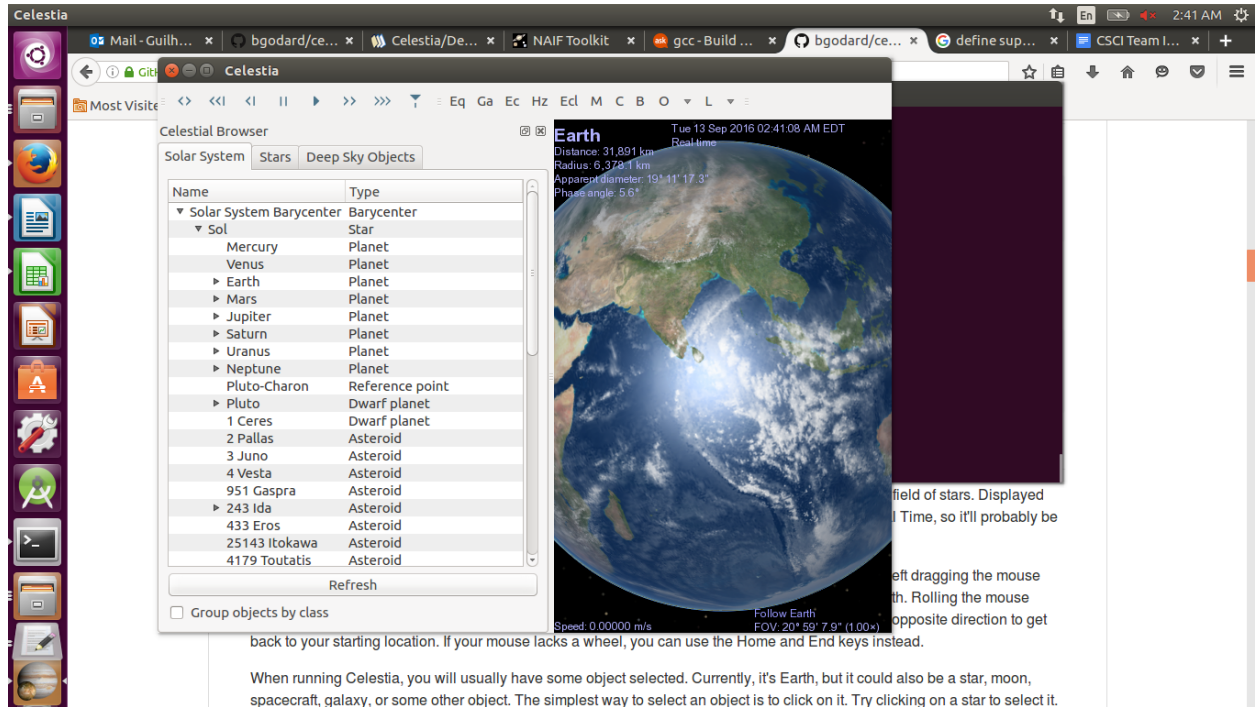
<u>Update: 2:54am</u>

Our team is very pleased that Gui was able to compile and run the source code on his Ubuntu VM tonight. By Googling the Celestia project, we can see that it has been an ongoing project for many years. It had it's final update in 2011 at version 1.6.1, which we are using for our project. There are many resources for compiling and running the code (this was a problem we were having with the mWater application - there was not enough information about it online for us to troubleshoot), including an older [Ubuntu Celestia package](#) and a helpful [WikiBooks page](#). After many hours searching, both Gui and Megan found a GitHub repository that had the newer source code and much-improved installation instructions.

The Celestia application can be run with one of four different interfaces:

```
10   OK, assuming you've collected all the necessary libraries, here's
11   what you need to do to build and run Celestia:
12
13          ./configure --with-INTERFACE                    [*]
14          make
15          make install
16
17   [*] INTERFACE must be replaced with one of "kde", "gtk", "gnome", or "glut".
18
19   Four interfaces are available for Celestia:
20   - glut: minimal interface, barebone Celestia core with no toolbar or menu...
21   - GTK: A full interface with minimal dependencies, adds a menu, a configuration
22          dialog some other utilities.
23   - Gnome: The full GTK interface plus a few Gnome integration goodies, such as
24          preference saving in GConf. This looks and works very much like the
25          Windows interface.
26   - KDE3: brings contextual menus, toolbars, KDE integration,
27          internationalization, bookmarks...
28
29   To build the KDE interface (requires various kde-devel packages):
30          configure --with-kde
```

There are libraries such as the jpeglib, pnglib, glu, and OpenGL to install before configuration. We also have to install the -dev versions as well.

We are very excited that Gui was able to compile and run the program from the command line - we have saved the terminal, but it is much too long to include in this report.