**Project Skills – CA3 (20%) – Version Control with Github and Eclipse Git**

For this CA you are required to demonstrate a basic understanding of the main version control concepts through the use of Git and Eclipse. Git is a command line tool but Eclipse contains a plugin and a perspective that allows you to execute the main commands from the GUI. This is bundled with most Eclipse distributions so you do not need to install Git separately.

You create your repositories on Github and then clone them from Eclipse. This will allow you to checkout branches, make changes and commits, merge your branches and resolve conflicts.

The main version control concepts you need to demonstrate in this assignment are:

1. Creating and cloning repositories on Github and Eclipse
2. Checking out branches so you can make edits/additions
3. Making commits when you are happy with the changes
4. Pushing and pulling changes to/from the remote repo
5. Merging your branch with the master branch
6. Resolving conflicts (you may need to intentionally create a conflict to demonstrate this).

In the assignment you should create a report that describes each of the main VC concepts above (1-6) and how you put them into practice. Use screenshots from eclipse and Github as evidence and also describe with text how you performed these actions.

The project that you will create will be based around your data structures module so you do not really have to learn anything new other that the VC concepts above.

The project will implement a basic LinkedList of Strings through Java with methods to perform the following:

* Add to the list
* Remove from the list
* Check if the list is empty
* Search the list

You will also have a Java GUI (JFrame) that allows the user to add/remove/search/display the linked list. It might look like this:

|  |  |
| --- | --- |
| Add Button | Add TextField |
| Remove Button | Remove TextField |
| Search Button | Search TextField |
| List Display TextArea | |

Each Group member should take ownership of one of the three main functions (add/remove/search) and these should be developed in tandem with each other. Each group member will also be adding code to the GUI test class to make sure their function is behaving properly. It is likely that conflicts will occur here where two people change the same piece of code. This is want we want to see and if conflicts do not naturally occur you should create them intentionally and document how they were resolved.

Be sure to follow the guide on Moodle for setting up your Github repos on Eclipse. This is important.