**6CCS3PRJ Final Year**

**[NC03] Automated Grading of SQL Tasks to Improve Student Learning**

Third Progress Report

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In the last month, I have made progress on the two parts of the application I am working on. There have been no unexpected changes at this point.

# SQL Assess library:

* Added the functionality of compile which, given a *schema, seed* and *correct query* returns any syntactic errors, if they exist. If there are no errors, it returns the structure of the database.
* Added multiple transformers, whose purpose is to transform a SQL query in a standard form:
  + Transform ***\**** into the list of columns of the query;
  + Transform *BETWEEN* into two *>* and < .
* Added parsers that extract certain components of the query. I am already using a library that does the transformation in those components, but the extra code I built on top of them transforms the elements of a query in comparable arrays / other structures:
  + Extract *columns*;
  + Extract *order by.*
* Added the functionality of comparing the instructor versus student *query* and return:
  + Whether the results of the two queries are the same;
  + What columns have been selected in each query;
  + What ordering rule has been used in each query.

# Web application:

* Initial setup of the application has been completed. We now have a Rails application that:
  + Compiles *Javascript* using *WebPack*
  + Compiles SCSS using *PostCSS*
  + Connects to a MySQL database using *ActiveRecord*
* Authentication has been implemented using *Devise* and *bcrypt*
* Users can now create challenges and using the compile functionality from the library they can see errors in their query and the structure of the database
* Users can submit solutions to challenges and, using the assess functionality from the library, see if their results match and what components (currently just columns and order by) their queries are using.