**5.6 Testing**

Testing was carried out throughout the development process and a number of techniques were used to ensure that the application worked as expected. As one of the seven principles of testing is that early testing saves time and money testing was carried out right from the beginning of the project in order to find as many defects as possible. By carry out testing early and often it meant that the time and effort regarding fixing the defects was greatly reduced. Use case testing was carried out and for each use case that was created during the design stage a number of tests were implemented when a feature was created. As the project followed the agile methodology and new changes to the system were being introduced test were derived from the new created use cases and regression testing ensured that when new features were added the application still worked as expected. **APPENDIX NUMBER** shows all the black-box testing that was based upon the use cases that was carried out.

Angular’s *ng serve* feature was made use of throughout the development stage and aided in testing. This CLI command builds or serves the application in real time. This enabled in testing as viewing and using any features could be done in real time, with any defects to these features to be quickly spotted and corrected. As the *ng serve* command builds creates a new build every time changes are made to the source code it allowed these changes to be view and testing continuously.

A screenshot of a social media post

Description automatically generatedWith regards to the server-side an application called Nodemon was used that motions any changes that are made and restarts the application when file changes in the directory are detected. This again allowed the motioning of changes and testing as new features were added to the application. An application called Postman was used that simulated calls to the API. For each route that was implemented in the application Postman used to test the HTTP request and return the results. If the results returned by the test request did not match the expected result the server-side code was updated and testing until the expected result was returned. **Figure number**shows a test HTTP requested and the returned results that was sent to the created end point, <http://localhost:3000/api/users/:id>, using Postman.

**5.1 User Acceptance testing**