**School of Computing  
CA326 Year 3 Project Proposal Form**

**SECTION A**

Project Title: Library Seating Reservation System

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**Section B - Project Description**

**Description:**

Our idea is an application combined with an NFC tag to help solve overcrowding issues in the library. Each desk has an NFC tag on their right. When a student is logged into their application and the phone is placed on the NFC tag it should make the seat on an interactive map of the library go red. This shows that the seat is reserved for the time being and other students can see from their apps which seats are taken and which aren’t. When a student needs to take a break, they click the time needed (5,10,30 minutes) and can remove their phone. Once the user goes over this time frame they will get a notification that they must get back to their desk or the librarian will remove their books, tap the NFC with an admin app, and clear the desk for another student (also making the seat on the map go green, alerting any students waiting that the seat is free). The rule in our library is a seat should not be unattended for more than 45 minutes or the items will be removed and put in lost and found. This is not enforced. We’d also like to add an option to mute all notifications while the phone is on the NFC tag to improve productivity and have this compulsory on mobile free zones in the library (a possible study mode) Overcrowding is a genuine problem in many college library’s (I attended UCD for a year and know many other friends in other university’s that agree) ,another huge problem is students reserving say 6 seats by placing refill pads, for example, for their friends at 7am , and the friends arrive at 2pm, which seems to me to be a waste of desk space. Another useful aspect would be the map that shows students traveling if there is seats available and if it’s worth their while to come in.

**Programming language(s) - List the proposed language(s) to be used:**

* Dart
* SQL
* Python

**Programming tool(s) - List tools (compiler, database, web server, etc.) to be used**

* Develop using Flutter with android studio (allows for easy translation between Ios and android.
* The compiler we plan to use is Dart's AoT.
* Use Firebase if we use a database.

**Learning Challenges - List the main new things (technologies, languages, tools, etc.) that you will have to learn.**

* We have started to learn the language of Dart and use flutter but obviously it will be a challenge to become proficient enough at each of these to be able to develop a working application that is NFC capable.

**Hardware / software platform - State the hardware and software platform for development, eg. PC, Linux, etc.**

* PC and Windows

**Special hardware / software requirements - Describe any special requirements.  
 -** The use of NFC tags and both android and iPhone phones to test the application.