# MSc Projects 2019

1. **Early detection system – Providing dedicated support to students**

**Description:**The introduction to computer science (CS1) is a critical foundational course. However, it has been referred to as a ‘barrier course’ because poor performance in it can be a barrier to progress in students’ engineering and computer science programmes. Because of the role CS1 plays in retention, progression and success in computer science and engineering, it is important to identify methods for improving student learning and achievement in CS1 [1]. Most of the time, students at risk are identified when it is too late. To identify students who are struggling from an early stage will enable the lecturers/tutors and other stakeholders to put in place more dedicated student support quickly. This project aims to develop an application that will enable lecturers/tutors and other stakeholders to identify students with issues every week. The system should be flexible to allow any academic configure it for use in their own class, depending on the data available to them. The development will require research into similar systems as well as understanding what sort of student data is captured by the university every week and how it can be brought together in one place to ease the detection of students with problems. The project is suitable to those interested in application development, interface design and the provision of dedicated support to students.

1. **MyHealthDashB**

**Description**

Healthcare data is in multiple places such as different departments in a hospital, GP surgery, and occurs in different formats (text images…etc.). There is a lot of duplication with the same data in different databases, and sometimes the same data is recorded in a different format; the issues also include the lack of security and lack of standardised tools that enable practitioners to record their patients’ health information. It can lead to a waste of time. You are required to develop a database driven health application. The application should enable patients’ data to be stored in one location and be accessible by all stakeholders based on their security clearance. The project will start with a review of similar technologies/issues. It will then seek the views of health practitioners. It will finally use appropriate tools to develop the application and finally test and evaluate the final product.

1. **i*AM*in: A Self-Monitoring Attendance Register System**

**Description:**

Institutions have moved from paper-based attendance register to electronic-based ones. Different universities use different systems and different level of attendance monitoring. This project aims to develop an app that will ease attendance registration. The app should enable them to take their own attendance and send that information to a central system. It should be able to register the start and end of student attendance.

The project will start with a review of similar technologies. It will then use appropriate tools to develop the application and finally test and evaluate the final product.

1. **GamblingSiteTrackerApp**

**Description:**

Gambling young people has increased. A report published in November 2018 by the UK gambling commission found children as young as 11 years old gambled. Many follow gambling companies on social media and play online gambling style games online, and 1.7% are defined as problem gamblers. Gambling has a negative impact on student learning. Self-exclusion programmes are not used as much as one would expect by problem gamblers [2]. Furthermore, Self-exclusion programmes are also not completely effective in preventing individuals from gambling on other websites, as new gambling sites appear every day. While internet providers now provide tools that enable parents to monitor/block what their children have access to, this is not always the case when those children are not in the familial setting.

This project aims to develop an application that will block access to any gambling site. The system should be flexible to allow a parent of the young person to configure it for use on their own or child’s device. The project will start with a review of similar technologies. It will then use appropriate tools to develop the application and finally test and evaluate the final product.

1. **Game-based learning: ADSgames**

**Description:**

Game-based learning is concerned with the use of games to enhance the learning experience. Learning comes from playing the game. It promotes critical thinking and problem-solving. Meanwhile, Data structures and algorithms are the most fundamental concepts in Computing Science. Computing science aims at building an effective foundation for the development of programming skills by teaching algorithms and data structures to students.

This project requires you to create a local multiplayer educational game platform in which multiple users challenge themselves and peers to solve small problems involving writing their algorithms and implementing them in different programming languages. The purpose of the game will be to enhance student learning in ADS which provide them with the foundation in programming and enhance their engagement. The project will start with a review of similar technologies. It will then use appropriate tools to develop the application and finally test and evaluate the final product.

1. **Game-based learning: ProgGames**

Game-based learning is concerned with the use of games to enhance the learning experience. Learning comes from playing the game. It promotes critical thinking and problem-solving. Meanwhile, computing science aim at building an effective foundation for the development of programming skills.

This project requires you to create a local multiplayer educational game platform in which multiple users challenge themselves and peers to solve small problems in a different programming language. The purpose of the game will be to enhance student learning in programming, their engagement. The project will start with a review of game-based learning and platforms, a review of literature of the effective foundation for the development of programming skill. It will then use appropriate tools to develop the game-based learning application and finally test and evaluate the final product

1. **Social Engineering Educational app – BotSe**

**Description:**

Social engineering is the art of manipulating people, so they give up confidential information. The application will give students hands-on experience in social engineering tactics used by hackers.

In this project, you will build a bot for a social engineering project. A bot is a computer program that talks like humans. Through a conversation with the bot, you should be able to retrieve information that may be useful for you such as its name, date of birth, pet’s name…

In this project, you are the hacker, and the bot is the innocent person from whom you will attempt to gather all the essential information through conversation.

The project will start with a review of similar technologies. It will then use appropriate tools to develop the application and finally test and evaluate the final product.

References

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| [1] | M. S. Peteranetz, A. E. Flanigan, D. F. Shell and L.-K. Soh, “Helping Engineering Students Learn in Introductory Computer Science (CS1) Using Computational Creativity Exercises (CCEs),” *IEEE Transactions on Education,* vol. 61, no. 3, pp. 195 - 203, 2018. |
| [2] | S. M. Gainsbury, “Review of Self-exclusion from Gambling Venues as an Intervention for Problem Gambling,” *Journal of Gambling Studies,* vol. 30, no. 2, p. 229–251, 2014. |