Computer Science Projects 2022

Project no.	Supervisor	Project title
CS22-001	Liadh Kelly	App to generate PDF documents from Excel files for project management
CS22-002	Liadh Kelly	App to support information retrieval (IR) evaluation
CS22-003	Liadh Kelly	Website / app to support IR (information retrieval) dataset generation
CS22-004	Joe Bloggs	Bio Signals Projects - website creation, app development, and backend computation projects (x3 projects available)
CS22-005	Joe Bloggs	Lifelog photo viewer app/website (x2 projects available)

CS Project

Project No.: CS22-001

Project Title

App to generate PDF documents from Excel files for project management

Supervisor Liadh Kelly

Co-Supervisor: Joseph Timoney, Liadh Kelly

Project Description

This project involves generating an app that helps with the final year project (FYP) management process. Specifically, the project involves: (1) generating a GUI for existing Java code (the existing code takes an Excel file containing students FYP grades as input and produces a well formatted PDF containing students grades as output); (2) Generating Java code (and a GUI for this code) that takes an Excel file containing project descriptions as input and produces a well formatted PDF of the project descriptions; (3) conduct thorough software testing on the generated app. MSc project which automates more of the project management process is also available.

Project type for grading: Web/app/professional development project

References

Languages & Areas of interest

Java or Processing, Software Testing

Contact details

- E-mail to arrange appointment

Project Suitable for

Computer Science and Software Engineering (CS440 15 credit), Multimedia Mobile and Web(CS440 15 credit), Science Single Honours (CS450 15 credit), MSc in Software Engineering (CS640 22.5 credit)

CS Project

Project No.: CS22-002

Project Title

App to support information retrieval (IR) evaluation

Supervisor Liadh Kelly

Project Description

This project will develop an app which helps with the information retrieval (IR) evaluation process. In developing this app, among other things, it will be necessary to read data from files and write data to other files; plug your app into Java code; use graphics libraries. Further details on the project: Information retrieval (IR) is a process which aims to locate, for a given information need (expressed as a keyword query), relevant content (documents) from a document archive. Researchers develop IR techniques. One way they can test how good their IR system is, is by taking a set of queries and seeing how good their retrieval technique is at finding the documents that answer the query. Statistical evaluation metrics tell them how good their technique is at answering the queries. Java code exists to calculate these statistics. In this project an app will be developed to link into this existing code to show the statistics and to help the researcher understand and process the statistics.

Project type for grading: Standard project

References

Languages & Areas of interest

Java or Processing, Information Retrieval

Contact details

- E-mail to arrange appointment

Project Suitable for

Computer Science and Software Engineering (CS440 15 credit), Science Single Honours (CS450 15 credit), Science Single Honours Accelerated (CS440 15 credit), MSc in Software Engineering (CS640 22.5 credit)

CS Project

Project No.: CS22-003

Project Title

Website / app to support IR (information retrieval) dataset generation

Supervisor Liadh Kelly

Project Description

This project involves development of a website which supports the generation of queries. The website will need to support creation of an admin and user accounts. Users of the website should be able to read text and write queries for the text. The website will connect to a backend database to read data and store data. *** Further details on the topic of the project: The website created in this project supports information retrieval (IR) evaluation by supporting the generation of IR datasets. Information retrieval (IR) is a process which aims to locate, for a given information need (expressed as a keyword query), relevant content (documents) from a document archive. One way that researchers can evaluate how good the information retrieval techniques that they develop are is by participating in an evaluation campaign which provides them with a set of health related queries and documents to search for relevant content in. These query sets are sometimes generated by having individuals read a scenario and enter the query that they would issue for the given scenario. This project will generate a web based tool that supports generation of these query sets. Admin features for this tool will also be required. ***

Project type for grading: Standard project

References

Languages & Areas of interest

JavaScript / NodeJS / Server Technologies, Web development, Information Retrieval

Contact details

- E-mail to arrange appointment

Project Suitable for

Computer Science and Software Engineering (CS440 15 credit), Multimedia Mobile and Web(CS440 15 credit), Science Single Honours (CS450 15 credit), Science Single Honours Accelerated (CS440 15 credit), MSc in Software Engineering (CS640 22.5 credit)

CS Project

Project No.: CS22-004

Project Title

Bio Signals Projects - website creation, app development, and backend computation projects (x3 projects available)

Supervisor Joe Bloggs

Project Description

An individual's biometric signals (e.g. heart rate, skin temperature) can be captured using a device worn on ones wrist. We can use these captured biometric response readings to understand individual's activities in different contexts or to understand their engagement with different situations. Website creation / app development projects are available in this space. These projects will create tools to process this data, or visualize this data. Backend projects which process this data to understand user activities are also available. *** Further details on the projects: Biometric response provides a measure of an individual's arousal levels or engagement with a life situation, e.g. a person's biometric response would be different when their football team scored the winning game of a match than when they lost a match. This biometric response can be measured using devices worn on one's arm. These biometric response measures can be used in combination with other devices to understand individuals activities or their engagement with activities. For example a diary kept when wearing the device could provide insight into one's life. Or it is now possible to capture visual diaries of one's daily life, using a device such as the SnapCam which can be clipped to one's clothes and used to automatically capture multiple photos per minute. Website / app development projects are available to: (1) provide a frontend to allow people explore these collections; (2) support the processing of data in these collections. Backend projects are available which will explore understanding individuals' activities from biometric response levels/readings. Projects will involved, among other things: designing experiments, setting up experiment subjects with the biometric devices and any other devices used, collecting and organising experiment data, analysing data and reporting the results of the experiments. An interest in search technologies and information retrieval is desirable. As is interest in working with new technologies (see above project description). *** [There are 3 individual projects in this space available. Languages and Areas of interest listed below cover all of these projects.]

Project type for grading: Standard project

References

Languages & Areas of interest

JavaScript / NodeJS / Server Technologies, Java or Processing, Python, Web development, Big data, AI and Machine Learning, Information Retrieval

Contact details

- E-mail to arrange appointment

Project Suitable for

Computer Science and Software Engineering (CS440 15 credit), Multimedia Mobile and Web(CS440 15 credit), Science Single Honours (CS450 15 credit), Science Single Honours Accelerated (CS440 15 credit), MSc in Software Engineering (CS640 22.5 credit)

CS Project

Project No.: CS22-005

Project Title

Lifelog photo viewer app/website (x2 projects available)

Supervisor Joe Bloggs

Project Description

It is now possible to capture visual diaries of one's daily life, using a device such as the SnapCam which can be clipped to one's clothes and used to automatically capture multiple photos per minute. There are 2 individual projects available on this topic. Project will develop an app or website to allow individuals browse through these images and annotate them. Project will involve among other things: collecting and organizing lifelog photos.

Project type for grading: Standard project

References

Languages & Areas of interest

Contact details

- E-mail to arrange appointment

Project Suitable for

Computer Science and Software Engineering (CS440 15 credit), Multimedia Mobile and Web(CS440 15 credit), Science Single Honours (CS450 15 credit), Science Single Honours Accelerated (CS440 15 credit), MSc in Software Engineering (CS640 22.5 credit)