**RFPROJECTS**

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***It is up to the group to choose any programming environment to build their software. Client will be assigned for each group once the group finalise selecting their topic.***

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

**Sales Inventory Management System**

A cloud-based inventory management that can help to facilitate both e-commerce or brick-and-mortar establishments. The system should allow access through the website and provide minimal mandatory input and report functions on the android app.

The requirements for the system is as follows:

* The system must record the existing stock details and generate easy-to-read online report for the manager level.

股票信息报表 -> manager

* The system must alert supervisor-level users of the shortage of the products when the stock is running below par level and provide an option to generate a purchase order for suppliers.
* Need monitor system/function A
* The system must update the inventory upon each sales transaction on the real-time basis. 时事更新交易后的存货数量
* The system must cater for different warehouses when there are more than 1 warehouse available. 对接不同仓库
* The system should help to predict future demand and generate the yearly forecast report which includes the cost occurring in stocking up the products based on the record of the inventory on the previous year.

need data analysis

* The system must store the log report to record all transactions requested or sent by all user levels.
* 存储用户交易记录请求信息
* The system must be easy to use and does not allow overwriting of the data.

**Project analysis ：The hard part maybe :**

1. **need both website and app**
2. **Need monitor system A**
3. **Website & app software architecture**
4. **Need data analysis (what?!)**

**Suggestion : \*\*\***

**This one will require alot of programming since website and app.**

**I think we should stick to project with only one application**

**CDU Course Support System**

An application which can be used to help the course coordinators and the students of CDU in mapping the subjects enrolled in the course. The application will build a mind map of all the units in the course and their prerequisites and in addition it will also generate a study plan for the students based on the subjects completed and offered. The system will also help the graduation team to find whether the student has successfully completed all the units in the course for graduation.

**Project analysis:**

1. **need both website OR app (much easier)**
2. **study plan (whatever it is ,it’s much easier)**

**I think this one should be easier .**

**Suggestion : \*\*\*\*\***

**There's many calendars out there today, might be too easy. Sami will mark us hard**

**Online Food Ordering and Delivery System**

A cloud-based food ordering and delivery system that track orders from website and from android app.  Nowadays, there are many third-party websites that list all the restaurants and each restaurant has to pay a lot of commission through these websites.  What if the restaurant would like to have their own system where they can customise the features to fit their loyal customers?

The requirements for the system is as follows.

* The system must record orders from the website and send through the kitchen and front-office for billing.

A上菜系统 --上传图片，菜信息

* The system must record individual’s last order and allow him/her to replace the last order in one click.

B用户系统

* The system should have loyalty system where customers can earn points for every order placed in the system.
* B用户系统
* The system must allow the first page to be a promotional page where special price or special for today can be featured.

A上菜系统 – promotion Page

* The system must allow each menu to have food images.

A上菜系统 – upload image

* The system must allow users to provide feedback and reviews on different menu items on the list.

A上菜系统 – feed back

* The system must collect the information from the order and able to produce relevant reports at the end of the month/year

C 报表系统

* The system should provide the order analytics to find out the popular item for each area, average basket size, customer profile, and other relevant reports.
* C报表系统
* The system must assign the driver on orders which are on the same route and suggest the fastest way to get to the customer’s place.
* The system should provide customer an estimated time for the arrival of the food along with the tracking of where their food is.

**Project analysis:**

1. Need both website and app(This is gonna be a huge load of work)
2. Food menu module (including upload image function, feedback of food ,promotional page)
3. User center module (including loyalty system)
4. Reporting module
5. Delivery monitoring system (need to learn to use google map interface to calculate position of delivery man ,best path, time left before arrival)
6. delivery module which is used by delivery man to send GPS signal

**Suggestion : \*\*\***

**Note ,this project will contain a lot work .**

**This project too big??**

**Android file finder （可以尝试下）**

Currently, android phone does not have the facility to search files based on names. Android phone users struggle for searching any files that was stored or downloaded in the phone.

Solution expected: The team needs to develop an app that can search files in all location based on the file/s name given. This is like a simple search in Windows OS. The app has to be user-friendly, simple and effective.

**Suggestion : \*\*\*\***

**I think this one should be much easier.**

**Sami will definitely ask us to change some things later down the course since it is easy**

**Android Based Parking Booking System based on Geo-sensing**

The proposed project is a smart parking booking system that provides customers an easy way of reserving a parking space online. It overcomes the problem of finding a parking space in commercial areas that unnecessary consumes time. Hence this project offers a web based reservation system where users can view various parking areas and select the space to view whether space is available or not. If the booking space is available then he can book it for specific time slot. The booked space will be marked yellow and will not be available for anyone else for the specified time. For demonstration, we will be using 4 parking spaces and each parking space will have 20 time slots. This system provides an additional feature of cancelling the bookings. User can cancel their books space anytime. Users can even make payment online via credit card. After making payment users are notified about the booking via email along with unique parking number. The client app allows parking booking on android phone. The server side web service is stored on a web service.

**Project analysis:**

1. This project only need app
2. module A: turn on / off signal of parking slots to simulate car parking (although could use fake data to present it)
3. user center ??
4. ordering module (reserving or cancelling parking slot)车位使用倒计时功能
5. payment system (How to integrate bank API into this app is challenging)
6. Mail system (need to build up mail server)

**Suggestion: \*\*\*\*\***

**Worth trying this one**

**My personal favorite 殺 殺殺**

**~~Forensic Applications of Bar Codes~~**

Bar code readers are used in various applications ranging from supermarket checkouts to medical devices. Bar codes are also incorporated into exhibit labels and evidence bags. Forensic applications of bar codes include `decoding’ of damaged or partial bar codes on parts of suspected stolen vehicles. Work done by Barrett and Smith (Science & Justice Vol No.3 2005) showed that it was possible to restore an altered barcode to its original state. This project will examine techniques to restore partial barcodes and develop a test to ensure results obtained are valid.

**~~DDos forensics using MapReduce~~**

A Distributed Denial of Service (DDoS) attack aims at making a system unavailable by flooding the target with a large number of requests. During these attacks, the volume of the produced log files grows rapidly. A forensic investigator will take a long time to analyse these files to find the source of the attack for containment and to re-establish system availability. This project investigates the use of Hadoop and MapReduce to detect packets that belong to a DDoS attack, which would otherwise require a long time to be achieved.

**~~Step counter application~~**

There are lot of step counter apps like Samsung health, google fit, etc., But the steps counted by them is not very accurate and most of the time it varies as they strongly depend on GPS signals alone.

The team needs to develop an app that can count the steps by including GPS and another novel way. The system also needs facilities of calculating BMI, registering blood pressure level, glucose level, suggest some exercise activities, calculate monthly steps.

**~~CCTV Video Analytics~~**

The overall capability to automatically analyse video images to extract objects, detect events, and to perform behavioural analysis, is referred to as video analytics. This field remains one of the most elusive fields to explore but till now the progress has been slow. New algorithms are always needed to fine tune the work that have already been done.

**~~Create Augmented Reality Mobile Application~~**

It can be a mini game, doodling or animation related. The aim is to demonstrate how AR can be used on your phone. Tools like ARCore, an SDK that lets Android developers create awesome AR experiences can be used. You can go to <https://experiments.withgoogle.com/collection/ar> for some examples.

AR

**~~Mobile apps for Google Assistant~~**

Develop a mobile app using google assistant. It can range from home automation, searching for information or helping you out with all sorts of tasks. This app will allow user to quickly access other apps in your phone by a single tap or simply saying “OK Google” when holding down your home button.

Google assistant API

**~~Spam Email Detection~~**

Develop a software that will be able to differentiate spam emails from ham emails using any of the three unsupervised algorithms - Self-Organizing Map, Adaptive Resonance Theory or Hierarchical Clustering. The performance of the developed model should be evaluated using 2/3 methods as discussed in *https://scikit-learn.org/stable/modules/clustering.html#clustering-performance-evaluation*

Feature Extraction should be carried out using PCA.

Besides the core spam identification model, the software should have a proper GUI where the header information of the desired email will be displayed in appropriate fields and these header related data will be fed into the core engine for evaluation purposes. The result should also be displayed as appropriate.

The dataset for model building will be supplied. Recommended development platform is Python version > 3.0.

**~~Blockchain to protect employee details~~**

When employers are recruiting, they have to go through a lot of background checks to verify the employment history of the candidate. It’s a resource consuming task and often fraught with false claims by the employees which are hard to detect.

Develop a simple Blockchain based software system with proper GUI where an employer can achieve these verification process with ease and confidence.

**Student Information Management System (SIMS)**

SIMS should have the following features which should be reasonably useful for administering a class of any number of students:

* Student Enrolment- where name, roll, address, level of study, behavioural record and current cumulative grade should be stored
* Ability to digitally issue identification card
* Use the above card to record attendance through scanning
* Effective tracking of issued resources such as books and study materials
* Feature to digitally inform the students about important announcements and class timetables through communication
* Ability to generate reports

**Project analysis:**

1. **is this system web-based ?**
2. only need app or website
3. scanning information ( this part might be hard to code , need to learn how to extract info from image scanned)
4. other function should be much easier.

**Suggestion: \*\*\*\***

**~~App for health monitoring based on biomedical signals~~**

Processing of the biomedical signals along with the features, colour, shape, pattern and coating of the image can be used as a basis to identify and diagnose health issues. Build an application that can be used to analyse the biomedical information which can then be used in medical areas.

**~~2 players interactive game~~**

This project is to design a game that allows players to fight against one another using their Android phones. Players can see their enemies on their phone and execute attacks to inflict damage.