2022

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A-level Project

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Cadet Link

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# The Problem:

Through my experience in a cadet force I have learnt many things, one of these things is communication is verry important, however as highlighted by experience, communication is not always easy for a Cadet force, especially one that is split over two schools such as mine. Getting new kit, communicating about lessons and activities for each week, and receiving information about trips are, despite the efforts of our CFAV’s (Cadet Force Adult Volunteers), less efficient than what would be desirable – especially trying to get new Uniform. These issues are normally not because of Our CFAV’s but mainly due to the amount of paperwork required in these tasks, paperwork that I believe could be streamed lined by computational methods.

In the current system Orders are emailed, Whatsapped or sent through teams. Uniform is kept track of on a manually updated Excel spreadsheet. Communication is generally done through email, and physical meetings although the Senior NCO’s do have an informal group chat on WhatsApp. In this system there is no central space for communication, which limits coordination and collaboration and overall cohesion of the Force.

Our Current system for acquiring kit involves emailing a CFAV, normally Lt Howson our SSI (Senior School Instructor) and quarter master either collectively or individually. This email can get Lost in inboxes and sometimes the CFAV’s are simply to busy to deal with a request. This results in long delays for new kit or in some cases new kit is never issued; this is obviously not ideal.

## Stakeholders

## Who use the current system and would use the new system and how.

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Role | Interaction | Availability |
| Cpt Aggrey | User: Contingent commander | Would use to issues orders and post information about trips | Once a week in person, email |
| Lt Howson | User: Quartermaster/SSI | Would use the app to sort out uniform issues and know what Equipment is needed for each session | Once a week in person, email |
| A Cadet | User | Would Use the App to Make Requests and Find orders for next session | For TJWA cadets any school time,  Benenden, once a week, possible email/WhatsApp |

## Why this Problem is suited to be solvable by computational methods

This problem is suited to suited to be solvable by computational methods for a variety of reasons. My planned solution is to use a web-based app that would be accessible to download on any device or be accessed through the internet. Each cadet would have their own log in Information about trips, orders for this week, what kit to bring (and whenever its short sleeves or not), scores for section competitions and a way for uniform issues to be logged would all be displayed in an easy-to-use personalised central display. *The Exiting System is outlined in the first section of The Problem*

The benefits over the existing system would be, a central space for communication, essay use from anywhere (with internet connection), a full computerised database which would allow easy data retrieval, comparison, and entry, removing a lot of human error and allowing for easier management of stores and hopefully lead to cadets getting new kit more sooner.

## Computational methods I will use:

### Problem Decomposition

This Project is verry modular as each feature are mostly independent of each other; this will allow me to tackle each problem individually, hopefully leading to a more complete project even if all planned features are not implemented. As such this also leads to the ability to easily add new features even after launch. As such I have split the purposed features on terms of most to least important:

1. **Database**, **Login and Signup** and **Dashboard** systems
2. **Uniform request** system
3. **Trip manager**, **Section and** **Troop manger** and **Order**s systems
4. The ability to **talk to an NCO**, and any other systems could be to implement

### Divide and conquer

### I have split each section into different html/php pages and works on each page till I get it at a degree of functionality that I consider it workable or completely finish it I use the below diagram to help me chose what page to tackle next:

Diagram

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## Success criteria

Using the 4-stage table in the **problem decomposition** section I will grade:

If I only I achieve systems in **group 1** I would consider the project to be a failure as the skeleton of the program would be operational, but it would lack any useable functionality. If I only achieve systems in **group 1** and 2 then the program would be operational with limited functionality, I believe this would be a good beta version and a limited success as the program would be somewhat useful. If I achieve groups **1**,**2** and **3** the program would be operational with a good amount of functionality; I would consider the program largely successful. If I complete all four groups, I would consider the program greatly successful as functionality is achieved to a greater deal than what I have planned and shows the program is useful.

*\* I consider a system complete where it runs with minimal bugs and full planned functionality is operational.*

Other Goals

Other than what Implementing systems my other goals are for the code to be readable and easily understandable, this means extensively commenting code (ahhh!). The rationale behind this goal is as I will not all ways be at my cadet force and when I leave the system will still need to be maintained and if new features are desired, I hope others may be able to add to the program. This would also be useful if other cadet force wants to use the program as it will have to be adaptable to their needs.

* **A Login and account and personalised Dashboard system** would allow Cadets and CFAV’s to access the information specific to them such as what section or troop they are in, what training they are going to undergo or lead next cadet session, what Kit and equipment they need to bring, dates and times of upcoming trips, and anything else that might be necessary to communicate to cadets without physical presence.
* **A Uniform and Equipment Database** would allow CFAV’s and senior NCO’s who are planning a lesson to know what Equipment is available and book that for their lesson. Would also allow cadets to order new uniform at any time of day or any location, automatically check if their size is in stock and present that data to the Quartermaster so it can be ordered and or issued the next cadet session. The computerised database would be able to run real time comparisons and remove much of the human error inherent to a paper database.

## 

The operation of cadets, like the army itself requires a certain amount of logistical support, The difference is in Cadets we don’t have a whole Corp supporting us and although the efforts of our CFAV’s (Cadet Force Adult Volunteer) keep the process mostly up to date, something sometimes does still get forgotten or missed. Having to wait 4 months for new Kit Is not great, especially when remembrance parade is coming up.

This new app would be able to take a lot of the annoying tasks out of the logistics of cadets. Information about trips, Orders for this week, what Kit to bring (and whenever its short sleeves or not), scores for section competitions and a way for uniform issues to be logged would all be displayed in an easy-to-use central display. Other features like talking to an NCO could be implemented. Each cadet would have their own log in. the uniform issues would be logged, cross referenced against the Quartermaster’s database and would have the option to be displayed in an excel spread sheet.

Solvable by Computational method?

Use algorithms

* Solve the problem consistently
* Efficient
* Completes in reasonable amount of time