

Analysis of Own Project

Introduction

Dr. Watkins and Mr. Cameron (The defaulter administrators) both deal with boys' defaulters and detentions. They currently have a spreadsheet-based system however it has many limitations. These limitations mainly relate to a lack of data validation functions, which disallow the entering of bad or invalid data. Also, as I have included under the heading 'The current system', it relies on manual input too much. They have asked me to design and make a new system which will be much more user friendly so that it can be more readily accessible to other staff. It must also include more automatic features, which will for example automatically create reminder slips for pupils who have overdue defaulters.

Interview

For my research, I interview Dr. Watkins, one of the schools' defaulter administrators, about the current system and what he would like to see in the proposed system.

Me: Hello Dr. Watkins, first of all I would like to ask you how you rate your computing skills?

Dr. Watkins: I regard myself as fairly competent when it comes to ICT, after all, I designed the current spreadsheet based system but unfortunately my colleague, Mr. Cameron can't tell the difference between a floppy disk and a mouse, so any new system will have to be fairly easy to use.

Me: You mentioned something about the current spreadsheet based system, could you please tell me more?

Dr. Watkins: Yes, it is basically a large spreadsheet, which has columns for name, house, reason for defaulter, date defaulter to be run, and whether the defaulter has been run or not. Unfortunately there is no data validation in place and it is quite easy to enter invalid data.

Me: Are there any automatic functions, which say, automatically indicates that a defaulter has not been run?

Dr. Watkins: No, currently I go through each defaulter and when I see one, which is not run then I colour the text red. Unfortunately this is a very slow and monotonous task, and it doesn't make my job any easier! Also, if I want to find out if somebody should be gated, I have to go through the list and count each person's defaulters to see if any of them merit a gating, I would prefer for it to be automatic, but this is out of my depth when it comes to computer programming!

Me: It's quite easy! What other features would you like to see in a new system?

Dr. Watkins: I have been visualizing it for a long time now, we would like a system, which we will be able to air on the school network so that staff can default pupils without using defaulter slips as they can be time consuming and often very unsafe as they can be easily lost.

We would like a system which any staff can access, search for a pupil and default them.

Me: What kind of data volume are we talking about?

Dr. Watkins: Well, there are about 1500 pupils in the school and the system should hold around 500 defaulters.

Me: Thank you very much for your time, you have been very helpful.

Dr. Watkins: No problem.

The Current System

The current system uses excel to store the names of all the pupils who have defaulters, the reasons for them receiving them etc. The only problem is that it is very slow to enter data and everything else must be done manually. This means filling out reminder slips by hand, having to look through the list and count up how many defaulters each person has to see if they require a gating. Also it is necessary to know the information about all of the pupils so that the information can be entered fully.

User Requirements

Specifically he would like a system, which will:

- ☐ Capability to handle all defaulters, which can be entered 'at the click of a button'.
- ☐ Contain details of all pupils which can be brought up by the typing in of the name
- ☐ Ability to print out lists of pupils with outstanding defaulters
- ☐ A function which will alert the user if a pupil has accumulated 3 or more defaulters in order to implement a gating
- ☐ Print out defaulter sheets which the prefects can use to 'tick off' pupils as they run their defaulters
- ☐ There should be an interface which can be accessed by other staff via the school network so that they can default pupils electronically
- ☐ Function which can add new pupils to the central database

Initial Investigation

Dr. Watkins was interviewed to find out more details about the proposed new defaulter system.

Volume of Data

There are currently about 1500 people in the school and at most the system will have to hold 500 defaulters at one time.

Types of Defaulter

There are 3 types of punishment that the system must deal with; there are Games/MAP Defaulters, Behavior Defaulters and School Detentions.

Gatings

When a pupil receives 3 or more defaulters in a single term, they become gated, to save the staff having to look through every one counting, there should be an automatic function, which will alert the user when this barrier has been broken

Notification

When a pupil has received a defaulter or detention, a note is sent to that pupil's houseparent to tell them to go and see one of the defaulter staff to arrange a time at which they can run or do their appropriate punishment. There should be a tool, which will

automatically print out these slips for all outstanding defaulters and detentions.

Deletion

At the end of each year all of the defaulters are removed from the system.

Times

Defaulters and detentions can be done at lunchtime on Monday, Tuesday, Thursday and Friday and after school on Tuesday, Thursday and Friday and it must be possible to select the chosen time from a list when a pupil comes to arrange a time.

Hardware and Software

Dr. Watkins and Mr. Cameron both currently have computers with the following specification:

- ☐ Microsoft® Millennium Edition® (ME) Operating System
- ☐ Intel® Celeron® 755MHz processor
- ☐ 128 Mb RAM
- ☐ A 16 Gb hard disk with 7 Gb of free space
- ☐ Floppy disk drive
- ☐ CD-ROM drive

The computer currently has the following key software installed:

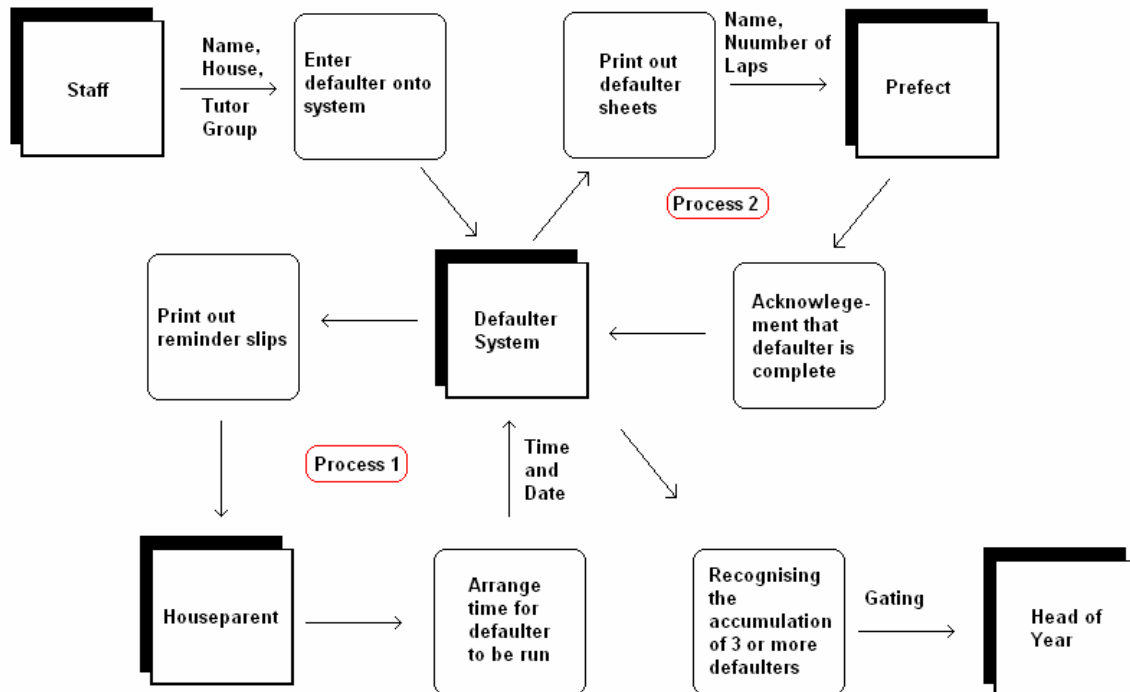
- ☐ Microsoft® Excel®
- ☐ Microsoft® Access®
- ☐ Microsoft® Word®
- ☐ Microsoft® Internet Explorer®

Users skill level

Dr. Watkins is very familiar with IT problem solving as he produced the current, Excel®-based system although he has not used Access® before

Data Flow Diagram

The following diagram illustrates in outline the processes of adding and the management of defaulters and detentions:



Objectives of the new system

The system must perform the following functions:

- ☐ Allow staff to enter defaulters quickly and easily by just entering
- ☐ Produce defaulter reminders that can be sent out to the house parents
- ☐ Produce defaulter recording sheets so that the prefects can see how many laps each pupil has to do
- ☐ Display and print out messages which can be sent to head of year when a pupil has merited a gating by the accumulation of 3 or more defaulters
- ☐ Delete all defaulters at the end of a year
- ☐ Add and delete pupils' profiles when the leave or start at the school

Performance Criteria/Indicators

I will use the following Criteria/Indicators to 'benchmark' my new system:

- ☐ It should take no longer than 15 seconds for a member of staff to default a pupil online
- ☐ It should take no longer than 20 seconds to enter the details of a new pupil
- ☐ The recording sheets should be easy to read so that the prefects can easily understand them so that it is not too difficult for them to tick off pupils running
- ☐ The system should ensure data integrity so that the system can't be hacked by unruly pupils trying to delete their defaulters!
- ☐ The system should be usable by someone with no experience or usage of Access
- ☐ The system should provide an audit trail so that any pupils defaulters can be confirmed as either run or un-run
- ☐ The gating reminder should appear as soon as a pupil has received his defaulter

Inputs

INPUT BY STAFF - this involves:

Staff defaulting pupils 'online' by using a network based system **INPUT BY**

PREFECTS - this involves:

Prefects hand back the completed defaulter recording sheets **INPUT BY DEFAULTER**

ADMINISTRATORS - this involves:

- ☐ Entering times arranged for pupils to run their defaulters
- ☐ Entering whether a pupil has completed their defaulter according to the recording sheets

INPUT BY SCHOOL SECRETARIES - this involves:

- ☐ Addition of new pupils onto the database as and when they arrive newly at the school

Deletion of old pupils who have left the school from the system **INPUT BY IT**

SUPPORT - this involves:

- ☐ Maintaining the welfare of the system, troubleshooting any problems in the system

Outputs

RECORDING SHEETS - these must contain:

- ☐ The names of all the pupils running
- ☐ Boxes corresponding to the number of laps each pupil has to run

The date should be at the top of the page along with a suitable title **REMINDER SLIPS**

- these must contain:

- ☐ The house of the recipient for distribution purposes
- ☐ The name of the recipient
- ☐ Instructions to go and see the defaulter administrator at 8:30 the following morning

GATING REMINDER - these must contain:

- ☐ A popup screen alerting the defaulter administrator that the stated pupil has merited a gating by the accumulation of 3 defaulters
- ☐ An option to print out a message (quad) which can be sent to the head of year telling them that the pupil should be gated

Alternative Methods

There are various alternative methods I could use to create this system:

1. Manual Method - keeping the information of all the defaulters on paper in a filing system. By doing it this way it would be necessary to write out all of the reminder slips by hand. Also it would be necessary to count up, manually, all of the defaulters received by each pupil to see if they merit a gating. It would also take a long time to back up all of the information as everything would have to be written out by hand, it is necessary to back up in case a defaulter goes missing etc. As Dr. Watkins currently has an Excel based system this would be a step backwards.

2. Buying a package already designed for a similar purpose - this way everything is created automatically on the computer, the user only needs to enter the data, the only problem is that it is unlikely that there is already software for this purpose, and if there was, it wouldn't be very specific to the defaulter system, also this would be quite

expensive.

3. Writing a special program - by doing this it would be necessary to employ the services of a computer programmer. This would be a good way, which would produce a very effective program, but the only problem would be that it would be very expensive which would not be cost effective, as the defaulter department does not have a budget assigned to it.

4. Using a package and customize - this would be ideal because Dr. Watkins already has suitable packages installed on his machine and I could customize it to the needs of the new system with my current computing knowledge.

Chosen Solution

My chosen solution will be to customize one of the programs, which Dr. Watkins already has installed on his machine. The options are to use either Microsoft® Excel® or Microsoft® Access®. These are both available on Dr. Watkins' machine. Microsoft® Excel® offers the following features:

- ☐ Data Validation
- ☐ H Lookup tables

Entering Free Data Microsoft® Access® offers the following features:

- ☐ Macros
- ☐ Queries
- ☐ Data Relationships
- ☐ Interaction with Visual dBase

I think that Microsoft® Access® 2000 will be the best package because it enables me to meet all of the performance criteria using all of the tools available on it.

Testing Plan

I will test my system by defaulting a pupil and then printing out reminder slips and record sheets to ensure that their names appear on them.