INFO4 Project Report

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Centre Name: Stratton Upper School

Centre Number: 15143

System: UCAS Application System

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7.2 - Ucas Application system45

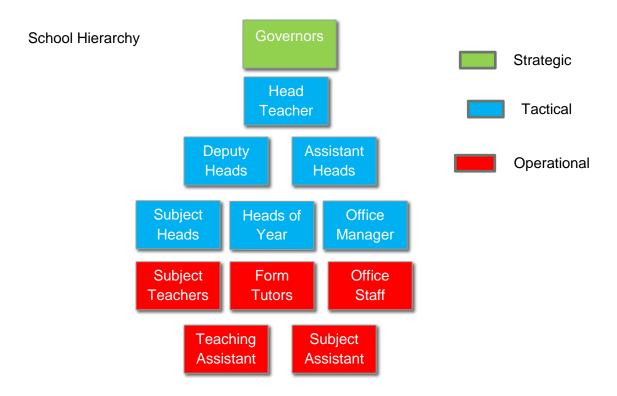
Section 1 - Background & Investigation

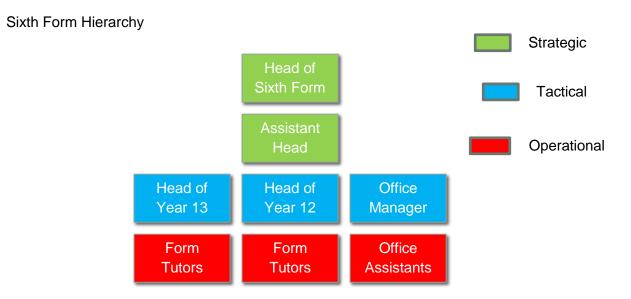
1.1 - Organisation Introduction

1.1.1 – Organisation Overview

Stratton Upper School is an educational academy for 13-19 year olds in Biggleswade. There is a large sixth form and a working farm. The school is separated into blocks of subjects including Humanities, PE and Music as well as a main block for English, Science and Maths. There are over 1,200 students in the school with over 100 different members of staff. The school day consists of:

1.1.2 - Structural Hierarchy





1.1.3 - Technical Information & Systems

Stratton has over 200 student computers in 5 ICT suites as well as every teacher having a student laptop. There are projectors and/or smart boards in almost every classroom which teachers have access to. The school server is Windows 7 and all computers run on this operating system. Mainly Ethernet cables, for student computers, and sometimes a wireless connection for teacher laptops, provide access to system resources and the Internet. There is a student Wi-Fi hotspot for sixth form users in the common room, which can be used from mobile devices. The software running on student computers is usually: Adobe CS6 Master Collection, Office 2010, Internet Explorer as well as other subject applications. The student computers are replaced on a rolling programme, with the oldest set being replaced each summer. Teacher laptops are replaced when necessary, damage or out-dated specifications.

1.1.4 - Client

A Client is the person that asks for the system to be created a gives the creators the requirements for the system. For this Ucas project, the Client is the Head of Year 13, Mr Richard Merrett.

1.1.5 - Users/ Audience

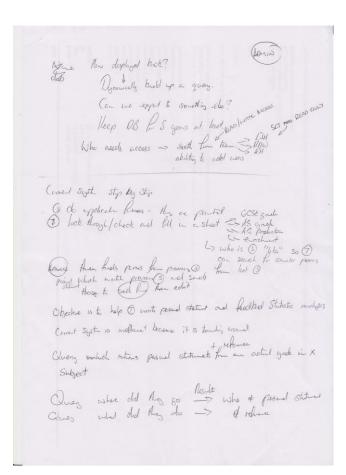
The user of a system is the person/people that will use the system on a day-to-day basis. The requirements and system needs to suit the users and what they are capable of. In this case, the users will be the sixth form office staff, Mr Merrett and other senior members of the sixth form.

1.2 - Investigative Techniques

1.2.1 - Investigative Techniques

1.2.2 - Interview

An interview was conducted with the client of the system, Mr Merrett, to find out his requirements for the system. This gave information of the existing, paper based ucas system and what features the new system would need. For the existing system, they printed all the applications and processed manually to fill in sheet with relevant information, A2 grades, enrichment etc. Then they have to manually search through previous statements for ones with same subjects, and then use them as template.



1.2.3 - Reading Documentation

There wasn't any existing documentation for a UCAS system so we looked through the UCAS website and found any features that we could use in the system. For example, I found the section completed feature was helpful so users could find out how far they were in the process.

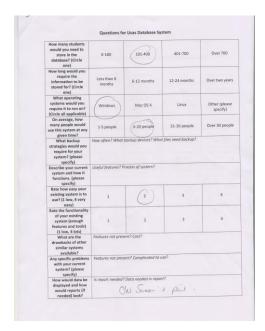
1.2.4 - Observations

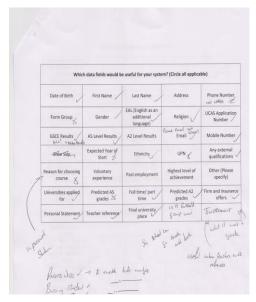
An observation of the system was carried out to see flaws and find ways to improve the processes that were in place. We found out that the system was mostly paper based which made it slow and inefficient as well as costly to run. We felt that the system needed to be more computers based to reduce the need for paper as well as utilising the computers processing speed for processing and searching records.

1.2.5 - Questionnaire

A questionnaire was created to get more detailed written information about what the client needed. I designed the questionnaire as a table as it would be organised and simple for the client to fill in. For each question, I specified how many answers should be circled so I would only get the right amount of answers for the question. Some questions were open questions which allowed the client to give a more accurate picture of the requirements. For these questions, I gave some hints so the client could understand what kind of answers he should be giving. We collected the questionnaire results and used these and the interview to write

our client requirements For example, we found out that 101-400 students would need to be stored in the database, it would only need to run on windows and 6-20 people would use this system at any given time.





1.3 – Existing System

1.3.1 - Description/Analysis of Investigations

The existing system is very much paper based. The students complete their application forms on a PC and then all of these forms are then printed. Teachers manually process these and write down grades and predicted grades on a separate sheet. Office staff compares students subjects and look back over previous students statements and use these as a guide to correct current statements. This helps staff with guidance on personal statements and feedback statistical analysis.

1.3.2 - Problem Identification

The current system is very time-consuming as all the applications form need to be printed and then manually processed. It is very hard to find out status of an individual student's application, as it is mostly paper based. Creating a system that will process and compare statements on the computer will save lots of time because nothing needs to be printed and manually looked at. It will also be cheaper as paper and ink do cost, especially at least 200 pages being printed.

1.4 - Solution

1.4.1 - Requirements

- 1) Query, which returns grades and references from an actual grade in a subject.
- 2) Query, which finds statements from same university or area.
- 3) Backup regularly taken
- 4) Search ability
- 5) Export function for student records for archiving each year
- 6) Updating students details option
- 7) Deferred entry option, keep record open for another year
- 8) Popup to remind teachers about student deadlines

This Email was received on 24th October 2014, after the system was planned. We weren't originally going to include an option for U grades but with these changes, we need to include one. This changes the specification of the system we are creating. This means we need to add extra validation into our database.

From: Richard Merrett
Seet: 24 October 2014 99:13
To: & Wesn'2-13
Subject: UCAS URGENT
Importance: High
Could you please make sure that ALL students who are applying to UCAS HAVE included their U grades – there is a new declaration that says they need to put them down – if they need their applications sent back to them myself or Sarah can do that for them.

Thanks
Rich

1.4.2 - Justification

The current system doesn't support the requirements from the client so there will need to be a new system created that does support these requirements. The current system in place is mainly paper based which makes it slow and inefficient to run. The aim of the new system will be to make it efficient, quick, easy to use and fully functional. This will give a solution to all the problems listed above.

Section 2 – Analysis & Deliverables

2.1 - Project Scope

2.1.1 - Project Scope

This project will mean sixth form staff can create student references and review ucas applications easily and quickly. They will be able to search previous references by fields to help find similar to compare to. There will also be a report produced which can printed and stored, which will look the same as the existing form that staff use currently.

2.1.2 - Excluded Items & Justification

I am excluding importing details on students from external sources such as SIMS or the Ucas application website. These options would need to be paid for and would require programming too advanced and time consuming for our project this year. These features could be looked at for future developments in this system.

2.1.3 - Constraints

Using SIMS to import student's data from would be a very useful feature as the system would update as SIMS updated. However, it would be very expensive to pay SIMS for the software to link to our system and it would also very complicated and time consuming to program this part.

Some teachers have iPads instead of laptops which might need access to the UCAS system. As IOS is a closed ecosystem, applications would need to be created in objective C and this is a very complicated language to write in. This would extend the project by a lot as we would need to program a complete second program in a different language.

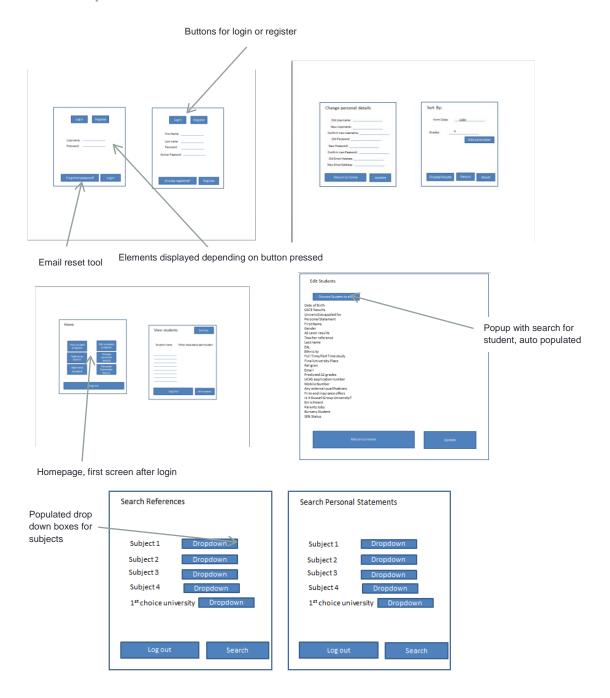
As we only have 6 months to write and implement this system, there isn't enough time to add of the features that we would want. This means we might have to compromise on some of the features we create on our system.

The SQL database we use would be the same so any changes to the database will affect everyone's system. This means our project needs to be created in a similar way and any changes would need to be checked with others to make sure it won't affect their project.

The sixth form team, as with a lot of businesses in the current climate, still like the paper based system as they can trust it and know how it works. This has meant we have needed to compromise on certain parts as they want a paper output at the end of the process.

2.2 - Proposed System

2.2.1 - Description



2.2.2 - Benefits & Impact

One benefit of our system would be that the process would be faster as only one paper output is produced at the end. This would mean the users wouldn't have to wait for lots of printing, the system is using less paper, which would save money, and there would be fewer documents that would need storing.

Our system won't be perfect and there will be features that we haven't had the time to include. However, a benefit is there is the option to update and improve the system in the future when needed and when asked to be the client.

Our system will automatically search through past references by fields so the sixth form team can find similar references quickly and efficiently for comparison. This will save the users lots of time as they don't have to search through all the past references by hand.

This system is also more secure as different permissions can be set for different users so some can only read data but others can read and write. On the existing system, most of the data was paper based, so anyone with access to the room could read and edit any of the data they wanted.

With the current system, it is hard to produce statistics and reports for past years as most of the data is lost after the year. With the new system, all past data is stored so statistics can be created using multiple years which can provide useful data for internal and external groups.

2.2.3 - Agreed Deliverables

We agreed with the client that the application would need to have the ability to add in new students details, from name and gender to things like GSCE and A Level results. They wanted it so that all the information entered could be summarised and viewed at the end for checking. Also needed was the ability to edit an existing student's details if any changed during the year.

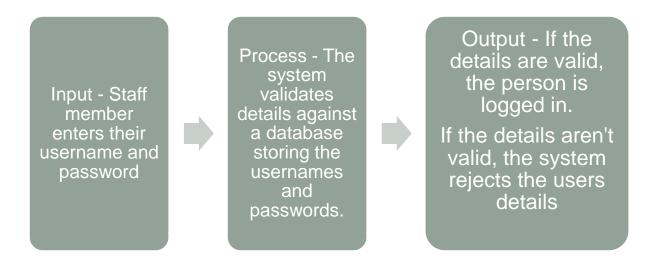
The main function of the program was to be able to search through historic references by certain categories such as university attended or A Level grades. Once the reference was brought back, they wanted the ability to use parts or all of the reference for the new student. This newly created reference would then be saved back into the database for future searches.

The outputs we agreed to provide was a printout of the reference created with the students name at the top and the five reference paragraphs. Also, an output of the student's details was needed so the sixth form team can keep a paper record of the information. Some statistics would be needed over multiple years so senior leaders and staff could view trends easily.

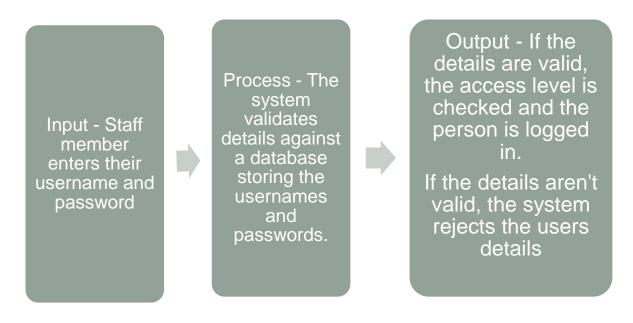
2.3 - Processes

2.3.1 - Login Process

The login form allows users to enter a unique username and password. The system then validates these details, comparing them against a login table in the ucas database. If details match, the user is allowed to login to the system and is shown the home screen. If they don't match, the user is brought back to the login page to try again.



The client later asked for separate login levels for teachers, administrators and senior leaders. A field was added into the login table, which gave each user either read access or read and write access.



2.3.2 – Table Population

Any processes which bring data from the database into the forms

2.3.3 -Processes

2.4 - End Users

2.5 – Evaluation Criteria

- 2.5.1 Quantitative
- 2.5.2 Qualitative
 - Feedback from users/client

Section 3 – Design & Planning

3.1 – Alternative Solutions

There are no similar systems for managing ucas applications at the moment so there is no existing system to compare against. I used the UK passport online application and the Ucas online application to see useful functions and features that I could use in my system.

In The Passport application system and the ucas application system (see appendix 3.1) I found that there were useful features that I could use in my system including:

- Error messages in different colour to stand out.
- More pages but less content on each page.
- Summary to allow view of whole process.
- Background validation to check for errors.
- Errors produced for blank compulsory fields.
- Name first, then address contact details.
- Save and exit for continuing later.
- Possible address lookup for post code. (maybe too costly for our system)
- Dropdown boxes wherever possible to allow easy entry of data.
- Terms and conditions one of the first options.
- Options for route to take on form (login/register) at start
- Symbol for required information (asterisk)
- Warning messages for fields, just advisory (ucas)
- External website links, useful websites
- Session end after set time, security reasons
- Account login for student access, personalised information

The passport application system didn't save the stage of the application automatically before closing after the designated time. This could be an option for my system as users could go back and continue even after it closing for security reasons.

- 3.1.1 Adapting Current System
- 3.1.2 Enhancing Existing Software
- 3.1.3 Purchasing Software Package
- 3.1.4 Developing Bespoke System

3.2 - Screen Designs

3.2.1 – Login Screen

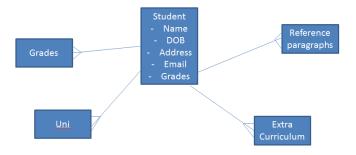
Print screen of login – explanation of design

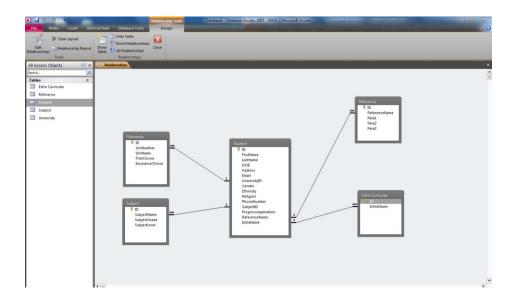
3.2.2 – X to Y Screens

Print screens of all forms – explanation of design

3.3 – Data Management

- 3.3.1 Data Dictionary
- 3.3.2 Entity Relationship Diagrams





3.4 – Data Flow Diagrams

- 3.4.1 Context Level DFD
- 3.4.2 Level 0 DFDs
- 3.4.3 Level 1 DFDs
- 3.4.4 Level 2 DFDs

3.5 – Planning

- 3.5.1 Development Methodologies
- 3.5.2 Project Planning

	Project Plan For Ucas System	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16	Week 17	Week 18	Week 19	Week 20	Week 21
		ĕ	We	We	We	We	We	Me	We	We	٧e	٧e	Vec	Vec	Ve	٧e	٧e	Vec	Vec	Vec	٧e	ě
4	60 = total mins 60 = mins	_	_	_		_	_	_	_	_	^	>	^	٨	>	>	٨	٨	٨	٨		>
5	1.0 Project Briefing	135																			\longrightarrow	_
6	1.1 Meeting with client	15																			\longrightarrow	
7	1.2 Document requirements	60																				
8	1.3 Create/update project plan	60																				
9	2.0 Analysis	45	105																			
10	2.1 Observations of existing system	45	15																			
11	2.2 Questionnaire for consumers		60																			
12	2.3 Review alternatives		30																			
13	3.0 Design Solution		75	180	30																	
14	3.1 Create design of project		60																			\Box
15	3.2 Enter test data		15																			\Box
16	3.3 Create database for system			180																		\Box
17	3.4 Review with client				30																	
18	4.0 Implement Solution				180	180	180	180	180	180	180											\Box
19	4.1 Create login				150	180																
20	4.2 Create Reference Search						180															
21	4.3 Create Add New Student							180														\Box
22	4.4 Create Progress								180													
23	4.5 System Testing									60												
24	4.6 Contingency- fix problems									120	180											
25	5.0 Create Test Plan											810	180	150								\Box
26	5.1 Test Systems											180										\Box
27	5.2 Resolve Problems												120									
28	5.3 Re-test system												60	120								
29	5.4 Sign-off													30								\Box
30	6.0 Roll-out													30	180	180	180	180	180	180		\Box
31	6.1 Plan Rollout													30	180							\Box
32	6.2 Train Users															120					\Box	\neg
33	6.3 Technical Support- install															60	180				\Box	\neg
34	7.0 Post project review																	180	180	180	\Box	\neg
35	N/A Total Hours per week	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	0	0
	,																					

3.6 – Test Plan

Test	Expected Result

Section 4 – Testing & Documentation

4.1 – Testing Results

Test	Expected Result	Actual Result

4.2 – Installation Manual

UCAS SYSTEM

INSTALLATION MANUAL

- 4.2.1 Introduction
- 4.2.2 System Requirements Intel-Based Systems
- 4.2.3 Installation Process

4.3 - User Manual

UCAS SYSTEM

USER MANUAL

4.3.1 – Introduction

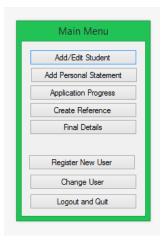
4.3.2 – Logging In

First, double click on the desktop icon or click the UCAS system start menu item. This will open the login page in the centre of the screen.



To access the system at any level, you need a username and password (which should be allocated by the centre administrator). If you haven't been given these details or have forgotten them, please see your system administrator who can create or change them for you.

Once you have these details, enter them in the two text boxes provided (form above) and press the login button at the bottom left of the form. If you have provided the correct details, the system will log you in and you will be taken to the main menu.

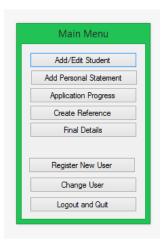


If your login details don't match any in the system, you will be shown an authentication failure error and then returned to the login form so you can try again.



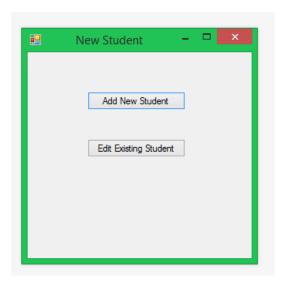
4.3.3 - User Interface

Once you have logged in, you will reach the main menu. This is where all the functions of the system can be accessed quickly and easily.

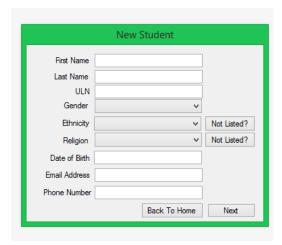


4.3.4 – Adding a New Student

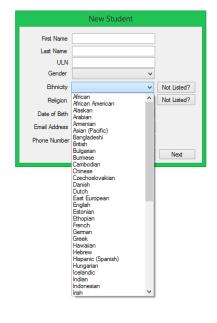
To create a reference and personal statement for a student, their personal and education details are needed. To start this process, select the top button on the main menu (add/edit student. This will take you to a form which finds out whether you are adding a new student or editing an existing student (covered in 4.3.4). Please select the top button (add new student).



The next form displayed is for entering in the new student's personal details.



The required information needed on this form is the ULN, first name, last name and gender. The gender, ethnicity and religion fields provide a list of values which can be selected from.

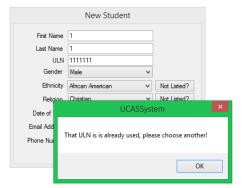


If the relevant ethnicity or religion isn't listed in the dropdown box, please click the button to the right of the relevant field. This will display a form with a single text box.

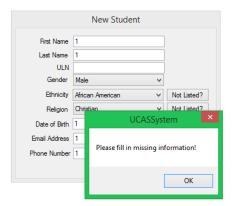


Simply enter the alternative option that wasn't listed and press save. This will add the value to this drop down box as well as any others in the system. Once you press save, you will be returned to the personal details form so you can continue entering in the information.

Once all the information is entered into the form, click next. If the information is in the correct format you will be shown the next form. If the ULN entered has already been used for a previous student, an error message will be shown which asks you to choose a unique ULN.



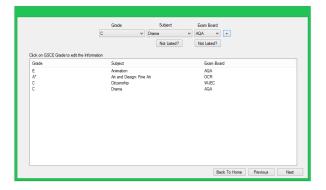
If some required information is missing from the form, an error message will be shown that asks the information to be filled in.



Once you have completed the personal details form and no error messages are displayed, the next stage is adding the student's GSCE results.



To add in a GSCE result, please choose a grade, subject and exam board from the dropdown boxes at the top. Once selected, to finish adding this result, press the add button at the right. This result will then be displayed in the box at the bottom of the form. You can then add multiple GSCEs by using the same method as above.



If you have entered any results incorrectly, you can edit added results by clicking on the relevant grade in the box at the bottom. This will bring up a form with the selected result so you can change the incorrect details or delete it altogether.



4.3.5 – Doing Y

4.3.6 – Logging Out

4.4 - Maintenance Manual

UCAS SYSTEM

MAINTENANCE MANUAL

- 4.4.1 Introduction
- 4.4.2 X Interface
- 4.4.3 Exporting Statistics
- 4.4.4 Editing Databases

Section 5 – Solution Evaluation

5.1 – The Solution

5.1.1 – Strengths

5.2 – The Approach

- 5.2.1 Strengths
- 5.2.2 Weaknesses & Areas for Improvement

Section 6 – Version Control & System Code

6.1 – Application Version Control

6.2 – Report Version Control

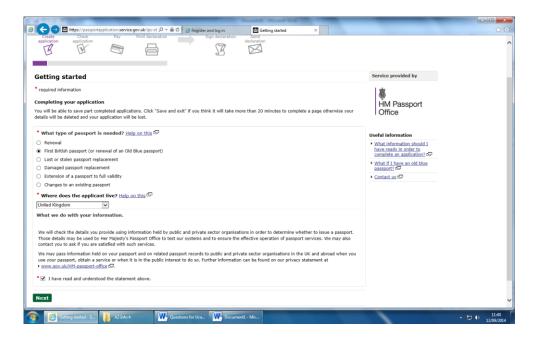
6.3 – System Code

Section 7 - Appendix 3.1

7.1 - British Passport Application

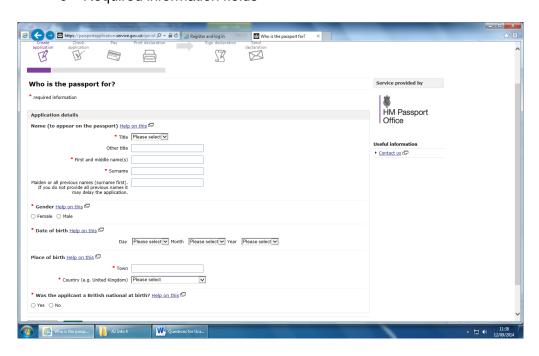
Creating new British Password using Gov UK website

Need to accept terms and conditions. Options on type of passport, returns relevant information

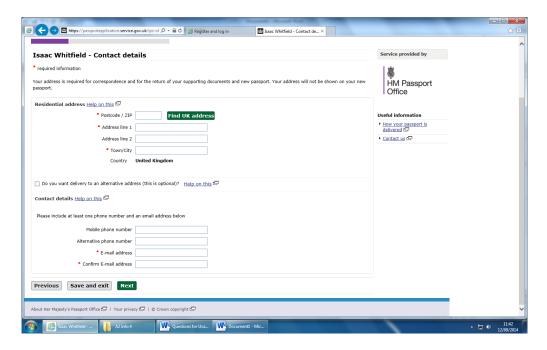


Firstly, personal information

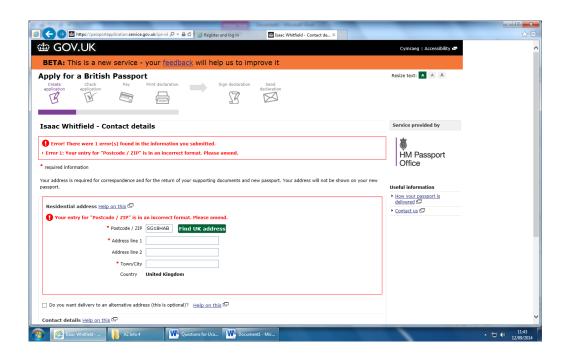
- Name
- o Gender
- o DOB
- o Required information fields



Next step, provide address and contact details. Lookup address using interactive search. Only need to provide post code. Option to save and exit in case of returning at later date.



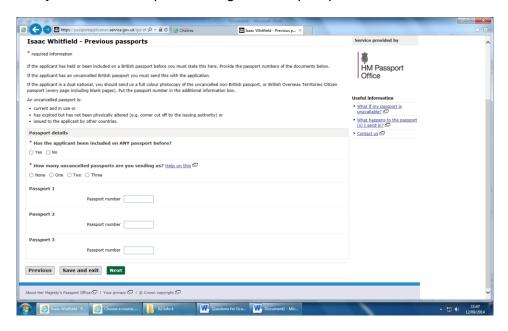
Errors for data in incorrect format, doesn't allow you to proceed unless correct format. Help on stages in case of not understanding specific fields. Red text for errors which stand out on screen



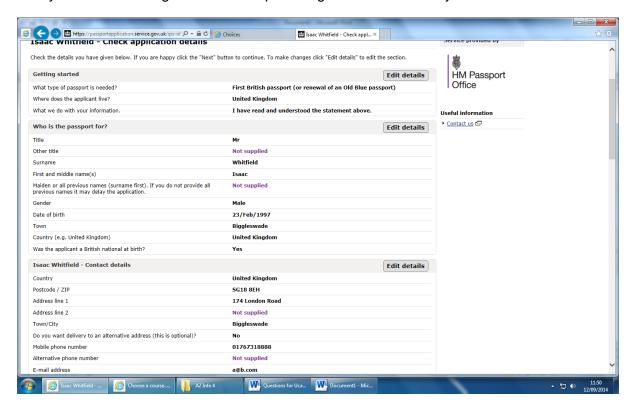
Family details, verification and validation in background to check details and match them to details on record. Verify identity



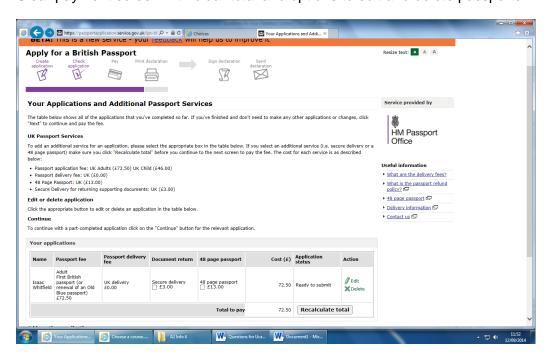
Give any information on previous registrations/passports



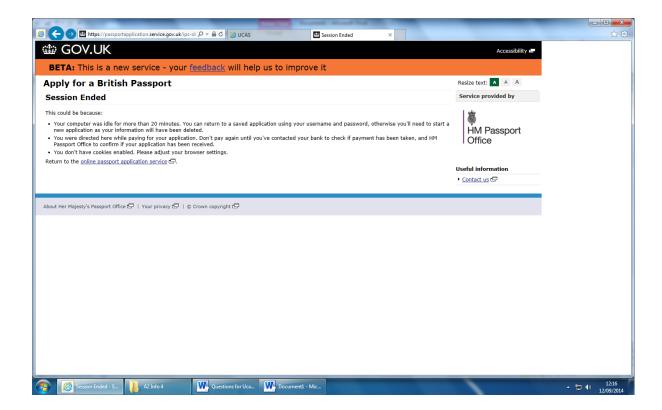
Provides summary of all information entered. Personal verification to make sure details entered are correct. Final checking. Different colours for fields that haven't been filled in. Easily stand out among other fields. Option to go back and edit any information entered.



Clear payment screen with clear total and options to edit and delete passports



Session end after set time, security reasons. So you can't leave an application half done.



7.2 - Ucas Application system

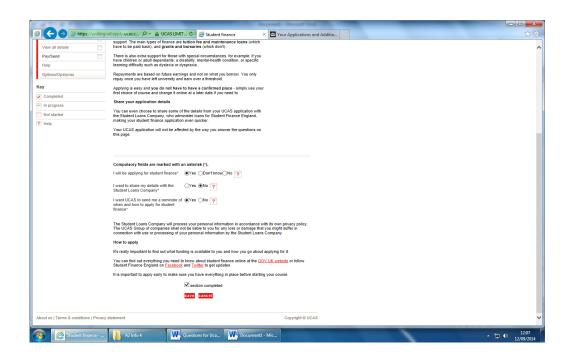
Video guidance on the first welcome page after login. Given personal ID for easy customer service.



First page is personal details. Another video. Option to mark as completed,



Links to useful external websites. Help options for each field.



Another summary page for end of process, check all details. Warning messages for fields, in different colours. Not allowed to pay and send without all pages being marked as completed.

