

UniNceda

Group 45

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Division of Labour

#	Name	Description
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3	N. Luthuli	Work with 1 and 2 to identify the scope of the project, the current systems and describe the proposed system.
4	S. Mthethwa	Work with 5 and 6 to formulate the functional requirements, the non-functional requirements and design the system models for the proposed system. Gather data to elicit requirements by synthesising the requirements from existing systems with assistance from 6.
5	T. Tshikwatamba	Work with 4 and 6 to formulate the functional requirements, the non-functional requirements and design the system models for the proposed system.
6	M.C. Manape	Work with 4 and 5 to formulate the functional requirements, the non-functional requirements and design the system models for the proposed system.

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1 Introduction

(First Year Assistance) is an application which is intended to become a centralised service that students use to apply to any local public university specifically to a point where in the near future, anyone (matric or older) who would like to study an undergraduate degree in South Africa will have to apply through this application/service.

According to a report by Inside Education, more than **40 percent** of first-year students have dropped out of university since the independence of South Africa. A significant percent of this is due to students feeling as though they have made both the wrong degree and career choice. This could be due to a lack of career guidance in schools and general pressures on the matric/prospective student. Dropping out of university can not only be stressful for students, but also costly for both the family and the university. Thus the intended purpose of this project is to help eliminate one of the many reasons why students drop out of university.

With the application successfully implemented, the app will assist in providing tailored information, regarding all public universities in South Africa, to the student.

1.1 Scope

Ultimately the app looks to make the application process as stress free and as easy as possible, leaving the students informed and with access to the necessary resources. The main aim of the application is to equip prospective students to make better informed decisions about their university degrees as well as reduce the stress that comes along with application process.

Each student will have to create a profile within the app. This will require personal information as well as results from school, their preferred degree choices, monthly household income etc. This will tailor the information according to their abilities, preferences and circumstances, allowing students to be able to choose the degree that not only suits their interests and passion, but also suits their marks.

The information covered will be general information regarding the universities, the respective degrees offered, the application process, and information regarding both financial aid and student accommodation.

Currently, necessary information such as course outlines and what specific degrees actually entail are a scarce resource. Students are required to perform their own research in many different forms and for some this is not necessarily an easy task to do. With the app, we will ultimately simplify the application process for all prospective students.

1.2 Definitions and Conventions

Administrator: team behind the app that collects and stores the apps information for the users. They then update and maintain the system ensuring all information is correct and up to date.

App: an application, especially as downloaded by a user to a mobile device

Personal statement: a written description of one's achievements, interests, etc., included as

part of an application for a job or a place at university or college.

User: any person(s) looking to study at a public university in South Africa for the first time.

UCAS: Universities and Colleges Admissions Service

UK: United Kingdom

// come back and explain any terms used that need explaining.

1.3 Overview

The following document is a walk through of the proposed application/website.

It covers the following:

- Any similar existing systems and how the proposed idea is better
- How the app will work, as well as its pros and cons
- The proposed system
- The requirements as set by the proposed user
- Functional requirements
- And non-functional requirements

// add any additional information here

2 Current Systems

- UCAS

UCAS is a online admissions portal service that is only offered in the United Kingdom, and is a service that requires the user to pay a specific fee. For a single application it costs 18 euros and for multiple applications it costs 24 euros. The service specifically aids undergraduates with their applications for universities within the United Kingdom, as well as offer services for postgraduates and teachers.

The current UCAS system helps prospective students with the following:

- Filling out the application and tracking it once it has been sent in
- The service helps the student with their personal statements. .
- The service further aids students in getting references to help the applicant stand out.

However, some of the downsides to this service include the fact that:

- It is not free, unlike what we propose for our website/app.
- Their service is very limited and does not cover as much information we propose to cover.
- Their information is very general and not tailored for each student.
- Limited to universities in the UK

(<https://www.ucas.com/> - reference)

- CommonApp

Another present system currently in use is the CommonApp. The CommonApp is another undergraduate college admissions application that applicants may use to apply to more than 800 colleges and universities in the US, Columbia, Canada, China and many other European countries. Its mission is to "promote access, equity and integrity" in the college admission process, which includes subjective factors such as essays and recommendations alongside other objective criteria such as class rank. The CommonApp further allows applicants to self-report standardized test scores and international educational qualifications.

One of the biggest limitations of this existing system, again, is the limited range in terms of which countries are able to use and implement this system.

Here in South Africa there currently is no similar system in place. Prospective students looking to study here in South Africa have to work with all the separate websites and emails that correspond to each university and/or financial aid.

Our proposed system looks to collect all the above information and much more, and tailors it to each individual student according to their registered profile. The proposed system looks to help students looking to study in any public South African university, and further takes the current application proceedings and makes it more efficient and less demanding of the user.

//insert any missing information

3 Proposed System

The following section will discuss in detail how the proposed app/website will work.

3.1 Product Perspective and Functions and User Characteristics

User perspective: there will be a system in place in the form of an app or a website for prospective students to access information regarding them, during their application process to public South African universities.

All students are required to register an account providing us with all the necessary information to tailor the vast amount of information to them. As mentioned before the app is profile based

and therefore will be presented to them as such. In each users profile will be all the information regarding them separated into different categories. Students will be able to edit their profile information but nothing else. They would not have the permissions necessary to modify any information that other users have access too.

Example:

User A wants to study law, specifically an LLB. They have an A aggregate and are looking to stay in a university residence. The basic categories on User As profile will be:

Account:

- Personal information - name, residence etc.
- Academic transcripts - matric marks and/or any previous tertiary education results
- Financial information - i.e. monthly household income

Applications:

- Closing dates
- Application help
- General information

Course information:

- Course outline - in this case a breakdown of the LLB course.
- Requirements - current available marks, final matric marks, APS and age exemption explained
- Careers - what can the student do with their degree?
- Curriculum - modules, credits explained, prerequisites etc.

Fees and Funding:

- Estimated first year costs - tuition, text books.
- Residence costs - food and accommodation
- Bursaries and scholarships

Residence:

- Different residences within each university
- Entrance requirements for each residence and the requirements to remain in the residence

- Brief explanation of res life.

Administration perspective: this would be a separate server where admin can modify and update the information provided to the user. Admin would have their own accounts and login information. They can modify the information provided however they do not personally have access to students personal information as this will be kept private and is merely used to filter information.

//add any information

3.2 Constraints and Assumptions

One big constraint includes the fact that the user and admin will require access to a mobile device in which they can use the app or website.

Additionally, for the proposed app/website to work, an active internet connection is required. The average webpage uses around 3MB to load and will download in seconds. Due to the apps very basic functionality, if the user is able to load a webpage, their internet speed will be good enough to run the app. Hence a basic 3 Mbps download and 1.5 Mbps upload should be sufficient.

The app will have to ask permission to access files on whatever device the user accesses it from. This is due to needing verified academic transcripts from the user in order to complete their profile.

The app will not require GPS to track the users location as it is not necessary for any functionality within the app. Nor will it require access to the camera or microphone.

4 Requirements Elicitation

The brainstorming session yielded the following basic points:

- Connect students to the universities
- Help inform students about degrees, courses, scholarships etc.
- The app should be account based/personal to the user
- Account should include personal information, results and financial status
- Results of the account information filters information
- Detailed explanations on courses.
- Calculate APS
- Notifies user of the deadline for applications(academic and financial)
- Local public universities - start small

Online survey:

To obtain alternative perspectives we set up an online survey using Survey Monkey to get feedback from prospective students - our target market.

The questions were as follows:

- Please enter your name. (Optional question)
- Have you applied for university?
- If yes for Q2, how did you find the application process?
- Does the proposed app sound useful?
- Do you feel you have/had all the information that you personally needed for tertiary education during the application process? i.e course outlines, degree descriptions, fees, payment options etc.
- If you like the idea of the above app, what functionalities would you recommend we included? In other words, what information would like to be included?
- In order for the information to be personalized, the app requires input from the user. This would be in the form of setting up an account and inputting information such as personal information, academic record and household income. Would you be fine with this? Everything would be kept private
- Lastly would a public chatroom within the app interest you? This would be to connect to other prospective students

The results of the conducted survey were as follows

Question 1: answers for this question were not relevant to the functionality study

Question 2:

Figure 1: Percentage of students that have applied for university

Question 3:

Figure 2: Percentage of the applicants that found the application process

Question 4:

Figure 3: Percentage of students who found the proposed system useful

Question 5:

Figure 4: Percentage of students who felt they had all the necessary information when applying

Question 6:

Figure 5: Responses to what students would like to see be included

Question 6 (continued):

Figure 6: Responses to what students would like to see be included

Question 7:

Figure 7: Format preference

Question 8:

Figure 8: Percentage of students who would be fine with the app accessing personal information

Question 9:

Figure 9: Percentage of students who would like the idea of a potential public chatroom within the app

Synthesizing the requirements from existing systems

From the existing systems which were identified earlier in the document, the following requirements were extracted:

A. User requirements

- Enable the user to search or query information about their degree of choice.
- Connect the users to the university officials and current students of the universities in order for them to ask questions about the university experience and find out more about the university.
- Offer career guidance to users by providing information about the different types of careers they can pursue and the study requirements based on their profile.
- Provide information about open days and enable the users to book tours.
- Initiate the application for the users by sending all the information in their profile to the university application systems. This will allow the users to apply to more than one university simultaneously

These requirements were firstly extracted from the conducted survey in which students of varying age participated in. Furthermore, gathering information about these university application systems from various websites, as well as exploring the comments and reviews made from people who used the system before, we were able to extract these requirements. Through this method the inner workings of the systems were made visible

5 Functional Requirements

5.1 User Class

Downloading the Application

The Application will be available and accessible on the internet (e.g. Google chrome browsers) as well as various app stores such as the Android and IOS application store for download. This essentially means that the application can be downloaded and run on a number of different mobile devices.

On the appstore, one would perform the following actions:

1. Search for the application by typing its name in the search bar ' '
2. Click on the application
3. Click on the install button

For users who are unable to download the application for any reason, the user will still be able to use the system online - on Google chrome or any other internet browser - and process their

application on the website. This would require the user to sign in first each time, in order to access their specific application.

Registration

Each user will be required to enter his or her own personal details about themselves in order to generate their profile. This personal information would include name, address, phone number, and email address.

For the user to register, they would need to have working email address. This is for the purpose of active communication and so that the user is able to be reached. Furthermore, the user will need to create their own unique username and will be required to create a password for their account.

The following will be shown on the App before a successful login or creation of an account:

- Do you already have an existing account? If yes, go to LOGIN button. If not, create a new account.
- If user has an existing account: Username and Password required.
- If the user chooses to create a new account, the first steps, asking for the users personal details such as name, surname, age etc. will be asked
- Next: Create a username by entering your email address
- Create a password (must include upper and lower case characters, and a number or special character)
- A confirmation email with an activation link will be sent to the user's address once the user has clicked confirm.
- Once account activated: You have successfully activated your account will be displayed on the app/website.

Following on from an activation email being sent, the user will be given one day to activate the account before having to re-complete the process.

If the user enters an incorrect email address or password when logging in, the application will automatically inform the user that the username or password is incorrect. In the event that this occurs, the application will further indicate red colours to the both of the relevant blocks.

In the event that the user inputs an existing username when registering, the application will automatically inform the user about this.

If all the details are correct it will submit all this information to the administrator and a message will automatically be displayed on the screen saying that an email, with a link to sign into to the app, has been sent to the user.

Forgot Password

There will be an option on the home screen which asks the user if he or she has forgotten their password. If this is the case, the user will have to:

- Re-enter their email address and click enter
- An email with a link to reset the password will be sent to the respective email address

5.2 Administrative Class

This will include everyone who will be installing the software, updating the software, training users, troubleshoots, performing diagnosis etc.

// Incomplete

6 Non-functional Requirements

6.1 Reliability

The reliability of the application could prove to be essential in terms of introducing and implementing this system nationwide. One of the most important things for an app like ours to be reliable is stability and security. This essentially means that the functionality of the application would need to experience a limited amount of errors that may disturb or hinder our users from using the app. Additionally, it would mean that the app would need to be able to safely secure the personal information provided by the user, to a point where only the user and the intended university can access this information. (Admin maybe?)

If the app were to not respond, it could cause added frustration and stress in the users who may end up resorting to previous methods. Furthermore, in entering one's personal information such as marks, the user trusts the application to keep this information safe. Therefore an app which operates at a quick speed, as well as one that could notify users when there is a problem would be ideal for prospective users.

Crashing and freezing are just some of the ways the app may hinder the user from processing their university application or obtaining specific information. Therefore, in surrounding our code with catch block and creating application app offices, the admin will be able to identify and report an error and its details moments before the application crashes. We may also potentially use HP App Pulse mobile which is another tool that also tracks application crashes. In this way, we need to modify our App first and check the reliability of our app. The use of tools such as crittercism, which is used by MobileDay, could further help prevent issues from rising.

Our app works with internet connections and without the connection one would not be able to access and operate it. If an active internet connection is not present, the app will automatically display to the user that there is no internet connection and ask them check for a connection. If the user disconnects or loses connection, the same message will be displayed.

6.2 Performance

6.3 Supportability

6.4 Implementation

6.5 Interface

6.6 Legal

7 System Models