INF3011F Project Report
Assignment due Monday the 14th of June at 08h00

CV Application Database Solution
First Team x Whizz ICT

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Part I: Business case & project outcomes

Introduction/Background

Whizz ICT is a small company based in Khayelitsha, with a significant positive impact on the surrounding community. They provide IT-based services to increase employment and opportunities in the surrounding area. This project, in particular, focuses on the company's ability to send CVs to the local business community in their furthering of employment prospects. This system, however, does not run without fault. In the CV uploading process, files are being corrupted, misplaced, or deleted due to the current storage systems in place. Users who are uploading their CVs forget their passwords and other login details. On top of this, Whizz ICT sometimes deals with computer crashes. These factors result in a significant loss of work. This project proposes a solution to efficiently store user's CVs in a manner that is stored safely.   The high-level expectations of this project are to create a CV tool that acts as a storage database for CVs. It should be able to safely store a high number of CVs and be able to be accessed for the editing of CVs, whether in storage or within the actual documents. It is important to note that consistency of document upload should be kept, which for this use case is the doc and Docx formats. It should be able to store multiple versions of documents and be accessed through many different devices. The expectation is to minimise work loss and maximise potential employment through the CV database to further the company's crucial impact on the community.

The situation of Concern and Problem Definition

The main challenge/problem faced by Whizz ICT as a company is an inefficient security in the current storage of CVs and its resultant loss of work documentation and time. This presents an opportunity to us as First Team (including Olivia Noyce, Jono Swanepoel, Papama Mtambeka, and Morris Matjekane) to work on this defined problem by tackling the parts that make it up, namely: work loss due to computer crashes, users forgetting their login credentials, insufficient storage, or misplacement of CV files. Whizz ICT is also dealing with not having a stable and reliable way to display these CVs. Each one of these issues which form part of the main problem can be addressed as an opportunity as shown below:

1. Computer crashes: The opportunity it presents is the creation of a more stable and reliable system like CV and database tool to store work and CV documentation safely without being lost when software or hardware fails.
2. Users forgetting their login credentials: The opportunity it presents is the creation of a system with security features that are limited to company logins, however, customers are not restricted by their login credentials and can access the open system.
3. Inefficient storage or misplacement of CV files: The opportunity it presents is the creation of a database with the ability to store files in an organised way, such as storing CVs in categories based on the skills being searched for by employers. It will also separate the information available to different users of the system such as the employers - who will see the CVs, the staff of Whizz ICT who will be able to edit how

the CVs are store and delete or add more, and the customers - who will see their CV and where it is stored. This allows for a more efficient system with less displacement and therefore less irretrievable, lost, or corrupted (from mismanagement) files.
4. They have no platform for future employers to view their abundance of CVs, this makes the retrieval of specific CVs very cumbersome.

Business Objectives
The business, as a whole, wishes to have an impact on the wider community through increasing levels of employment by putting CVs available to employers. This objective aligns with their next business objective of creating higher financial security and reducing poverty in the surrounding area. The business has the objective to show as many CV's as possible, and with the highest standard possible, which is why they offer services such as aiding in the creation and editing of CVs. Whizz ICT has a business objective to efficiently store and keep track of the CVs that are acknowledged and the people that benefit and are employed to track their progress and also to know what skills are in demand and what strategies are beneficial to their customers. The final business objective is one of environmental sustainability as Whizz ICT expressed its intention of moving its documentation and CVs online to reduce paper usage and wastage.

Assumptions and Constraints
Constraints and assumptions are both important aspects of project management and project planning. Assumptions are those things that we believe to be true based on our knowledge, experience, and/or information provided by our team members or other stakeholders. Constraints are limitations placed on the project that the planning and developing team must work within.

Assumptions
- Whizz ICT will have enough resources to implement the CV tool and Database preferred final solution.
- The overall cost of day-to-day use of the CV tool and Database system will not increase.
- Whizz ICT will be able to train their staff on how to use the new system.
- Customers will be satisfied with the new development.
- First Team will have access to Whizz's existing website to see how the added solution will fit in
- The scope of the project will remain the same.

Constraints
- Whizz ICT has to work with available resources.
- Funding is limited.
- There is no defined schedule for the implementation of the project solution.
- The solution needs to be cost-effective, but efficient and requiring little maintenance.
- Lack of WordPress knowledge in the Whizz ICT camp.

- CV tool development is restrained as its completion will be subject to COVID lockdowns and protocols.
- Potential users (future employees) must have a good understanding of the CV Database Web-Application.

Stakeholder Analysis

Context Diagram:

The First team drew up a context diagram to define and clarify the boundaries of the CV Tool and Database System that was required by Whizz ICT. The diagram below identifies the flows of information between the system and external entities who are the stakeholders.
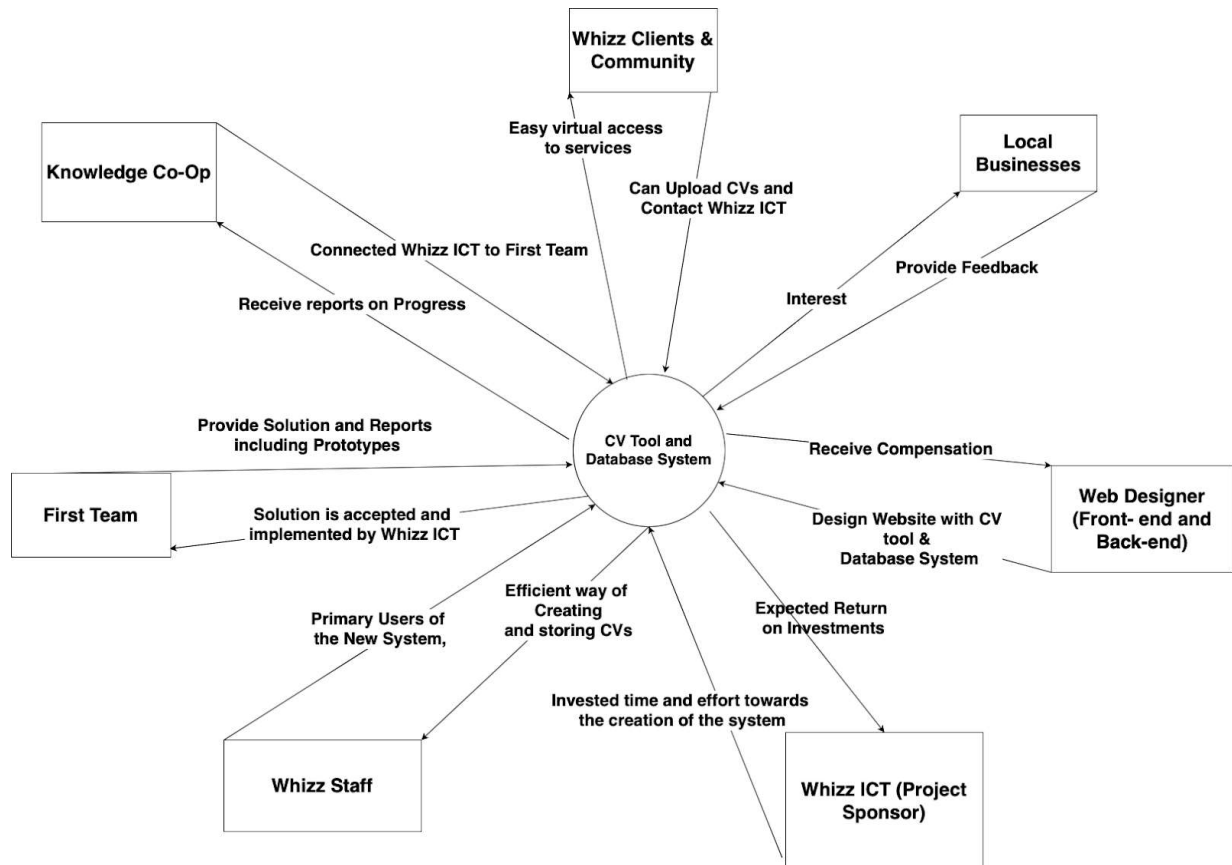

Figure 1A Stakeholder Analysis - Context Diagram - Flow of information between the System and Stakeholders

Proposed Solutions

Solution 1: Shared Drive for CV storage

A possible solution for the Whizz CV tool would be to host the Whizz website that is being created on google drive where all the CV files can be stored. Each CV that is uploaded must have a unique ID (e.g., abcdWhizz1), that can be used to retrieve the CV. The unique name will make it easier for the Whizz staff to retrieve CVs for customers who would like to update or change their CVs.

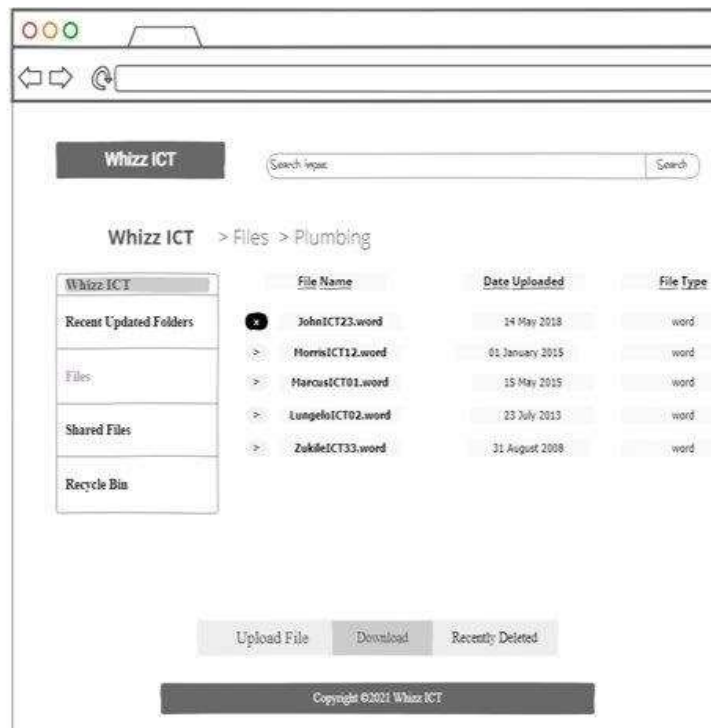The Drive would have multiple folders and subfolders to make sorting and accessing the CVs much easier.

Figure 2A: Proposed Solutions Solution 1 - Wireframe of Whizz Drive solution

Pros:

- Reduce the number of lost CVs.
- Whizz Staff already have Google Drive accounts.
- CVs are stored for a longer time.

Cons:

- Extra storage space will be needed.
- Risk of hacks and system crashes

Solution 2: Private website with log-in details to access CV database collection.

A possible solution for the CV and Database problem would be to create a private website with back-end development using PHP to connect to a database server like MySQL where the account information will be saved. Users would need to create an account to access the CV database. Job Seekers would only have access to their own CVs where they can download their CV, edit an already existing CV, and upload a new CV. Employers would have access to all the CVs in the database and be able to filter through them using keywords like job titles, or skills.

Figure 2B: Proposed Solutions Solution 2 - Private Website

Pros:

– Allows Employers to filter out CVs.
– Customers can upload, download and delete CVs.
– Ensured Privacy and Security

Cons:

– Requires basic knowledge of technology and computers.
– Requires Customers to have an email address.

- Customers can forget their login details.
- Back-end development is costly.

Final Solution - Solution 3: Website serving as a Public CV Database.

Summary of implementation

The final and chosen solution is a WordPress website development with a public CV page, upload page, and contact us page. This website will be hosted on the discussed sub-domain of cv.whizzict.co.za. Boasting a 3-page design layout, this website will act as a webserver to host the database of CVs. It will portray them publicly, allow 2 different forms of CV uploading, and be a great place for any interested employee to look.

To build a WordPress website, we need to have a few key components. The first is a reliable page builder. These are free software tools that provide the user with a friendly interface to build HTML and CSS components, visually. We recommend using Oxygen Builder as we have a free license for us, along with its flexible building abilities.

Every WordPress website has a media folder, which will act as our web server which stores all the proposed CVs (as pdfs on the home page but uploaded as docx.). and other media such as images. This will be where we store our pdfs as a "database".

To portray the CVs in a user-friendly way, we recommend the following PDF Manager Plugin, found at WordPress PDF Plugin - which makes it easier to manage PDF in WordPress. Although the BSK pdf plug-in is a paid plugin, we believe the R340 p/year is worth the easy implementation and ajax categorization. This will allow easy filtering and a great user experience for future employers.

To implement a contact form, we recommend the free plug-in Contact Form 7, which will allow any user to upload a pdf, or fill out a form. This can be found at (Contact Form 7 – WordPress plugin). There are paid versions, which we might have to assess, however a free version to start off with is the final choice. We can also restrict users from uploading pdfs. We have discussed that only docx documents can be uploaded to allow for consistency and the chance of future iterations and edits.

We recommend reliable xneelo.co.za for the best pricing and security features throughout. More information can be found here, https://xneelo.co.za/web-hosting/. The standard package boasts 10GB of storage. At R150 p/m, this is a great price for website hosting. Given the WordPress size, and other miscellaneous storages on this server, we can expect around 8GB of storage which will solely be dedicated to pdf management and storage. To put this in perspective, a non-media pdf is around 100KB. We would have to host 80 000 pdfs to run out of storage. This plan is definitely enough. The option to upgrade packages is always a future option. Alternatively, the upgraded option would be Cloudways which offers 25-50GB of storage, this may be a more reasonable option, however, emails are not supported. More information can be found at https://www.cloudways.com/en/pricing.php#vultr.
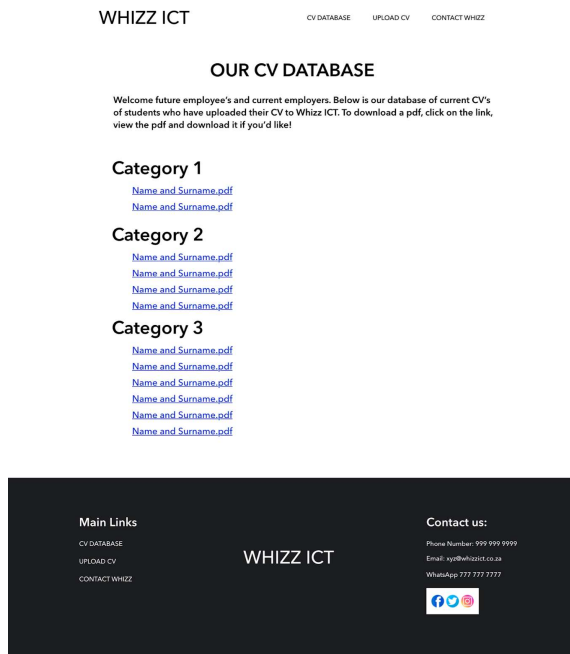
CV Database Page

Figure 2.C: Final Solution - CV Database Home Page

This page has 1 key objective, to display all the CVs easily and understandably. The categories defined will relate to relative job categories i.e., Security, IT, Education, etc. This will allow potential employers a happy user experience and be more likely to find the CV/Person they are looking for.
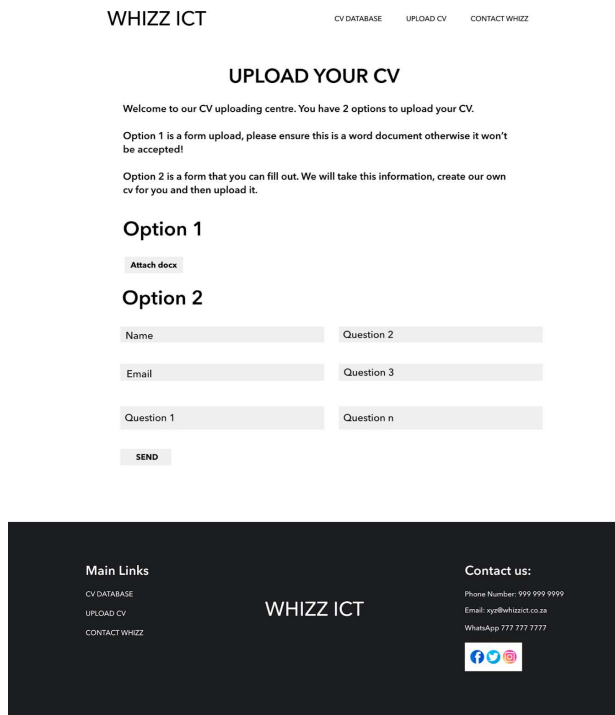
Figure 2.D: Final Solution - CV Upload Page

This page has 2 key objectives. For the usual user, it is to allow them to upload their own word document onto the website, for which Whizz ICT will receive, review, and then upload onto the database page. This upload file is strictly accepting Docx files as it will keep everything consistent so Whizz can edit them in the future if need be. This will prevent them from crowding Whizz ICT's offices as this was what we learned was happening previously. The alternate case is someone who does not have a CV. Whizz and us, First Team, concluded that a form with the required questions was a great user-friendly way for someone to create a CV with their information. Whizz will then gather this information and place it in their personal template and upload it accordingly.

Contact Page

Figure 2.E: Final Solution - Contact Page

The contact page is a great way to invite confused, or non-technical people into contact with Whizz ICT to help them out. This page would always display their physical address in case someone would rather visit them.

Software to be used.

- Content Management System - WordPress
- Page Builder - Oxygen Builder (Free License)
- PDF plugin - BSK-PDF Manager (https://www.bannersky.com/bsk-pdf-manager/)
- Contact Form 7 plugin - Upload Docx
- Fluent Forms - Contact/CV Questionnaire Form
- Upgrade to Xneelo/Cloudways hosting server for additional storage.

Training Required

- The developer will need to deliver a controlled handover with the Whizz ICT staff. This should include account management, the ins and outs of WordPress, how to handle the media folder, and lastly, how to upload CVs on the homepage to update the database.

- Preferably, the developer will take control of the CV Database Application to handle plugins, password management, and general security-related WordPress measures.

Maintenance

- We recommend that the hiring of a developer/agency for month-month maintenance, this will take the pressure off of Whizz ICT to perform plugin maintenance and core maintenance.

Management

- Whizz ICT employees, however, will have to continue to receive Docx documents and upload them onto the home page, ultimately managing the CV Database Application. If they need help, the contracted developer can be approached for more training if required.

Budget Estimate & Financial Analysis

WordPress Designer/Developer Costs	
Hosting and WordPress Maintenance	R600 per month (Contract).
Software Costs	
BSK-PDF Management Plug-in	R340 per year
Oxygen Builder (Provided)	R0.00
Scaling* - Lack of Storage and Web Server needs more storage space	
Upgrade on Hosting Storage Plan (Cloudways - 50GB Storage)	R175 extra per month.
Total per year:	R7200 + R340
Extra yearly cost if scaling	R2100
Total budget for the first year:	R7540.00 (Possibly R9640.00).

Table 1:Final Solution - Budget Estimate and Financial Analysis