PROJECT TITLE: Medic-Health Service
SUBTITLE: Medical emergency and Medical consultation through USSD application

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Sub-category: Software Development

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Introduction

Literature Review

USSD (Unstructured Supplementary Service Data) it is a mobile application that has been on the tech industry for more than 20 years but still being used on the most advanced phone on our days. If you dial on your phone starting with the asterisk key following with combination numbers, then end it with a hash key what you generate is called an MMI code (Man Machine Interface) which means you're having two-way conversation with your phone a machine.

USSD is a type of MMI code but what set is different from other MMI code is that when you press send after the hash key the instruction is sent straight to the mobile network operator, then if that USSD is a particular site to the service of your operators network your either give direct access to the to the service network or given a menu. From there you can access the services know about the USSD like recharging airtime, cell phone banking or please call me and other services. USSD code are limitless as these applications can be used to do bank transactions and paying bills.

Other advantages of using USSD is that the user does not need internet connection or airtime all that the user needs is access to 2G network and feature phone. USSD application has been instrumental in bridging the gap between underserved mobile users and mobile app services, that's why I found the application really important and fitting for my project. I did the research on creating a medical emergency and medical consultation to bridge the gap of lack of communication between a patient and the hospital or health centre. What really brought my interest is the accessibility that USSD applications possible.

Problem Statement

The problem I identified is that most rural areas are the ones who are really in need or most likely to be in need of medical attention or medical consultation due to many reasons whether is hardship of having to travel far distances to get medical attention. This application will help the people to easily communicate with their medical centres for emergencies or making appointments.

Aim

Clearly and concisely state your aim. My aim is to make sure this application will work on the rural areas and actually does its job of making medical emergency possible and also make sure it really makes the communication between the two parties easy.

Engineering goals or Design goals

My goal is to create an application with smooth running and friendly interface where the user will be able to easily navigate and execute their needs.

Method

Materials

List the apparatus that you used for your project.

• Africa's talking (API platform builder)

• Visual Studio Code (Code editor)

• Infinity Free (Service for hosting)

• Basic understanding in PHP scripting language

Procedure

Computer Science Type Method

When computing data, you need to mention the type of programming language you will be using for the different interfaces and the parameters/fields that will help in fulfilling the need. Flow diagrams are useful for describing computational designs.

Developing

A step by step description of how you are developing a model to meet a certain need. The computational language used must be appropriate for what you want to achieve; taking into consideration the parameters/arguments/features that will determine whether the solution will meet basic requirements.

Steps:

- An account is created at Infinity Free

- Visual studio code is downloaded and installed

- Folder is created on my computer storage.

- Visual studio code is opened and navigated to the folder I created and created a PHP file *filename*.php

-Coded my index PHP file

- I logged on Infinity Free went to "File Manager"

- On Infinity Free I deployed the index file to the directory of the web server by following the instructions to push my index with code and deploy it so a URL is used to access the index file.

- On Africa's talking under sandbox new channel is created by picking a sheared Service code (*384#) with a channel (04677104) then paste the URL of the directory were the index file was pushed.

- launch the API simulator, contact number will be prompted then after entering the number go to "contact" phone application to run the USSD code as (*384*04677104#) you create by adding the service code and the

Testing

The testing started at the IDE (Integrated Development Environment) where all the checking of logical error and debugging was. The testing of if the index file was really deployed it had to be even checked by other devices by only following the link. The real testing happens when it had to be tested if is the API able the to run the backend which is the Index file consisting commands for the USSD application.

Results

Design Goal	**Results**
Code running	Code is running
Friendly interface	Clearly simple to navigate
Does its functions built for	It is working but no at its fullest

Discussion

I found an emergency service application where people can fight crime in a digital way this wonderful software is similar to mine in a way of it is helping people in an easy and fast way digitally. I found the project by word of mouth, I was not aware if there was such only that when I prepared the previous idea of my project then when I elaborated it to my peers they mentioned that project say it was close to what my project was so I had to be more innovative. The differences are mine is based on health care whilst the other project is base in fighting crime, not only that mine is different by being accessible to everyone with 2G network while it is limited to smartphones

Limitations and errors

- Not having money to actually publish the application.
- Not being able to actually practically testing it. (Having communication between client and hospital at distance).
- Possibility of application not working at rural areas where they are at geographic place where there is no network at all.

Recommendations for Future Research

This project could be extended by making both USSD applications and OS Applications

Allowing the user to choose the language of his/her choice for smooth navigation.

Conclusion

I conclude on say this is important because we need an application like this because we really do not know when we might need medical attention it could be really anytime. We should care about this because if it is active people who live a rural area where there is long distances to medical centres their lives will be made easy.

Acknowledgments

- My Mother [Ninziwe Sandekela] for questioning so I can eliminate some errors and funding for downloading software's

References

Referencing is a way to validate that you have done further reading, learning and comprehension by using relevant sources. Eskom Expo for Young Scientists uses the Harvard format for referencing. Formatting has to be consistent throughout the report.

Derrick, R. 2016. Creating USSD Applications [online], 19 July. Available from: https://hackernoon.com/creating-ussd-applications-69e7d69111158

Francis, K. 2020. How USSD Coding works : https://youtu.be/ml0mq-n1Ly0

Appendix

The USSD Application looks and seems easy to develop but a lot needs to be done and understood from coding to service hosting to API Simulator. The algorithm of the code that will affect how the API simulator conducts the condition where critically needed to be observed.

This is how the USSD Medic-Health Service is going to work when the user inserts the USSD code the first level of level of response will ask the user to choose on one of these options "1. Emergency", "2. Signup", "3. Login". If the user chooses the "1. Emergency' the users number will be detected by the health centre web administrator then they phone the user to ask if their fine, if they say they are fine there will be no problem then if they are not fine then there is a problem.

If the user chooses the "2. Signup" they will be prompted to insert their City around the province, their clinic that is close to them or prefer so that the health centre emergency team can know which possible route they can take when an emergency comes. These details can also help in consultation with the patients and the health workers in terms of pill collection.

If the user chooses the "3. Login" that is when the user can perform such tasks as booking for an appointment with a doctor at their own comfort. The availability of doctors depends on the health centre policies and the allocation of the doctors themselves.