Proposal

Project Name: **Demographic Uganda**

Team

Name	Reg.Number
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Mwesigye Robert	15/U/771
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Team leader: Mwesigye Robert

Under the supervision of Mr. Mbabazi Isaac

Submitted in partial fulfillment

Of the requirements of a

Software Engineering course project

17th July, 2017

Preface

This is the proposal for Demographic Uganda project for the partial fulfillment of the requirements of a software engineering course. The project is in R programming at the school of computing and informatics technology at Makerere University Kampala Uganda.

This proposal provides the scope and context of the project to be undertaken. It details the intended user group and the value that the system will have to them. The project is last from 16th July 2017 and not later than 1st September 2017. Among its deliverables include the proposal itself, System Requirements specifications document, Software Design document, the code (UgaDemos) and the final report upon completion of all the tasks.

The intended audience of this document is the course faculty so that they can determine whether the project should be approved as proposed, approved with modifications, or not approved.

Contents

1.0. *Overview*

1.0.1 Background

In the past and currently, most of the analysis on population is done using elementally tools, for example spreadsheet programs such as excel where data is manually entered, in case of some changes in the data, some steps of the analysis such as visualization have to be redone thus provide no flexibility in case of changes. These analysis tools are not so accurate which left out some crucial details in the data unexplored, due to these limitations it has given us a strong ground to come up with the Demographic Uganda project which is to provide solution to such challenges by coming up with the **UgaDemos** system.

1.0.2. Purpose

Demographic Uganda project is to come up with a web based system (UgaDemos) that provides to its users a flexible and thorough analysis of Uganda's population for the past twenty years, visualize the population statistics and be able to make future population projections.

The target group of the system include government bodies interested in carrying out population studies (demographics), for example Uganda Bureau of Statistics so that they are able to make informed decisions about economic planning for the future depending on analysis from past experiences.

1.0.3. Scope

The main goal of Demographic Uganda Project is to analyze Uganda's population statistics for the past 20 years, 1996 to 2016 basing on the following characteristics; Births, Deaths, Total population, Number of migrants per 1000 population, rate of natural increase, Births per 1000 population, Deaths per 1000 population, Growth rate, Net number of migrants, Natural increase and population change.

The UgaDemos system is limited to English language and because of the nature of the dataset provided to us by the instructors, UgaDemos system will not be

able to estimate the life expectancy, child dependency ratio, aged dependency ratio, population composition and structure.

1.0.3. Objectives

In order to achieve the above goals, the development team will have to keep an eye on the following objectives;

- Provide information about the current population in Uganda.
- Provide a brief description about the location, geography, and current administration of Uganda.
- Analyze Uganda's population data for the past 20 years.
- Visualize the population information using graphics such as Box and Whisker plots, Bar plots, pie charts, and scatter plot matrices.
- Draw conclusions based on the observations of the analysis of the population basing on parameters such as deaths, births, birth rate, and others.
- Predict future population over a specific period of time in the future.

The project product (UgaDemos System) will be created using basic HTML, CSS, and R programming language thus requires that any computer to run it must have R environment running, a web browser since it is web based and on the hardware side it requires a minimum of 64 MB of physical memory, 0.4 GHz of CPU and a storage space of 16MB at max.

1.1. Project description

Demographic Uganda system shall include a set of methods that allow us to measure the dynamics of Uganda's population for the past 20 years based on the datasets provided by the course instructors.

Demographic Uganda system shall be able to provide the following services to its users;

- [1] UgaDemos system shall provide a brief description of Uganda as far as its location and administration.

- Calculate population change which is analyzed by measuring the change between population size to another and be able to give supportive information as to why there is such a change (either an increase or decrease). This is calculated by taking one population size of a given year minus the population size of the previous year.

- Calculate percentage increase of the population from one year to the other.

- Calculate population growth by adding natural increase (births minus deaths) and net migrates (immigrants minus emigrants).

- Visualize population data graphics such as scatter plots matrix, box and whisker plots, bar plot, and pie charts depending on selected parameters for example how population changes over the years and provide reasons to support the change.

- Allow the users to download the graphics so as to keep them for future reference.

- Display all the population data of Uganda for the last 20 years.

- The system will be able to make population projections which are estimates of future population calculated basing on birthrates, death rates and the number of migrants.

- The system will be able to provide searching for population data for specific year where the user will enter the specific year between 1996 and 2016.

1.2. Team profile

We are a team consisting of four members with diverse skills of data analysis with R. A summary below shows the strengths of each member on the team;

Member	Strength
Nabikolo Shiba	Documentation, designer
Opoloti Stephen	Developer, documentation
Mwesigye Robert	Management, programmer, designer
Muyambi Julius	Mobilization, developer, management

1.3. Assumptions and Constraints

1.3.1.Assumptions

- We assume that the dataset we were provided with has the correct results.
- We also assume that the system will have limited errors upon completion.
- We assume that the users of the UgaDemos system have a browser on their computers and are running the R environment.
- On the hardware side, we assume that the users have a minimum of 64 MB of physical memory, 0.4 GHz of CPU and a storage space of 16MB.
- On the other hand, we assume that the system will be accessed via the internet.
- We assume that the system will not affect the user's computer applications in anyway.

1.3.2. Schedule.

The project is to last from 16th July 2017 and not later than 1st September 2017.

1.3.3. Budget.

The salaries and wages for the development team will cost $3000.

The hardware and software purchase will cost $2000.

The internet bundle purchase will cost $300.

1.3.4. Platform.

Demographic Uganda system is to be supported on computers which run either Windows, Linux, or Mac. And R environment.

1.3.5. Software.

Among the software to be used during the development process include Microsoft Office word for processing of documents, Microsoft excel for saving the. CSV files containing datasets, R and RStudio for writing and testing of the R scripts, Chrome Web browser for launching of the system in the web.

1.3.6. Other issues

For language support, Demographic Uganda System is limited to only English language.

1.4. *Project Deliverables*

Deliverables include;

- Software Project Proposal.
- System Requirements Specifications.
- System Design Document.
- Final report.
- Final project system (code all documents on a CD).

1.5. *Schedule and budget Summary*

1.5.1. Schedule

Item	Date
Project Proposal	11-july-2017 to 31-july-2017
SRS Initiation	24-July-2017 to 30th -July -2017
Software Design Document	31st-July-2017 - 3rd-August-2017
Code and Final Report on CD	
Final Project presentations	29-August- 2017 to 1st -September -2017

1.5.2. Budget

TANGIBLE COSTS WORKSHEET **UgaDemos** SYSTEM.	
Salaries and wages for the project development team	$3000
Hardware and software purchase	$2000
Internet bundle Purchase	$300
TOTAL	$5300

1.6. References

- [1]http://www.ubos.org/onlinefiles/uploads/ubos/NPHC/2014%20National%20Census%20Main%20Report.pdf

2.0. *Definitions*

Acronym	Description
CSS	Cascading Style Sheets
HTML	Hyper Text Markup Language
R	Statistical programing language
Demographic	Study and analysis of human population
UgaDemos	UgaDemos is made up of two major words **Uga** standing for Uganda the country and **Demos** a Greek word which means people.