

AUTOMATIC DIGITAL CENSUS PROCESSING SYSTEM

A PROJECT REPORT

Submitted by

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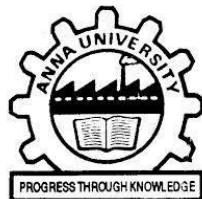
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*in partial fulfillment for the award of the degree
of*

BACHELOR OF TECHNOLOGY

in

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BONAFIDE CERTIFICATE

Certified that this project report “**AUTOMATIC DIGITAL CENSUS PROCESSING SYSTEM**” is the bonafide work of “**Kishore Kumar.P (211612205060), Naveen Chandar.B (211612205065), Siddharth.G (211612205092)**” who carried out the project work under my supervision.

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ABSTRACT

This project “AUTOMATIC DIGITAL CENSUS PROCESSING SYSTEM” is to make the process of collecting and processing the population data easier than the current one. The Census department appoints Government staff to collect the census information. They will be provided with a web application which will have an electronic form to enter the population details. After entering all the necessary details, these details get into population database directly once the staff clicks the submit button. Thus this process will save a lot of time and money when compared to the current census process. To avoid duplicity of data, Aadhar card number will be introduced which will act as primary key and alert the Government staff in case of duplicity. The data is further processed automatically by the backend software. After processing, the final results will be displayed. This final result can be viewed by anyone through the web application. The comparison charts are derived from these results and the user can view it as a form of chart. Finally, the “map-view” of population details of the particular district is generated automatically.

Keywords: Census, Aadhar card, Population, Chart, Map-view

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CHAPTER 1

INTRODUCTION

1.1. PROJECT DEFINITION

Digital Census has been designed in order to help the census department in digitalizing the survey which makes both the work and viewing part more simpler and also faster by finishing the data gathering work in 3 days than 3 weeks.

1.2. NEED FOR PROPOSED SYSTEM

In the current census process, the Census department should provide forms to the Government staff for collecting the details of the population from each house. These forms are provided in the form of paper. There will be a lot of time wasted for paper production and also lot of money will be invested in this paper production. The data is later transported to the Taluka office and from there to Census Office which costs packing and transport costs. Finally, the feature available in data processing software is limited.

1.3. APPLICATION OF PROPOSED SYSTEM

The main aim of our project is to change the manual work which is done at present into automatically done through the “**AUTOMATIC DIGITAL CENSUS PROCESSING SYSTEM**” software, thus saving a lot of money and time. The data will be automatically processed and we can obtain the results easily. The comparison study can be made for any field which we need and for any time period. The map-view of these results will also be generated. Thus the Government Officers and people in high positions can take any important decisions based on the information which is obtained from the software.

CHAPTER 2

LITERATURE REVIEW

- “Data Dissemination-some details” by the census department of India in www.censusindia.gov.in.
- “Comparing Supplemental Poverty Measure Thresholds and Family Budgets: Understanding Income to Poverty Ratios” –a research done by census department of India
- New paradigm in statistics and population census quality-
http://www.q2014.at/fileadmin/user_upload/GOLATA_FINAL.pdf

2.1 EXISITING TECHNOLOGY:

In India, the process of collecting the details of the population is done for once in every 10 years since the year 1871. The Census department appoints Government staffs to collect data from the people. The entire census process takes place in between February 9th to February 28th in the census year. The Government staffs are provided with a set of 2 different forms- A form to get the family details and another for the land details. The staffs get to each house of the area in which they are allocated and enter the form details from each house. Some fields should be ticked and the others input should be written. To avoid data duplicity, a census sticker is posted on the door of the corresponding house after the census is taken.

After collecting the details from all the houses which they are allocated, the forms will be sent to Charge Officer (Thaluka Office).The Thaluka office will collect these forms submitted by Government staffs of a particular district. All the Thaluka officers will send these forms to the Census department. Census department will scan these individual forms by the scanning software

provided by HCL technologies. The fields will be automatically scanned and if the scanner cannot scan a particular field due to bad handwriting or misplaced tick, there will be a red color tick visible on the computer screen. In this case, the authority manually enters the data for that particular field. After the entire scanning is done, the data is stored in the Census Database. The Census department will not publish any individual person's details. The Census department publishes the final processed results in their website.

2.3 LIMITATIONS OF EXISTING WORK

In the current census process, the Census department should provide forms to the Government staff for collecting the details of the population from each house. These forms are provided in the form of paper. There will be a lot of time wasted for paper production and also lot of money will be invested in this paper production. The data is later transported to the Taluka office and from there to Census Office which costs packing and transport costs. There may be chances of data duplication sometimes in manual processing and it can be completely avoided by our project. There is no centralized database to store the details for the entire nation. The feature available in data processing software is limited.

CHAPTER 3

PROBLEM FORMULATION

3.1. OBJECTIVE

The main objective of this project is to develop a web application to digitalize the census work and make the process easier. By digitalizing the census procedure we will be directly uploading the details to the database instead of moving the forms to different places for getting it to the administrative database. We use the comparison charts for distinguish the difference between the languages, employment details etc...

3.2. METHODOLOGY

In our project “AUTOMATIC DIGITAL CENSUS PROCESSING SYSTEM” we have used net beans to develop web application. We have used Servlet, Hypertext Markup Language (HTML), Cascading Style Sheet (CSS), Java Server Page (JSP), Java script and Servlet. Servlet acts as a server which processes client requests. MYSQL is used to store the database details. The user interface is built upon the languages HTML and CSS and validation is done in client side using Java Script and JSP. The Servlet processes user requests to store the form details which are submitted by the census authority which includes- house details and family details.

MySQL is written in C and C++. Its SQL parser is written in yacc, but it uses a home-brewed lexical analyzer. MySQL works on many system platforms. We have used MYSQL to store the house and family details of the people. The Primary key is used for both the database tables to avoid duplication of data. If any duplication is found, the MYSQL notifies the client through Servlet. If duplication is not found,

then the data gets stored in the database table. In the admin side, the database details are retrieved from this data, gets processed and the final data is represented in the administrator page.

3.3. PLATFORM REQUIREMENTS

3.3.1. HARDWARE REQUIREMENTS

Intel Core i5-3537U CPU @ 2.00GHz 2.50GHz

8.00GB RAM,

64 Bit Operating System.

3.3.2. SOFTWARE REQUIREMENTS

Windows 8.1

Front End- Net Beans

Back End- MySQL

Language- HTML, Java Script, CSS, JSP

Server- Glass Fish

Documentation Tool- Microsoft Office Professional Plus (2013)

CHAPTER 4

SYSTEM ANALYSIS AND DESIGN

A system is a set of components that interact with each other to accomplish some purpose. System analysis specifies what the system should do. System analysis is the process of gathering and interpreting facts, diagnosing the problems and recommending feasible suggestions for improving the system functioning.

System study is the accomplishment of information about the existing system, which helps to determine how and where a computer information system can benefit all users of the system. System analysis for the development was carried out based on the following objectives in mind.

1. Identification of the drawback of the existing system.
2. Identification of the need for conversion problem feasibility analysis.

4.1 ARCHITECTURE DIAGRAM

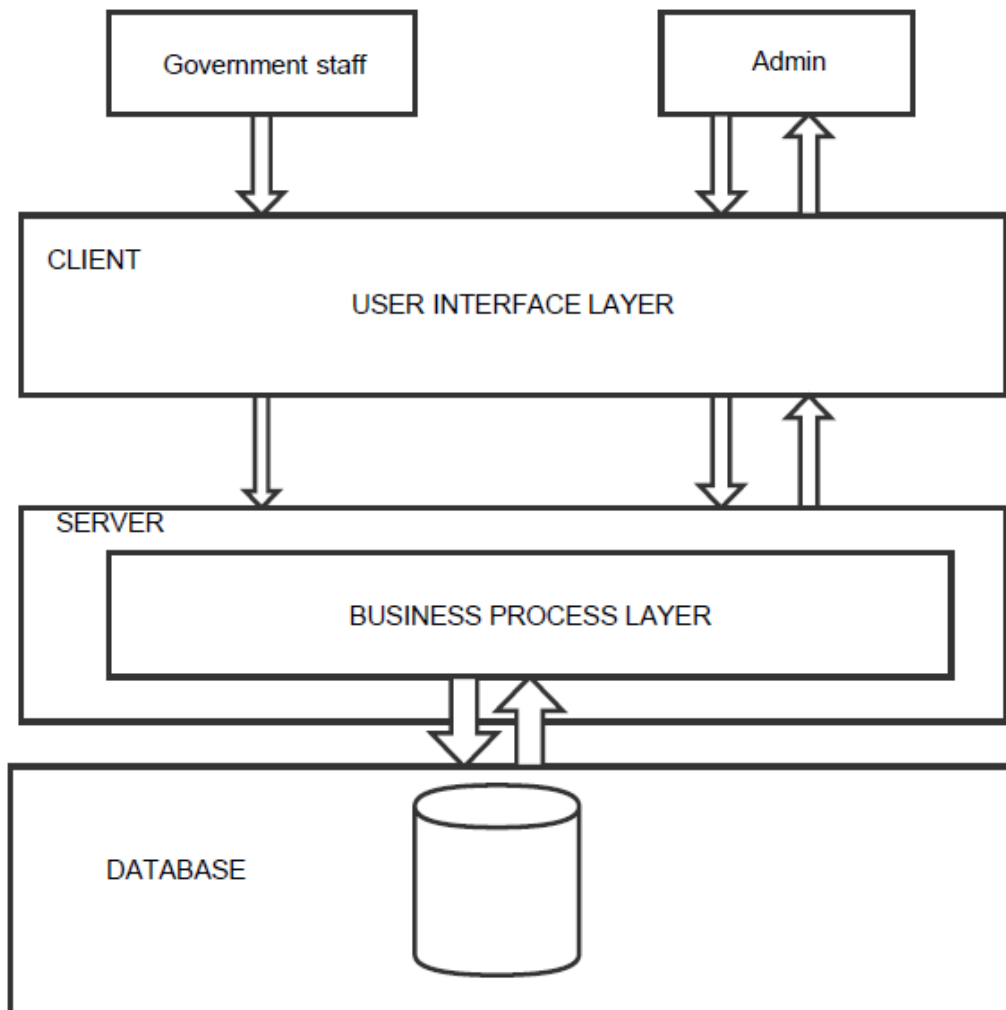


Figure 4.1 Architecture Diagram for Automatic Digital Census Processing System

4.2 ACTIVITY DIAGRAM

4.2.1 ACTIVITY DIAGRAM FOR AUTOMATIC DIGITAL CENSUS PROCESSING SYSTEM

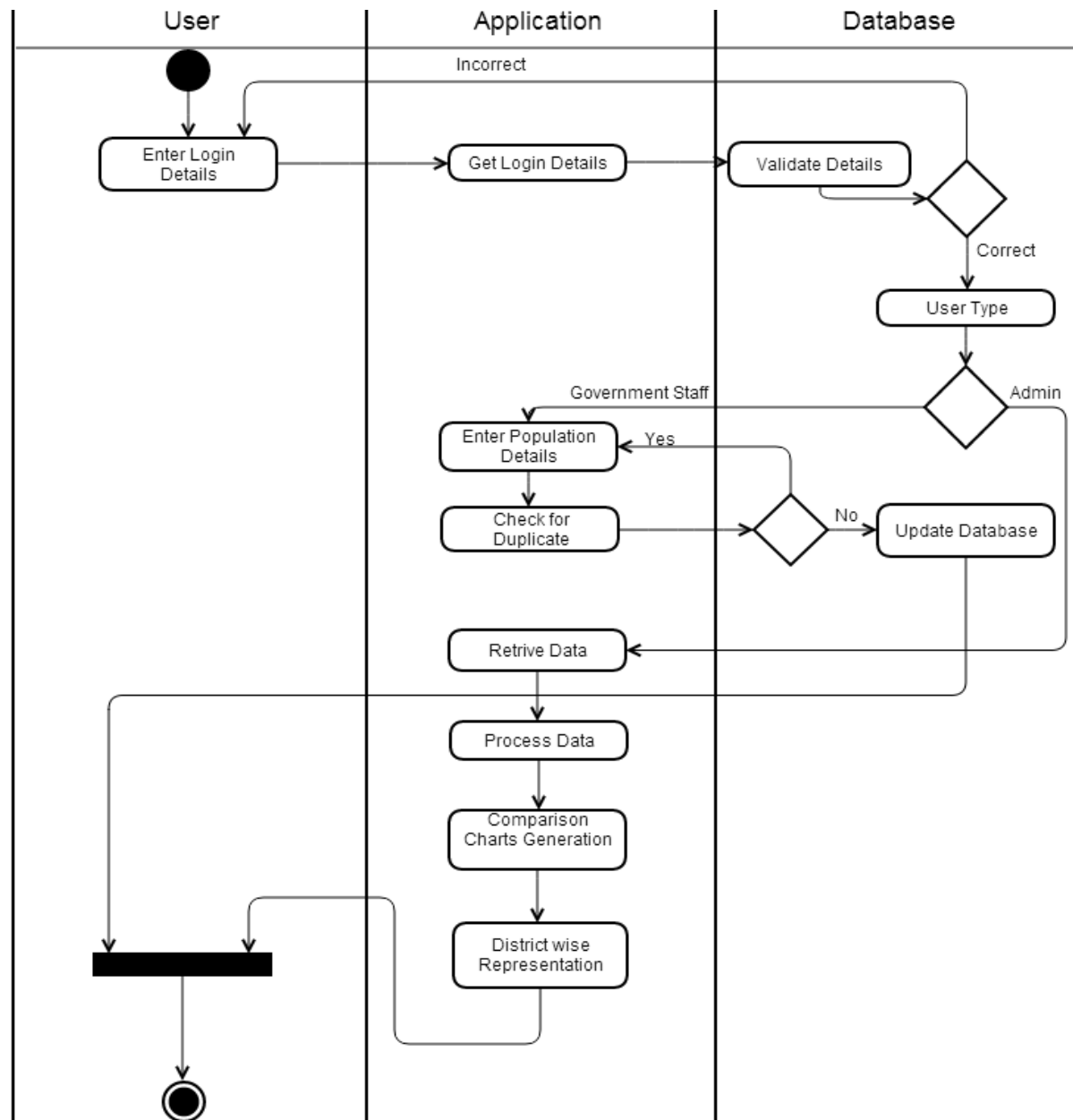


Figure 4.2 Activity Diagram for Automatic Digital Census Processing System

4.2.2 ACTIVITY DIAGRAM FOR DATA ENTRY

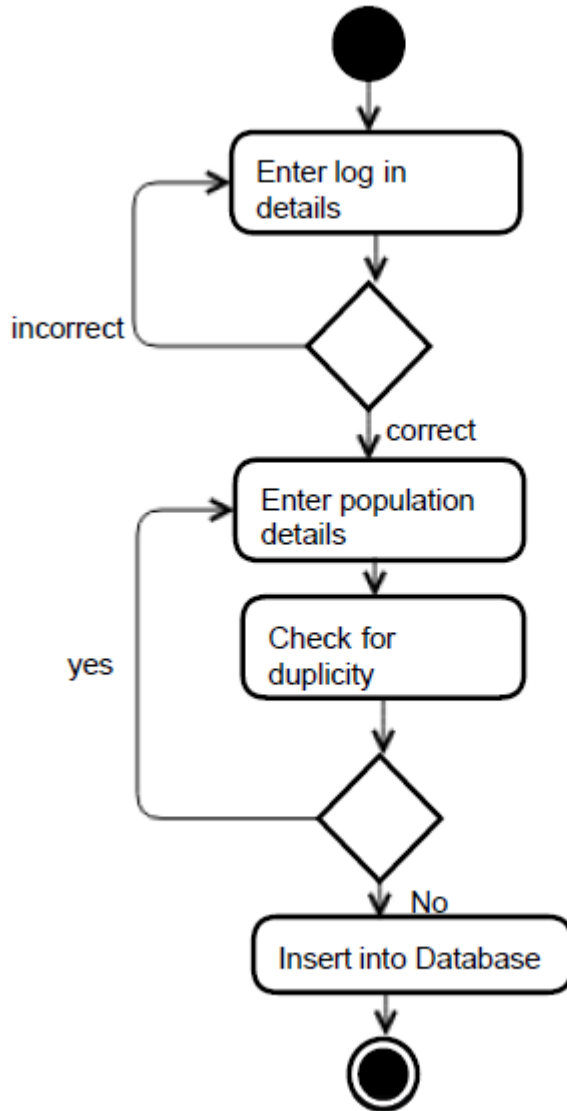


Figure 4.3 Activity Diagram for Form Entry

4.2.3 ACTIVITY DIAGRAM FOR DATA RETRIVAL AND PROCESSING

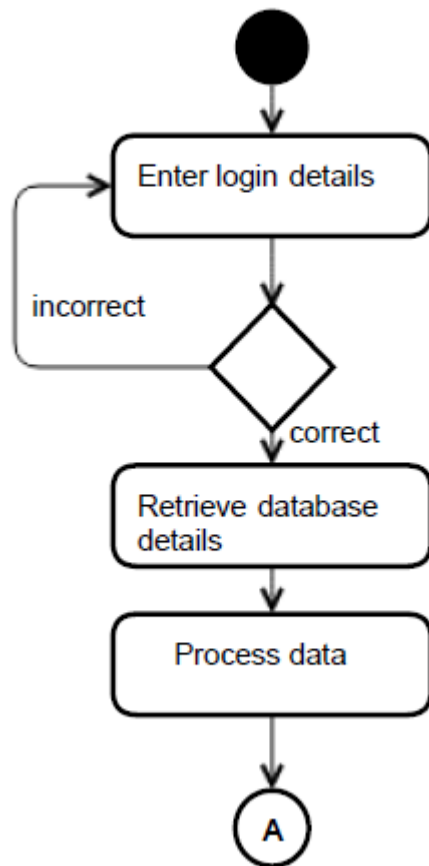


Figure 4.4 Activity Diagram for Data Processing by Admin

4.2.4 ACTIVITY DIAGRAM FOR COMPARISON CHART GENERATION

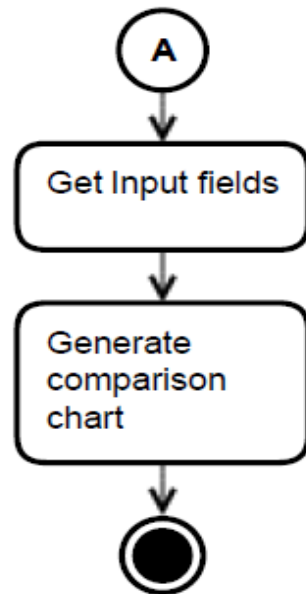


Figure 4.5Activity Diagram for Chart Generation from the information

4.3 UML DIAGRAM

4.3.1 UML DIAGRAM FOR DATA ENTRY SECTOR

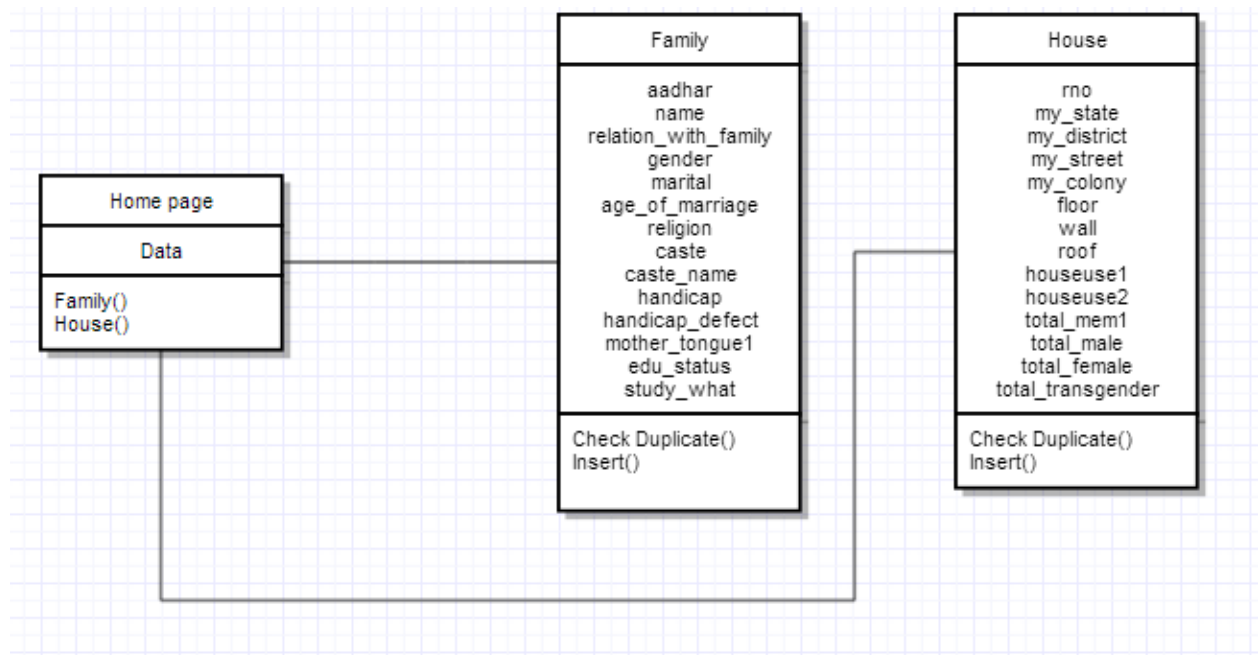


Figure 4.6 UML Diagram for Form Filling Process

4.3.2 UML DIAGRAM FOR ADMIN SECTOR

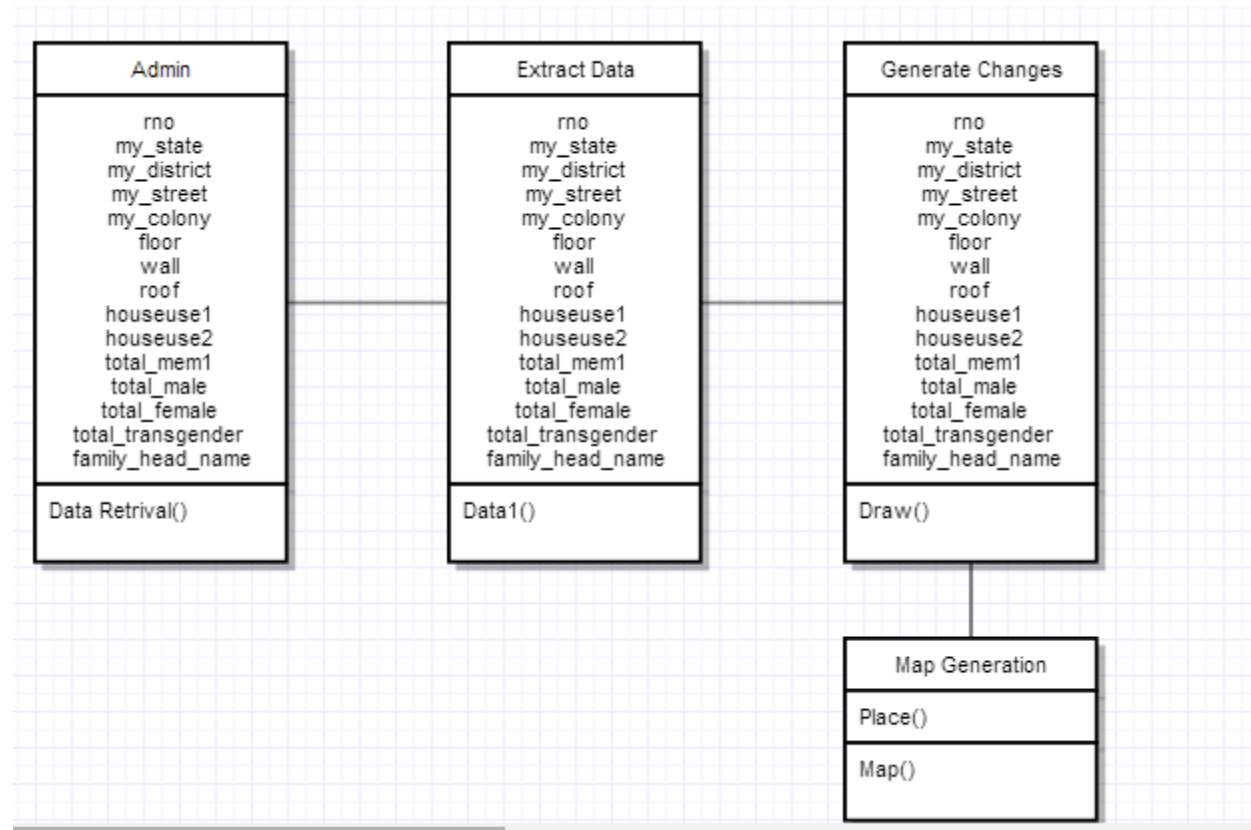


Figure 4.7 UML Diagram for Data Processing by Admin

4.4 DATABASE DESIGN

4.4.1 OVERALL DESIGN

The overall database design is as shown in the table below.

```
mysql> select *from Login_teachers;
+-----+-----+
| user_name | pass_word |
+-----+-----+
| sid      | sid      |
| kal      | kal      |
| gs       | gs       |
+-----+-----+
3 rows in set (0.00 sec)

mysql> insert into Login_teachers values("naya","naya");
Query OK, 1 row affected (0.06 sec)

mysql> select *from Login_teachers;
+-----+-----+
| user_name | pass_word |
+-----+-----+
| sid      | sid      |
| kal      | kal      |
| gs       | gs       |
| naya     | naya     |
+-----+-----+
4 rows in set (0.00 sec)
```

This table shows the overall database named Login Teacher. This database has the Login table.

4.4.2 TABLE FOR FAMILY DETAILS

```
mysql> desc family;
```

Field	Type	Null	Key	Default	Extra
aadhar	int(10)	NO	PRI	0	
name	varchar(20)	YES		NULL	
relation_with_family	varchar(20)	YES		NULL	
gender	varchar(10)	YES		NULL	
marital	varchar(10)	YES		NULL	
age_of_marriage	int(10)	YES		NULL	
religion	varchar(20)	YES		NULL	
caste	varchar(20)	YES		NULL	
caste_name	varchar(20)	YES		NULL	
handicap	varchar(20)	YES		NULL	
handicap_defect	varchar(10)	YES		NULL	
mother_tongue1	varchar(10)	YES		NULL	
edu_status	varchar(10)	YES		NULL	
study_what	varchar(10)	YES		NULL	
max_degree	varchar(10)	YES		NULL	
birth	varchar(10)	YES		NULL	
current_location	varchar(10)	YES		NULL	
reason_transfer	varchar(10)	YES		NULL	
years_away	int(10)	YES		NULL	
child_alive	int(10)	YES		NULL	
child_total	int(10)	YES		NULL	
child_last_year	int(10)	YES		NULL	
dob1	varchar(10)	YES		NULL	

23 rows in set (0.01 sec)

This table shows the structure of the family table. It has five structures namely Fields, Type, Null, Key, Default. The values for these fields are updated as and when the authorities upload the survey.

4.4.3 TABLE FOR HOUSE DETAILS

```
mysql> desc house;
```


Field	Type	Null	Key	Default	Extra
rno	int(10)	YES		NULL	
my_state	varchar(20)	YES		NULL	
my_district	varchar(20)	YES		NULL	
my_street	int(10)	YES		NULL	
my_colony	varchar(20)	YES		NULL	
floor	varchar(20)	YES		NULL	
wall	varchar(20)	YES		NULL	
roof	varchar(20)	YES		NULL	
houseuse1	varchar(20)	YES		NULL	
houseuse2	varchar(20)	YES		NULL	
total_mem1	int(10)	YES		NULL	
total_male	int(10)	YES		NULL	
total_female	int(10)	YES		NULL	
total_trangender	int(10)	YES		NULL	
family_head_name	varchar(20)	YES		NULL	
family_head_who	varchar(10)	YES		NULL	
caste	varchar(20)	YES		NULL	
ownership	varchar(20)	YES		NULL	
rooms	int(10)	YES		NULL	
couples	int(10)	YES		NULL	
water	varchar(20)	YES		NULL	
water_distance	varchar(20)	YES		NULL	
light_source	varchar(20)	YES		NULL	
toilet	varchar(20)	YES		NULL	
drain	varchar(20)	YES		NULL	
drain_connect	varchar(20)	YES		NULL	
bathroom	varchar(20)	YES		NULL	
kitchen	varchar(20)	YES		NULL	
cooking	varchar(20)	YES		NULL	
radio_facility	varchar(20)	YES		NULL	
tv	varchar(20)	YES		NULL	
comp	varchar(20)	YES		NULL	
phone	varchar(20)	YES		NULL	
cycle	varchar(20)	YES		NULL	
two_wheel	varchar(20)	YES		NULL	
four_wheel	varchar(20)	YES		NULL	
bank	varchar(20)	YES		NULL	
pincode	varchar(20)	YES		NULL	

38 rows in set (0.09 sec)

This table shows the structure of the house table. It has five structures namely Fields, Type, Null, Key, Default. The values for these fields are updated as and when the authorities upload the survey.

4.5 WEB-SITE DESIGN

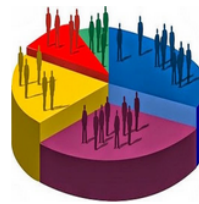
LOGIN TO ENTER DETAILS



WELCOME TO
CENSUS INDIA

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Figure 4.8 SCREENSHOT FOR LOGIN PAGE



Log out	House
Aadhar ID	Aadhar id
Name	Name of person
Relation with Family head	<input type="radio"/> None <input type="radio"/> Parent <input type="radio"/> Guardian <input type="radio"/> Uncle <input type="radio"/> Aunt <input type="radio"/> Friend <input type="radio"/> Grandparent <input type="radio"/> Other <input checked="" type="radio"/> Spouse
Gender	<input checked="" type="radio"/> Male <input type="radio"/> Female <input type="radio"/> Others
Date Of Birth	
Marriage Status	<input checked="" type="radio"/> Single <input type="radio"/> Engaged <input type="radio"/> Married <input type="radio"/> Widowed <input type="radio"/> Divorced
Age Of Marriage	

Figure 4.9 SCREENSHOT FOR FAMILY PAGE



Log out	Family
ADDRESS	Andaman and Nicobar Islands ▾
RESIDENCE NUMBER	<input type="text"/>
Street Number	street ▾
Street Name	colony <input type="text"/>
House Flooring	<input type="radio"/> Sand <input type="radio"/> Bamboo <input type="radio"/> Stone <input checked="" type="radio"/> Cement <input type="radio"/> Mosaic <input type="radio"/> Tiles <input type="radio"/> Others
Wall	<input type="radio"/> Bamboo/Hut <input type="radio"/> Plastic/Polythene <input type="radio"/> Stone <input type="radio"/> Wood <input type="radio"/> Metal <input type="radio"/> GI <input type="radio"/> Asbestos <input checked="" type="radio"/> Brick <input type="radio"/> Concrete <input type="radio"/> Others

Figure 4.10 SCREENSHOT FOR HOUSE PAGE

CHAPTER 5

FUNCTIONAL DESCRIPTIONS

5.1 LIST OF MODULES

Registration/ Login

Data Entry

Data Retrieval and Processing

Comparison Chart Generation

5.2 REGISTRATION/ LOGIN

The initial stage is registering or login to the system.

- Authority Login
- Admin Login
- Admin Registration

5.2.1 Authority Login

The authorities who are assigned for the survey will be provided with a login ID and Password by the Admin, using this Login page only the authority can access the digital census page for taking and uploading the details. This is done to make sure that only authorities enter the details after personally verifying the details.

5.2.2 Admin Login

This Login will give access to all the functions in the web-page, accessing through this login will allow the admin to change / update the web-site and database. Once the administrator feels that the data entry is complete, he revokes the permission from the authorities to enter the form details.

5.2.3 Admin Registration

The database administrator gives privilege to the administrators of the census page so that they can access the census details for analysis and further studies about the population.

5.3 DATA ENTRY

5.3.1 Family Page:

This page lets the authority to take the survey on the details of the family members in each house and then the count will be uploaded to database, which will be viewed by the admin.

5.3.2 House Page:

This page lets the authority to take the survey on “Properties and description of the house”, this helps the census department to have details on different types of constructed buildings and how the buildings are used.

5.4 DATA RETRIVAL AND PROCESSING:

This process will help in representing the gathered data on the survey in a form of Comparison chart which makes it simpler to view the report generated on the census on people details, house description details, jobless people details, farmer’s details etc...

5.5 COMPARISON CHART GENERATION:

Once the data is retrieved from the database, for the precise understanding of the user, the data is represented in a still elaborate manner. The data generated is taken and made as a comparison chart such as bar chart, pie chart, doughnut chart for the various data and for various decades. Thus this helps in making a comparison study for the user.

<< Comparison chart screenshot here>>

CHAPTER 6

SYSTEM DEVELOPMENT, TESTING AND IMPLEMENTATION

6.1. SYSTEM DEVELOPMENT

The system has been developed by using four different modules namely Registration/ Login, Data Entry, Data Retrieval and Comparison Chart Diagram.

6.1.1. INPUT DESIGN

The input is those 2 form namely Family Page and House Page where the authorities entries the survey details.

6.1.2. OUTPUT DESIGN

The output design is the digitalized view of the survey in a comparison chart. Where the data will be retrieved from the DB and displayed in the form of chart for easy understanding.

6.2. TESTING

Once the form design was over we did check the every possible entry to make sure that there is no error or exception in the data entry phase. The duplicity test was made to ensure that the person's data or any house details in a nation doesn't get entered for multiple times.

6.2.1. MANUAL TESTING

6.2.2. ADVANTAGES OF MANUAL TESTING

6.3. IMPLEMENTATION

6.3.1 ADMIN PAGE

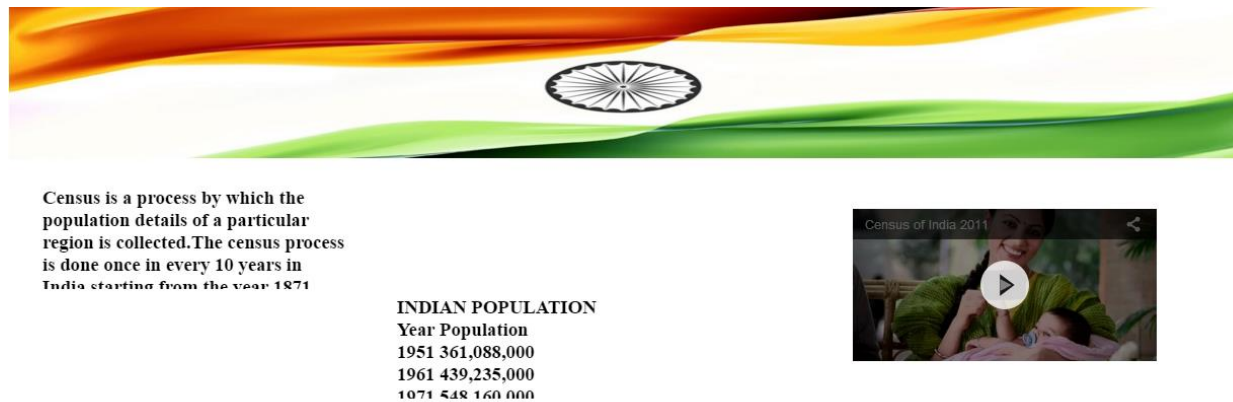


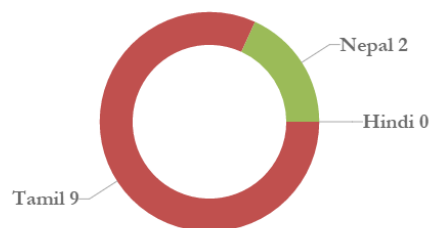
Figure 6.1 Screenshot for Admin Page

6.3.2 COMPARISON CHART GENERATION

☐ Total ☒ Male ☐ Female ☐ Others Male=20
☐ Hindi ☐ Tamil ☐ Nepali

Chart to Generate

☐ Bar ☐ Pie ☐ Doughnut ☐ Bubble



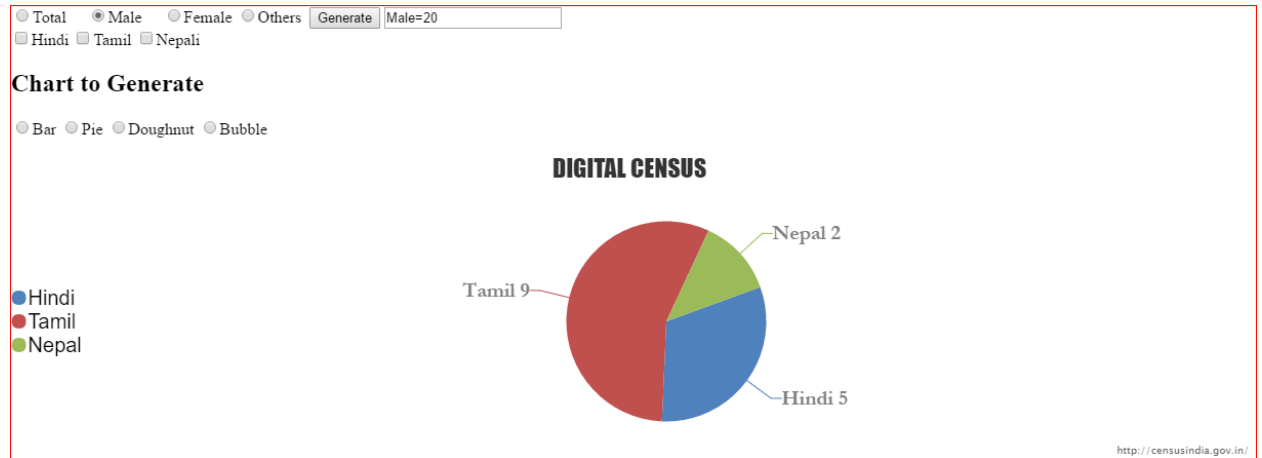


Figure 6.2 Screenshot for Comparison Chart Generation

CHAPTER 7

CONCLUSIONS AND FUTURE ENHANCEMENTS

7.1 CONCLUSION

So this project is to process the data automatically through digital format and obtain the results easily representing in the form of Comparison Charts.

7.2. FUTURE ENHANCEMENT

In future we'll use finger print recognition for threads like duplicating the identities and gathering the details of a person easily without searching manually. Thus the project we have collected can be linked with the police department, passport departments and many other Government departments.

REFERENCES

Consulted Mr.ChinnaDurai- Assistant director of Census Department, Rajaji Bhavan, and Chennai.

BIBLIOGRAPHY

- Census India Government- www.censusindia.gov.in
- Population Reference Bureau- www.prb.org
- Wikipedia-https://en.wikipedia.org/wiki/Census_of_India
- USA census processing website-<http://mapserver.lib.virginia.edu>