Title of the project

Development of a Telephone Directory Enquiry System (TDES).

Abstract of the project

This project is aimed at developing an telephone directory enquiry system that is of importance to a telecomm organization. The TDES is an client based application that can be accessed throughout the organization or a specified group. There are features like inserting records, adding records, deleting records, sorting records by name or telephone number, searching records, editing records and finally displaying the records in the desired format.

Hardware and Software Requirements:

- 1. Pentium class desktop computer.
- 2. Windows OR Linux OS.
- 3. IDE tool DEV C++ (on windows), vi editor (on Linux)
- 4. C compiler \rightarrow Turbo C/C++ or gcc

Functional components of the project

Following is a list of functionalities of the system.

- 1. A person should be able to
 - Select the options from the main menu(FIG 1)
 - Insert the records (ie name and telephone number)
 - Sorting the records based on two parameters:
 - Sort by name
 - Sort by telephone number
 - Editing the records
 - Searching records
 - Adding new records
 - Deleting the records
- 2. A message to either continue or leave the application ie a choice is given to the user(s) to either continue with or leave the application once one of the above functionalities are executed thereby enabling the user(s) to access any part of the application in any order .

<u>Main menu</u>

These various options can be chosen by the user. (FIG 1)

📾 G:\PF_project_files\telephone_directory.exe	- 🗆 🗙
WELCOME TO TELEPHONE DIRECTORY APPLICATION SYSTEM	_
TELEPHONE DIRECTORY APPLICATION MENU OPTION 1: ADD NEW TELEPHONE NUMBERS INTO THE DIRECTORY OPTION 2: SEARCH A TELEPHONE NUMBER IN THE DIRECTORY OPTION 3: REPLACE AN EXISTING TELEPHONE NUMBER IN THE DIRECTORY OPTION 4: REPLACE AN EXISTING TELEPHONE NUMBER OPTION 5: DELETE A EXISTING TELEPHONE NUMBER OPTION 5: DELETE A EXISTING TELEPHONE NUMBER OPTION 6: DISPLAY ALL RECORDS IN THE TELEPHONE DIRECTORY OPTION 7: DISPLAY SORTED TELEPHONE DIRECTORY OPTION 8: DISPLAY SORTED TELEPHONE DIRECTORY OPTION 8: DISPLAY SORTED NAME Enter the desired option number 1-8:	

Fig 1: Main menu for the TDES application.

Synopsis on each functionality:

INSERTING/ADDING NEW RECORDS:

- The user will be prompted to enter the number of records.
- Records are entered in the format(telephone number, name).(FIG 2)
- The records are stored in the file TELEPHONE_DIR.txt.

🛯 C:\Documents and Settings\admin\Desktop\tele_dict_proj\telephone_directory.exe - 🗆 🗙 TELEPHONE DIRECTORY APPLICATION MENU OPTION 1: ADD NEW TELEPHONE N TELEPHONE NUMBERS TELEPHONE NUMBER DIRECTORY TELEPHONE NAME IN TH THE DIRECTORY NUMBER THE NAME DIRECTORY NUMBER DELETE THE TELEPHONE DIRECTORY NE DIRECTORY RECORDS IN T ED TELEPHONE DISPLAY SORTED TELE DISPLAY SORTED NAME OPTION 8: Enter the desired option number 1-8:1 ASE-1: ldd new telephone numbers and Name the number of Telephone records you would like to add (max 10) : 1 entered number of records to add as e the Telephone Directory data in the format given below LEPHONE NUMBER (Max 10 digits), FULL NAME (max 50 chars) 04092 ramakrishna BACK TO MAIN MENU AND CONTINUE, type (C or c)

FIG 2: Menu to Add new telephone numbers

2) <u>SEARCHING RECORDS BY TELEPHONE NUMBER</u>

- The user will be prompted to enter the telephone number to be searched.(FIG 3) The
- number is compared with the existing records in the file.
- If found, the number and the name will be displayed.

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WELCOME TO T	ELEPHONE DIRECTORY APPLICATION SYSTEM	
TELEPHONE DIRI OPTION OPTION OPTION OPTION OPTION OPTION OPTION OPTION Enter to Search a given Enter the telep Searching the	CTORY APPLICATION MENU 1: ADD NEW TELEPHONE NUMBERS INTO THE DIRECTORY 2: SEARCH A TELEPHONE NUMBER IN THE DIRECTORY 3: REPLACE AN EXISTING TELEPHONE NUMBER IN THE DIRECTORY 4: REPLACE AN EXISTING NAME IN THE DIRECTORY 5: DELETE A EXISTING TELEPHONE NUMBER 6: DISPLAY ALL RECORDS IN THE TELEPHONE DIRECTORY 7: DISPLAY SORTED TELEPHONE DIRECTORY 8: DISPLAY SORTED NAME the desired option number 1-8:2 Telephone Number in the Telephone Directory shone number to be searched:28604092 elephone directory. Please wait	
Search successi	uL	
Phone Nos. 28604092	Full Name RAMAKRISHNA	
TO GO BACK TO TO EXIT Type	MAIN MENU AND CONTINUE, type (C or c) E or e):	_

FIG 3: Searching of Telephone Number in the Directory.

3) REPLACING AN EXISTING TELEPHONE NUMBER

- The user is prompted to enter an existing telephone number to be replaced.
- The user is next prompted to enter the new telephone number (FIG 4a,4b)
- The records are searched, if found then it is replaced and can be viewed by displaying all records else an message "search unsuccessful, enter new telephone number" appears.

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OPTION 1: ADD NEW TELEPHONE NUMBERS INTO THE DIRECTORY OPTION 2: SEARCH A TELEPHONE NUMBER IN THE DIRECTORY OPTION 3: REPLACE AN EXISTING TELEPHONE NUMBER IN THE DIRECTORY OPTION 4: REPLACE AN EXISTING NAME IN THE DIRECTORY OPTION 5: DELETE A EXISTING TELEPHONE NUMBER OPTION 6: DISPLAY ALL RECORDS IN THE TELEPHONE DIRECTORY OPTION 7: DISPLAY SORTED TELEPHONE DIRECTORY OPTION 8: DISPLAY SORTED NAME		
Enter the desired option number 1-8:3 CASE-3: Replace an existing telephone number by new telephone number on match Enter an existing telephone number to be replaced: 28604092 Enter the new telephone number to be replaced with: 29040682		
Searching the NUMBER IN telephone directory Please wait Search successful Preparing to REPLACE RECORD		
Phone Nos:28604092 Full Name:RAMAKRISHNA Please wait		
TO GO BACK TO MAIN MENU AND CONTINUE, type (C or c) TO EXIT Type (E or e):		•

FIG 4(a): Replacing existing telephone number with new number

234567845	8	TEST
1234567453		MY NHME IS JUHN
2345670343		MY NHME IS HLBERI PINIO
98843232		IEIING
6578232932		HELLO WORLD
2324324234		UASUHELLO
988323234		ARHILESH HELLO WORLD:
784903223		USHAKUMAR HELLO WORLD:
234567890		IESTING HELLO WORLD
23456718		01JAYANARENDRA HELLO WORLD
3456712341		PUSHPAKUMAR HELLO WORLD
212345679		UARUNI SRIPAD
33453679		VARUNI_HELLO_WORLD
345345566		TESTING NUMBERS
23456789		TESTING DIGITS ONLY
234567890		HELLO CORRECT DATA
1234567890		LINE NUMBER
123456789		LINENUMBER
34353556		MYLINE
29040682		RAMAKRISHNA

FIG 4(b): Display of the directory after replace operation.

4) <u>REPLACING AN EXISTING NAME</u>

- The user is prompted to enter an existing name
- The user is next prompted to enter the new name(FIG 5a,5b)
- The records are searched for the name entered, if found it is replaced and can be viewed by

displaying the records, else a message "search unsuccessful, please enter a new name" appears.





	0 0		
		VARUNI HELLO WORLD!	
		TESTING NUMBERS	
12		TESTING DIGITS ONLY!	
		HELLO CORRECT DATA :	
8		LINE NUMBER	
		LINENUMBER ;	
ŝ		URNAME	
		RAMAKRISHNA I	
	nagan nagan kalant k		
MENU AND CONTINU	E, type (C or c)	1
• e):			-
	MENU AND CONTINU	MENU AND CONTINUE, type (C or c	VARUNI HELLO WORLD TESTING NUMBERS TESTING DIGITS ONLY HELLO CORRECT DATA LINE NUMBER LINE NUMBER URNAME RAMAKRISHNA MENU AND CONTINUE, type (C or c)

Fig 5(b) Display of the directory after replace operation

5) DELETING AN EXISTING TELEPHONE NUMBER

• The user is prompted to enter an telephone number(FIG 6a,6b)

• The records are searched, if found, the number and the corresponding name are deleted from the records.

Enter the desired option number 1-8:5 CASE-5:Delete a existing telephone number and Name from the directory on match Enter the telephone number to be searched:123456789 Searching the NUMBER IN telephone directory. Please wait Search successful. Preparing to DELETE THE NUMBER and NAME.. Phone Nos:123456789 Full Name:LINENUMBER Please wait TO GO BACK TO MAIN MENU AND CONTINUE, type (C or c)

FIG 6(a): Deleting of Existing Telephone number & Name

3453679	VARUNI HELLO WORLD: TESTING NUMBERS:
23456789 234567890	TESTING DIGITS ONLY: HELLO CORRECT DATA:
1234567890	LINE NUMBER
34353556	URNAME
27040682	Ангикат зами т



6) SORTING RECORDS BY NAME

• Records are sorted alphabetically.FIG7 based on the number of characters which can be a minimum of 3 chars and a maximum of 50 chars width including blank spaces.

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Number of record to be sorted: 26 Sorting the telephone directory by Name please wait Printing Sorted Names			
	Full Name!	Phone Nos.!	
	AKHILESH HELLO WORLD:	9883232341	
	AKHILESH VIJAYAKUMAR!	90023256781	
	HELLO CORRECT DATA!	2345678901	
	HELLO WORLD!	65782329321	
£	LINE NUMBER 1	12345678901	
	MY NAME IS ALBERT PINTO!	23456703431	
	MY NAME IS JOHN!	12345674531	
1	NANCY DEOL!	91111943451	
	PUSHPAKUMAR HELLO WORLD!	34567123411	
16	RAMAKRISHNA :	290406821	
<i>i</i> ,	BAMMANNA I	2860408546541	
	SRIRAMPURAM BANGALORE!	67777545431	
	TEST	2345678451	
	TESTING DIGITS ONLY :	234567891	
	TESTING HELLO WORLD!	2345678901	
	TESTING NUMBERS :	3453455661	
	TETING	988432321	
	URNAME	343535561	
	USHAKUMARI	28604057891	-

FIG 7: Display of directory records sorted by Name

7) SORTING RECORDS BY TELEPHONE NUMBER

• Records are sorted by number. (FIG 8) based on the number of digits which can be a minimum of 8 digit and a maximum of 10 digit width.

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Number of record Sorting the teler	to be sorted: 26 None directory b ——Printing Sorte	y Telephone Number. please wait
l Phone Nos.		Full Name
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		MY NAME IS JOHN I LINE NUMBER UARUNI SRIPAD UASUHELLO MY NAME IS ALBERT PINTO UIJAYANARENDRA HELLO WORLD TESTING DIGITS ONLY TESTING HELLO WORLD HELLO CORRECT DATA USHAKUMAR RAMMANNA RAMAKRISHNA UARUNI HELLO WORLD URNAME TESTING NUMBERS PUSHPAKUMAR HELLO WORLD

FIG 8: Display of directory records sorted by telephone number

Code Snippet:

Figure 9(a) to 9(d) below shows the sample code snippet of the source code of the application basec C programming language.

Topological distance	tory] - telephone_directory.dev
<u>File E</u> dit <u>S</u> earch <u>V</u> iew <u>P</u> roject E <u>x</u> ecute	<u>D</u> ebug <u>T</u> ools <u>C</u> VS <u>W</u> indow <u>H</u> elp
♥ ♥ ● ■ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩	■ ☆ ダ ● ◆ ● ◆ ● ● ■ <u>● ● ○ ○</u> □ へ 中 ● Insert ◆ Toggle ■ Goto
Project Classes Debug tele.c	
<pre>telephone_directory tele.c #inclu #inclu #inclu #inclu int fm void f void f void f void f int f int ma {</pre>	<pre>de <stdio.h> de <stdib.h> de <stdib.h> de <math.h> de <string.h> _menu(); _telphone_write(); _telphone_delete(); _telphone_delete(); _telphone_display(); unc_bubble_sort(int n); unc_bubble_sort(int n); unc_check_int(char ch_telno[]); int i_optno=0; unsigned char c_OPT='C',c_reply='E'; //scanf("%c", 4c_OPT); if((c_OPT=='C' [c_OPT=='c') [(c_reply=='C' [[c_reply=='c']) { c_OPT='E'; i_optno=fn_menu(); (i_optno){</string.h></math.h></stdib.h></stdib.h></stdio.h></pre>

FIG:9(a): DEV C++ IDE tool and the main program source code snippet.

int	fn menu() (
	int 1 menuno;
	printf("\n");
	printf("WELCOME TO TELEPHONE DIRECTORY APPLICATION SYSTEM\n");
	printf("\n");
	printf(" TELEPHONE DIRECTORY APPLICATION MENU\n");
	printf ("\topTioN 1: ADD NEW TELEPHONE NUMBERS INTO THE DIRECTORY\n");
	printf("\topTion 2: SEARCH & TELEPHONE NUMBER IN THE DIRECTORY\n");
	printf (") COPTION 3: REPLACE AN EXISTING TELEPHONE NUMBER IN THE DIRECTORY ");
	printf("\topTion 4: REPLACE AN EXISTING NAME IN THE DIRECTORY\n");
	printf("\topTION 5: DELETE A EXISTING TELEPHONE NUMBER\n");
	printf("\topTion 6: DISPLAY ALL RECORDS IN THE TELEPHONE DIRECTORY\n");
	printf("\toPTION 7: DISPLAY SORTED TELEPHONE DIRECTORY\n");
	printf("\topTION 8: DISPLAY SORTED NAME\n\n");
	printf("\tEnter the desired option number 1-8:");
	scanf("*d", si_menuno);
	return(1 menuno);
>	
1++	
10	OPTION 1: ADD A NEW TELEPHONE NUMBER INTO THE TELEPHONE DIRECTORY
100	INPUT: None
10	OUTPUT: New telephone number and Name appended in TELPHONE DIR. TXT file
10	Author:Vasuprada Vijayakumar, create Date:08-NOV-2011
1+	Last Modified Date:

FIG:9(b): Menu Function source code snippet.



FIG:9(c): Sorting Function source code snippet

// end of function f_name_replace OPTION 5: DELETE A EXISTING TELEPHONE NUMBER FROM THE TELEPHONE DIRECTORY INPUT: search key OUTPUT: Delete the existing telephone number and name on match in TELPHONE DIR.TXT file Author:Vasuprada Vijayakumar, create Date:08-NOV-2011 Last Modified Date: void f_telphone_delete() FILE *fp_telread, *fp_telwrite; unsigned char cha telno[11]; char cha_fullname[50]; char cha_newfilename[120] ={"TMP-TELPHONE_DIR.TXT"}; char char_srch_key='N'; unsigned int i_sstatus = 0; char cha_telphone_key[11]; char cha filename[120]={"TELPHONE DIR.TXT"}; printf("Enter the telephone number to be searched:"); scanf("%s",cha_telphone_key); fp_telread = fopen(cha_filename,"r"); //open the TELPHONE_DIR.TXT in read mode fp telwrite = fopen(cha newfilename,"v"); //open the temporary file TMP-TELPHONE DIR.TXT in write mode

Telephone Directory Enquiry System

FIG:9(d): Sorting Function source code snippet

CONCLUSIONS:

- 1. The application meets the requirement specifications.
- 2. The application is user friendly.
- 3. Appropriate messages appear if wrong input, or data mismatch occurs, the user will be prompted to enter input again in such cases.

LIMITATIONS:

- 1. It is based on file system and search and sorting is inefficient.
- 2. Information retrieval is slower as compared to RDBMS based system.
- 3. Any change in the data structure will call for change in the source code.
- 4. It is platform dependent and needs installation in every client.

Future Enhancement:

- 1. Object oriented methodology can be used to improve the performance.
- 2. Can be redesigned as GUI based application web application with RDBMS as the backend.