

# GLOBAL ACADEMY OF TECHNOLOGY

## COMPUTER SCIENCE AND ENGINEERING

### PROJECT REPORT

#### **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 → 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 .

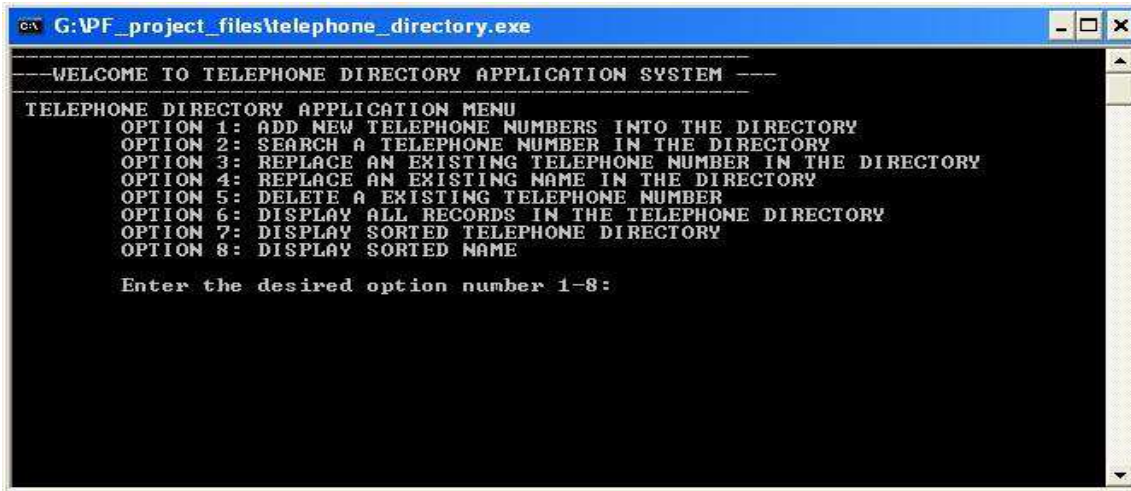
#### **Main menu**

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

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```
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 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:
```

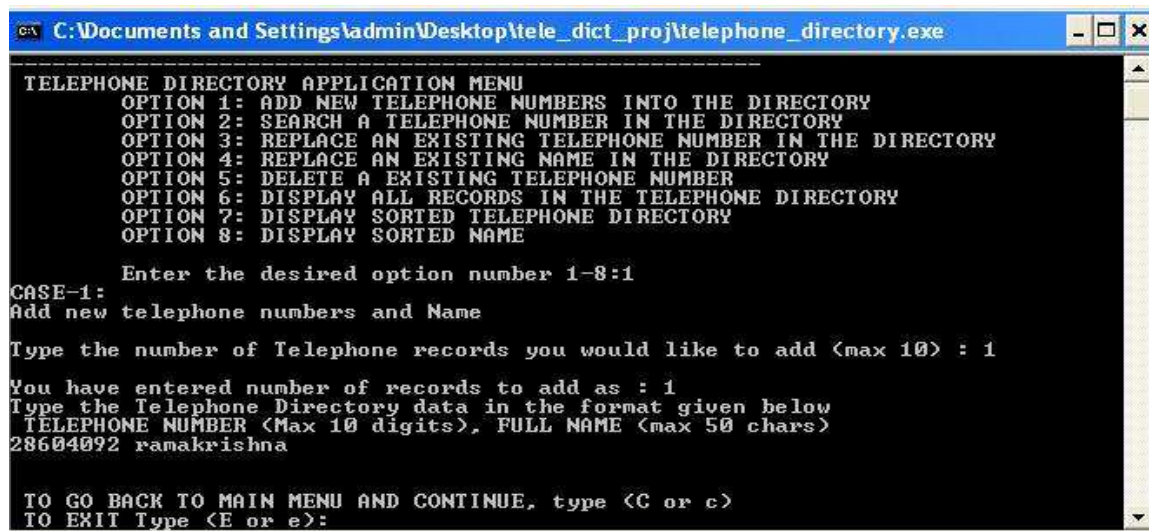
Fig 1: Main menu for the TDES application.

#### Synopsis on each functionality:

##### INSERTING/ADDING NEW RECORDS:

1)

- 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
-----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 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 1-8:1
CASE-1:
Add new telephone numbers and Name
Type the number of Telephone records you would like to add <max 10> : 1
You have entered number of records to add as : 1
Type the Telephone Directory data in the format given below
TELEPHONE NUMBER <Max 10 digits>, FULL NAME <max 50 chars>
28604092 ramakrishna

TO GO BACK TO MAIN MENU AND CONTINUE, type <C or c>
TO EXIT Type <E or e>:
```

FIG 2: Menu to Add new telephone numbers

##### 2) SEARCHING RECORDS BY TELEPHONE NUMBER

- 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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```
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---WELCOME TO TELEPHONE DIRECTORY APPLICATION SYSTEM---
TELEPHONE DIRECTORY APPLICATION MENU
OPTION 1: ADD NEW TELEPHONE NUMBERS INTO THE DIRECTORY
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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 1-8:2
CASE-2:
Search a given Telephone Number in the Telephone Directory
Enter the telephone number to be searched:28604092
Searching the telephone directory. Please wait .....
Search successful.....

Phone Nos.      Full Name
28604092        RAMAKRISHNA

TO GO BACK TO MAIN MENU AND CONTINUE, type <C or c>
TO EXIT Type <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.

```
C:\Documents and Settings\admin\Desktop\tele_dict_proj\telephone_directory.exe
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

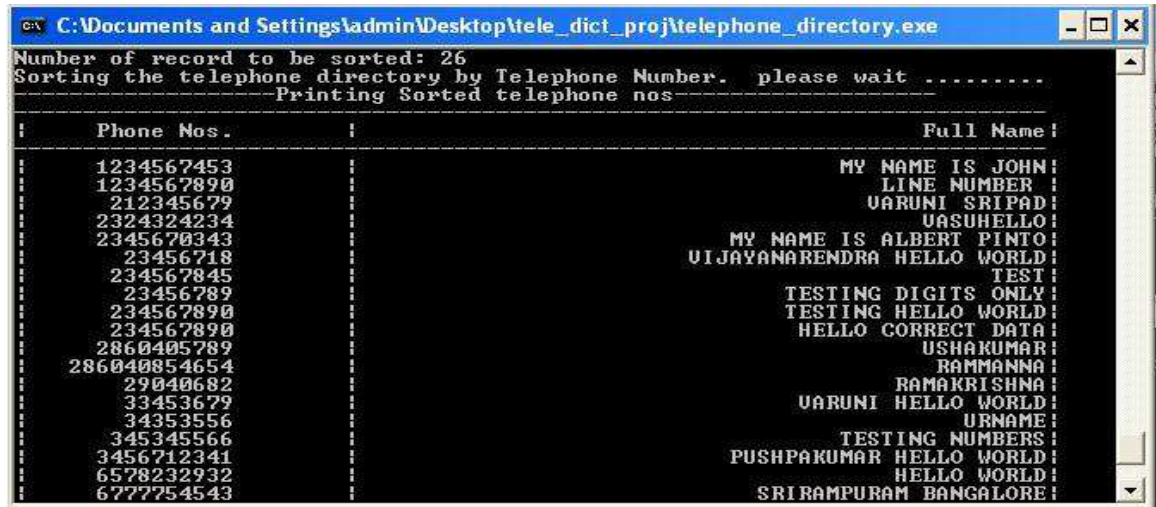




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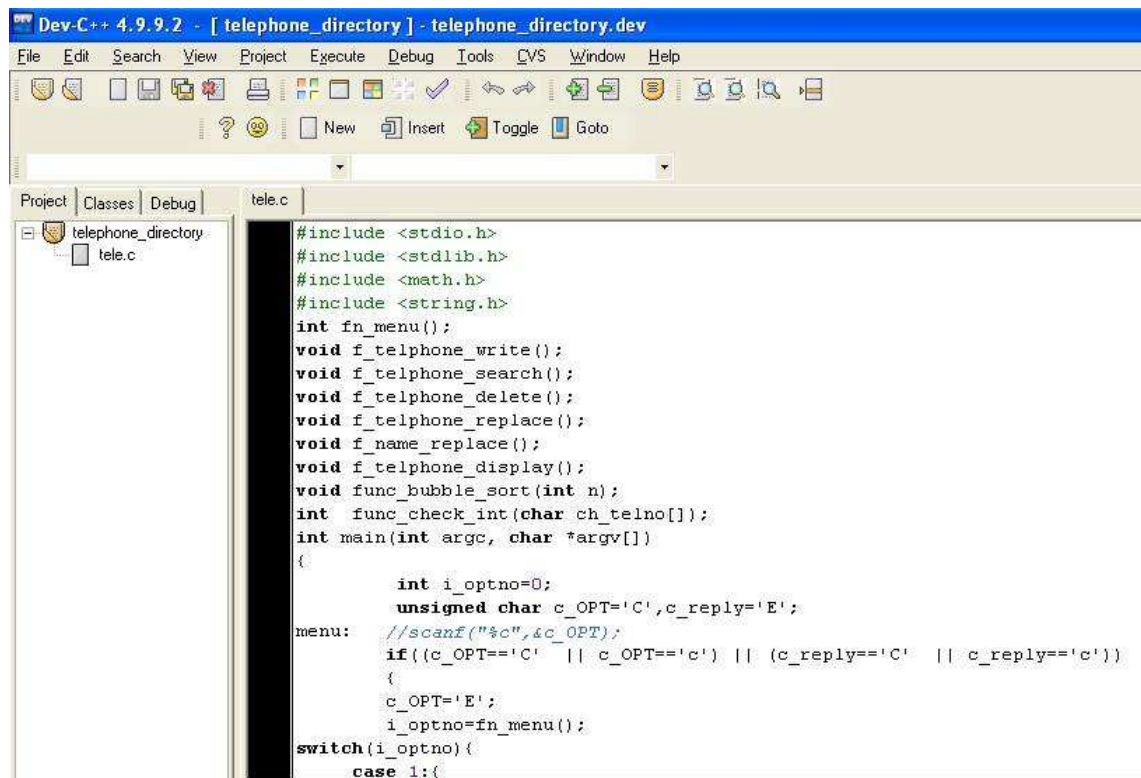


```
Number of record to be sorted: 26
Sorting the telephone directory by Telephone Number. please wait .....
Printing Sorted telephone nos
-----
Phone Nos.                               Full Name
-----
1234567453                               MY NAME IS JOHN
1234567890                               LINE NUMBER
212345679                               UARUNI SRIPAD
2324324234                               UASUHELLO
2345670343                               MY NAME IS ALBERTI PINTO
23456718                               UIJAYANARENDRA HELLO WORLD
234567845                               TEST
23456789                               TESTING DIGITS ONLY
234567890                               TESTING HELLO WORLD
234567890                               HELLO CORRECT DATA
2860405789                               USHAKUMAR
286040854654                             RAMMANNA
29040682                               RAMAKRISHNA
33453679                               UARUNI HELLO WORLD
34353556                               URNAME
345345566                               TESTING NUMBERS
3456712341                             PUSHPAKUMAR HELLO WORLD
6578232932                             HELLO WORLD
677754543                               SRIRAMPURAM BANGALORE
```

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 base C programming language.



```
Dev-C++ 4.9.9.2 - [ telephone_directory ] - telephone_directory.dev
File Edit Search View Project Execute Debug Tools CVS Window Help
-----
Project Classes Debug | tele.c
-----
telephone_directory
| tele.c
|
| #include <stdio.h>
| #include <stdlib.h>
| #include <math.h>
| #include <string.h>
| int fn_menu();
| void f_telphone_write();
| void f_telphone_search();
| void f_telphone_delete();
| void f_telphone_replace();
| void f_name_replace();
| void f_telphone_display();
| void func_bubble_sort(int n);
| int func_check_int(char ch_telno[]);
| int main(int argc, char *argv[])
| {
|     int i_optno=0;
|     unsigned char c_OPT='C',c_reply='E';
| menu: //scanf("%c",&c_OPT);
|     if((c_OPT=='C' || c_OPT=='c') || (c_reply=='C' || c_reply=='c'))
|     {
|         c_OPT='E';
|         i_optno=fn_menu();
|     }
|     switch(i_optno){
|     case 1:{
```

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

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```

int fn_menu() {
    int i_menuuno;
    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 A TELEPHONE NUMBER IN THE DIRECTORY\n");
    printf("\tOPTION 3: REPLACE AN EXISTING TELEPHONE NUMBER IN THE DIRECTORY\n");
    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");
    printf("\tEnter the desired option number 1-8:");
    scanf("%d", &i_menuuno);
    return(i_menuuno);
}

/*****
/*  OPTION 1: ADD A NEW TELEPHONE NUMBER INTO THE TELEPHONE DIRECTORY
/*  INPUT: None
/*  OUTPUT: New telephone number and Name appended in TELEPHONE_DIR.TXT file
/*  Author:Vasuprada Vijayakumar, create Date:08-NOV-2011
/*  Last Modified Date:
*****/

```

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

```

/*****
/*  OPTION 7 & 8 : SORT THE TELEPHONE NUMBERS & NAME IN THE TELEPHONE DIRECTORY USING BUUBLE SORT
/*  INPUT: OPTION NO 7 OR 8
/*  OUTPUT: SORTED LIST BY telephone number OR BY Name DISPLAYED ON THE SCREEN
/*  Author:Vasuprada Vijayakumar, create Date:08-NOV-2011
/*  Last Modified Date:
*****/
void func_bubble_sort(int x){
    unsigned int i,j,n,m,sorted,swaps=0,iter=0;
    unsigned char tno[100][15],temp[15];
    unsigned char Name[100][51],Nametemp[51];
    unsigned char cha_telno[15];
    unsigned char cha_fullname[50];
    FILE *fp_telread;
    char cha_filename[120]={"TELEPHONE_DIR.TXT"};
    /*****Program code*****/
    fp_telread = fopen(cha_filename,"r"); //open the file TELEPHONE_DIR.TXT in read mode
    if (fp_telread==NULL)
        printf("File could not be opened\n"); // not able to open the file
    else if (ferror(fp_telread) !=0)
        printf("An error ocurred while opening the file\n"); //error in reading the file
    else
    { // else part
    //valid file name

```

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 TELEPHONE_DIR.TXT file
/*  Author:Vasuprada Vijayakumar, create Date:08-NOV-2011
/*  Last Modified Date:
*****/
void f_telephone_delete()
{
    /*****Declarations*****/
    FILE *fp_telread,*fp_telwrite;
    unsigned char cha_telno[11];
    char cha_fullname[50];
    char cha_newfilename[120]={"TMP-TELEPHONE_DIR.TXT"};
    char char_srch_key='N';
    unsigned int i_sstatus = 0;
    char cha_telephone_key[11];
    char cha_filename[120]={"TELEPHONE_DIR.TXT"};
    /*****Program code*****/
    printf("Enter the telephone number to be searched:");
    scanf("%s",cha_telephone_key);
    fp_telread = fopen(cha_filename,"r"); //open the TELEPHONE_DIR.TXT in read mode
    fp_telwrite = fopen(cha_newfilename,"w"); //open the temporary file TMP-TELEPHONE DIR.TXT in write mode

```

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**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.

\*\*\*\*\*end of report \*\*\*\*\*