Telephone Directory Maintenance System Specification
(Programming Fundamentals Project)

Education & Research Department
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Version Revision	Date	Author	Reviewed by	Description
3.0a	23-Mar-2005	Nagendra R Setty Raghavendran N		Initial Write. Project for Programming Fundamentals

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Background

This document contains the high level design of the project that has to be executed in order to complete the course Programming Fundamentals.

The project is a Telephone directory maintenance system, for which portions have been implemented already.

1.   Business Requirements

The following are the business requirements for this project, of which some have been completed already.

Sl	Requirement	Status
1	Department code maintenance	Completed
2	Employee Master maintenance	To be implemented
3	Telephone Directory maintenance	To be implemented
4	Telephone Enquiry	To be implemented

2.   List of Files supplied

Sl	File	Description
1	FileFunctions.c	Source file which contains all the functions required to handle records in file. Functions also have documentation in function header comment blocks.
2	FileFunctions.h	Header file which contains the declaration of all the functions and constants in FileFunctions.c. Include this in any new source file that you write to use the functions.
3	DeptMaint.c	File containing code to add and view departments in the department file
4	TelDir.c	The main file of telephone directory system. Contains code for the main menu and department menu.
5	dept.txt	File which your program uses to store information about the departments. (Do not edit this manually)
6	emp.txt	File which your program uses to store information about employees. (Do not edit this manually)
7	SampleCode.c	**NOT PART OF TELEPHONE DIRECTORY PROJECT.** Contains code samples of how to use the functions in FileFunctions.c

PLEASE NOTE THAT ALL THE CODE SUPPLIED TO YOU HAS ALL THE NECESSARY DOCUMENTATION IN IT ALREADY.

3.   Department Code Maintenance

This module has two main functions (**It has already been implemented – Ask your facilitator to supply the code**).

1. To add department codes

Add Department
- The department code should be 4 characters long
- The department names should not exceed 15 characters
- The department code should start with 1000. Every new department added should get a 1 up number for the department code
- The department codes should be unique
- Department names cannot be duplicated. Comparison should be case insensitive
- The department codes should be generated by the system
- When the user finishes adding new departments, the control should return to the Department Code Maintenance Screen

View all Departments
- Display all the departments along with the department codes in a tabular format

4.   Employee Master Maintenance

This module has two main functions.
1. To add a new employee
2. To view employee

Add New Employee
- All fields are mandatory.
- The name of the Employee should not exceed 25 characters.
- The employee id should be 4 characters long.
- The employee id should start with 1000. Every new employee added should get a 1 up number for the employee id
- The employee ids should be unique
- The employee ids should be generated by the system
- When the control comes to accepting the department code, list the existing department codes along with their names on the screen for selection of the proper department code

- Department Code must be a valid code (should be existing in dept.txt file)
- Department name is displayed corresponding to the code entered. User should not edit this field
- The Location should not exceed 5 characters
- When the user finishes adding new Employee, the control should return to the Employee Maintenance Screen

View all Employees
- Display all the employees along with their department codes, employee id and other details in a tabular format

5. Telephone Directory Maintenance

Add New Telephone
- All fields are mandatory
- The employee id entered should exist
- If the employee id does not exist, an error message should be displayed
- The Location and Department Code (for the employee) should be displayed (From the information entered in the Employee Master screen). User should not edit these fields
- Allocate a seven-digit telephone number depending on the department. (4-digit Department Code + 3-digit unique number starting with 001 for a particular department). The first telephone number in a particular department should start with xxxx001
- The telephone number should be generated by the system and should be sequential
- When the user finishes adding new Telephone Number, the control should return to the Telephone Directory Maintenance Screen

6. Telephone Enquiry

Enquiry on Employee Name
- Case insensitive name search should be provided
- If the name does not exist, an error message should be displayed
- If the name exists, the details of all the telephone numbers whose owner names match should be displayed
- When the user finishes enquiry by employee, the control should return to the Telephone Enquiry Screen

Enquiry on Telephone Number
- Telephone number should exist.
- If the telephone number does not exist, an error message should be displayed

- If the number exists, the details should be displayed
- When the user finishes enquiry by telephone number, the control should return to the Telephone Enquiry Screen

7.   Screen Design

- All the fields with ……… are user inputs
- All fields with _____ are to be generated by the system
- All error messages are to be displayed on the screen
- When an error message is displayed system should wait for a key press
- Error messages should be cleared once the user presses a key
- All validations done should be case insensitive. For e.g. when you ask the user if he wishes to continue, following inputs are valid: 'y' or 'Y' or 'n' or 'N'. Any other input is invalid
- User Id for login should be your employee id
- If your employee id is entered for User ID, Main Menu of Telephone Directory Maintenance System should be displayed
- If any other employee id is entered for User Id, the system should display error message "Login Denied" and should quit the application
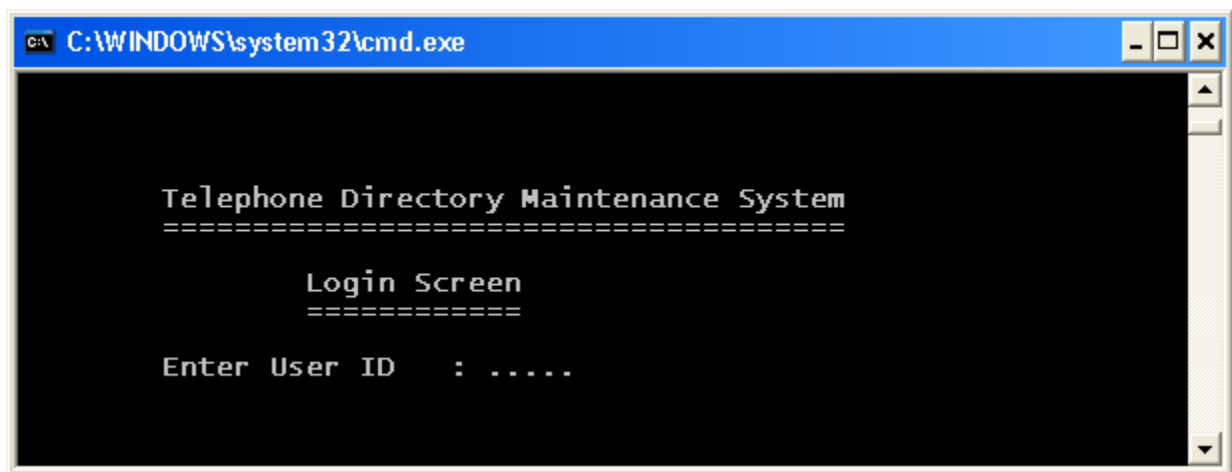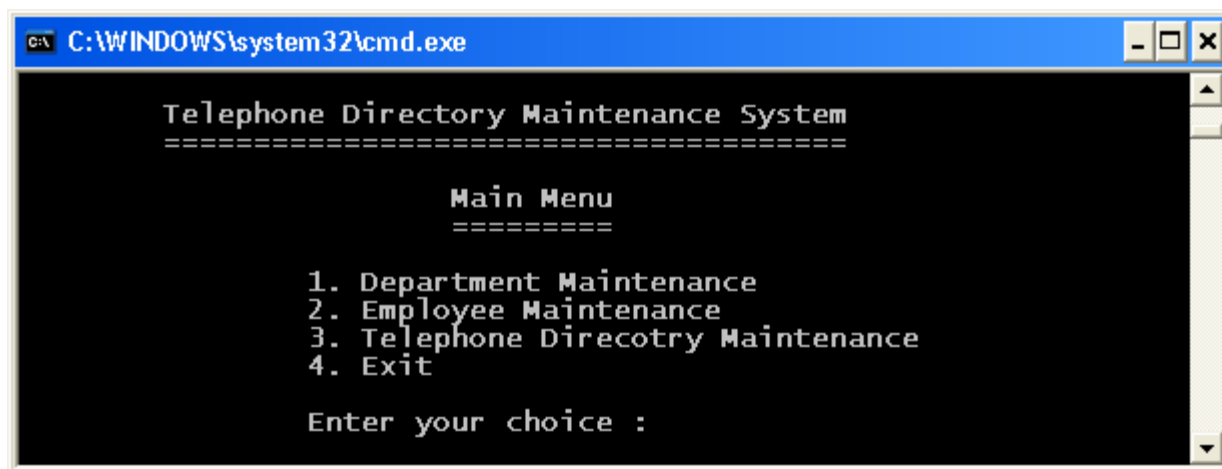

Figure 7-1: Login Screen

```
C:\WINDOWS\system32\cmd.exe                              _ □ ×

        Telephone Directory Maintenance System
        ========================================

                    Main Menu
                    =========

            1. Department Maintenance
            2. Employee Maintenance
            3. Telephone Direcotry Maintenance
            4. Exit

            Enter your choice :
```
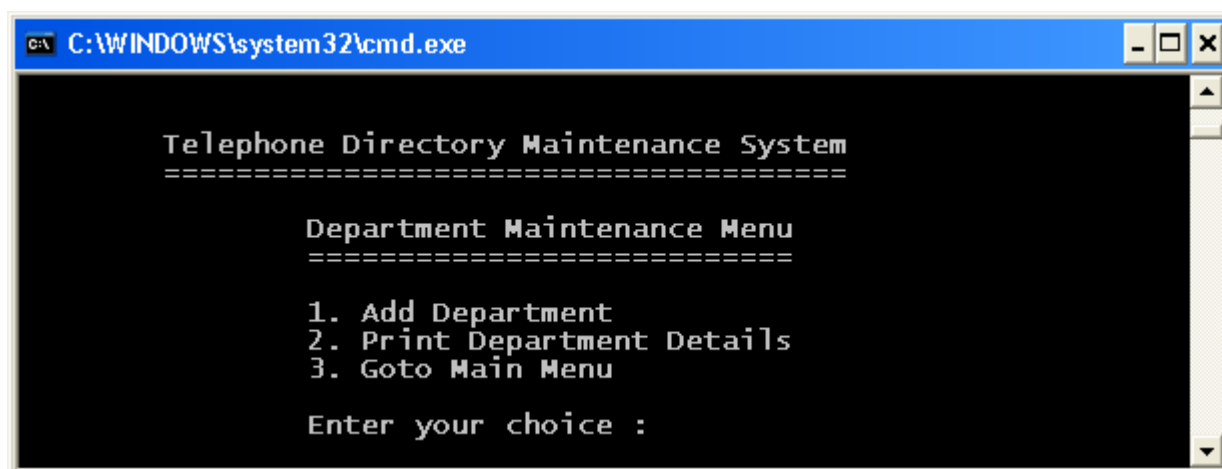
Figure 7-2: Main Menu screen

```
C:\WINDOWS\system32\cmd.exe                              _ □ ×

        Telephone Directory Maintenance System
        ========================================

                Department Maintenance Menu
                ===========================

            1. Add Department
            2. Print Department Details
            3. Goto Main Menu

            Enter your choice :
```

Figure 7-3: Department Maintenance screen

```
C:\WINDOWS\system32\cmd.exe                              _ □ ×

        Telephone Directory Maintenance System
        ========================================

                Add a Department
                ================

        Enter Department Name    : ...............

        Department Code          : ____

        Press any key to continue
```
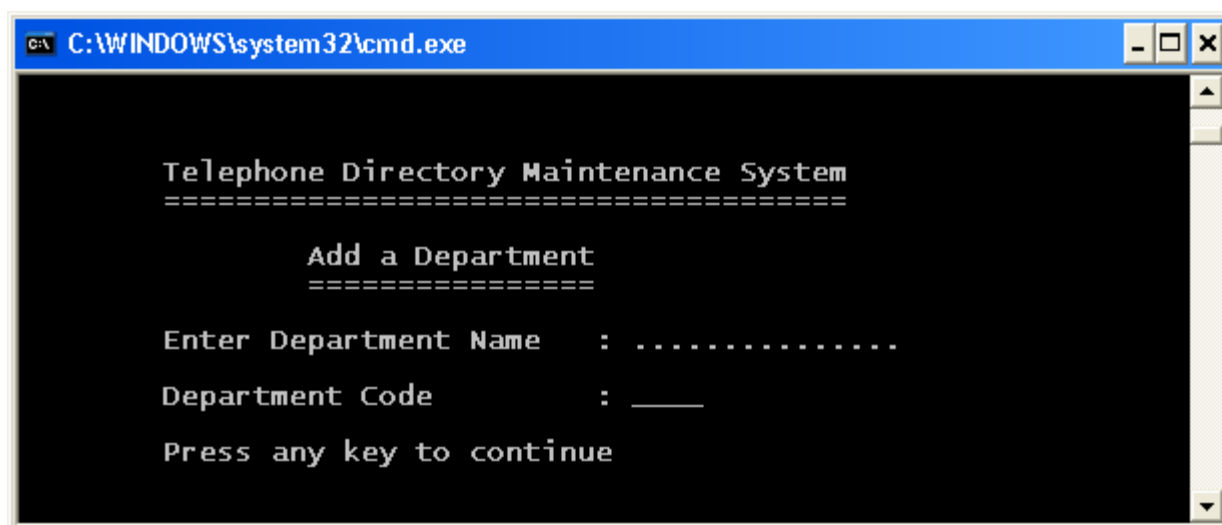
Figure 7-4: Adding a Department Screen
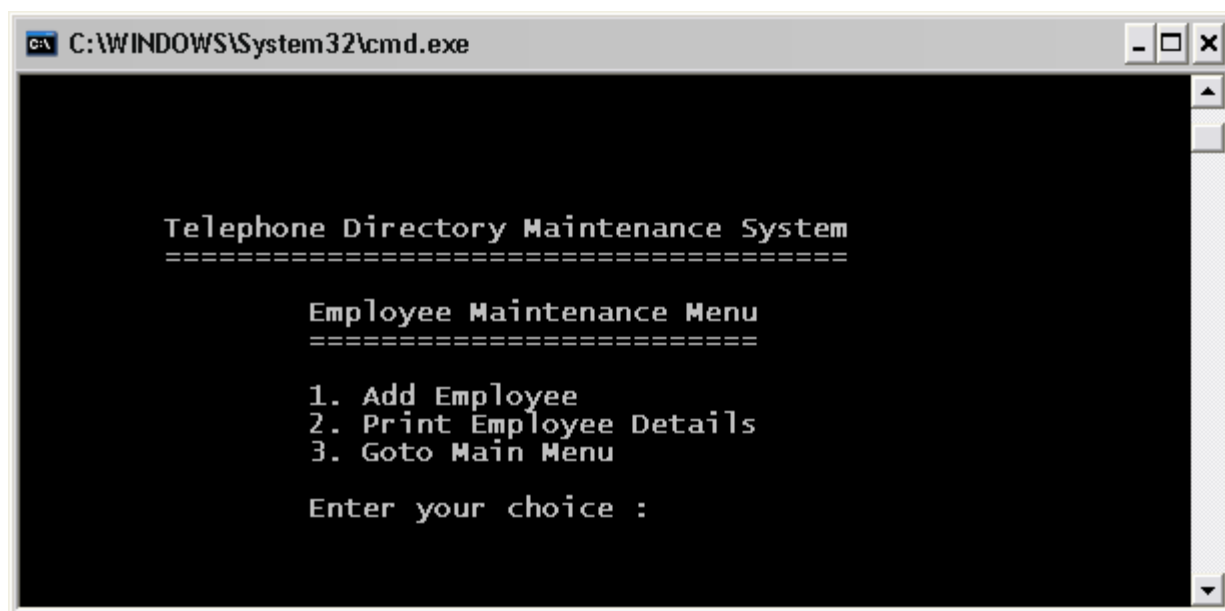
Figure 7-5: Employee Maintenance Menu screen
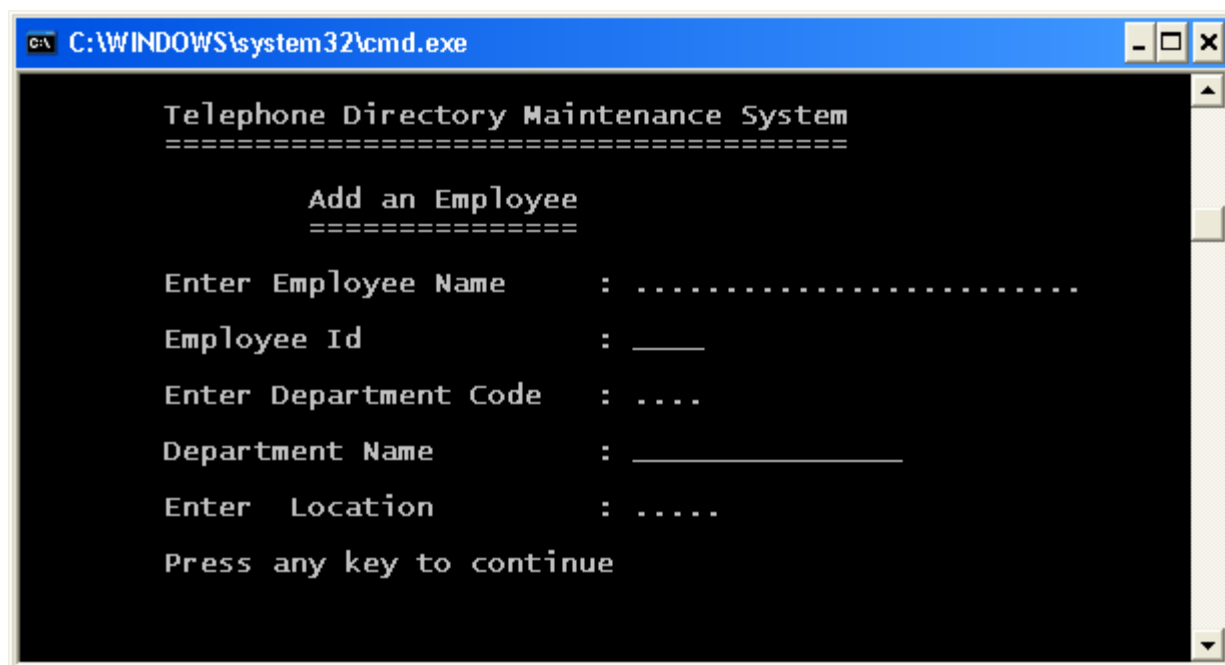
Figure 7-6: Add an Employee screen
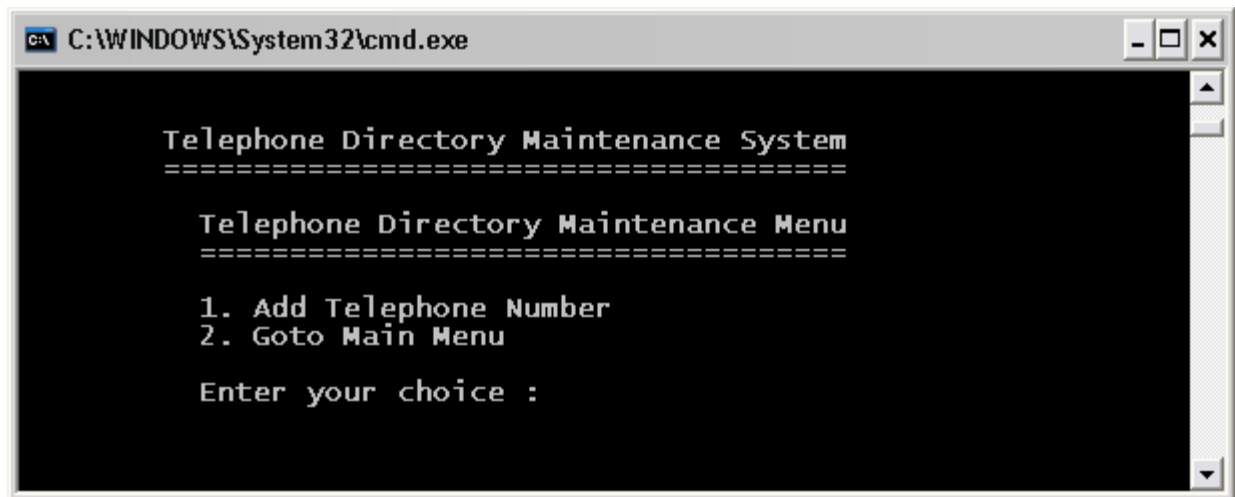
```
C:\WINDOWS\System32\cmd.exe                              _ □ ×

          Telephone Directory Maintenance System
          =======================================

             Telephone Directory Maintenance Menu
             =======================================

             1. Add Telephone Number
             2. Goto Main Menu

             Enter your choice :
```

7-7: Telephone Directory Maintenance screen

```
C:\WINDOWS\system32\cmd.exe                              _ □ ×

          Telephone Directory Maintenance System
          =======================================

                Add a Telephone Number
                ======================

                Enter Employee Id           : ....

                Location                    : _____

                Department code             : ____

                Telephone Number Allocated  : _____

                Press any key to continue
```
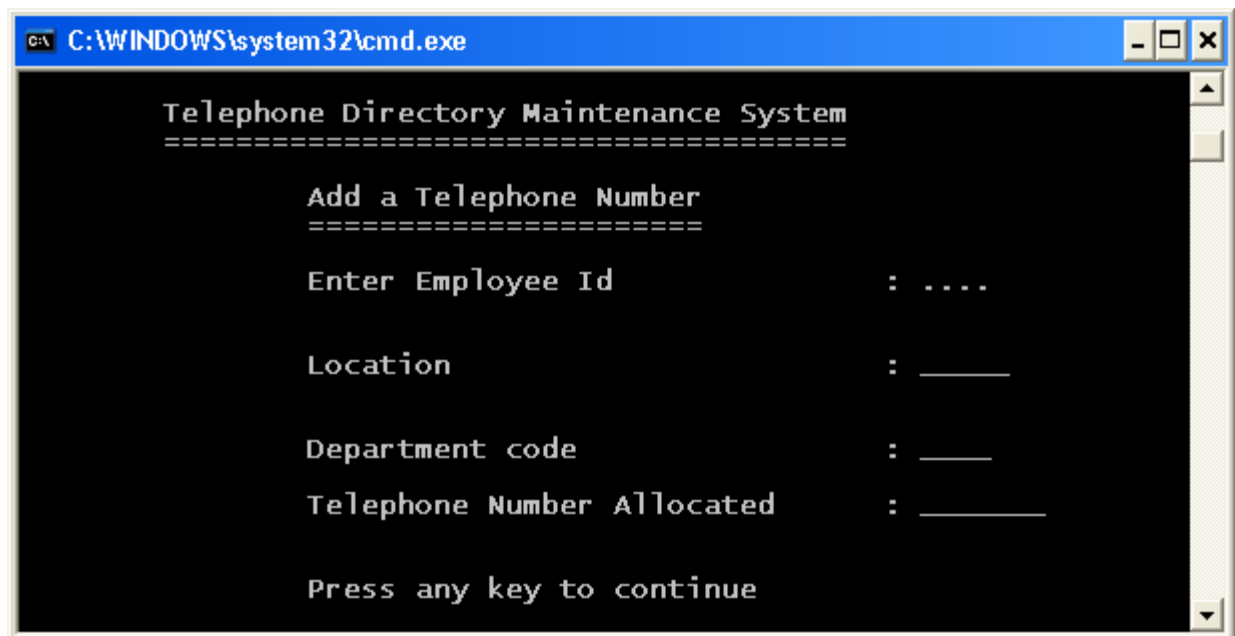
Figure 7-8: Add a telephone number screen

```
C:\WINDOWS\system32\cmd.exe                                    _ □ ×

        Telephone Directory Maintenance System
        =======================================

            Telephone Enquiry Menu
            ======================

            1. Enquiry on Emlpoyee Name
            2. Enquiry on Telephone Number
            3. Goto Main Menu

            Enter your choice :
```

Figure 7-9: Telephone Enquiry Menu screen

```
C:\WINDOWS\System32\cmd.exe                                    _ □ ×

        Telephone Directory Maintenance System
        =======================================

            Telephone Number Enquiry by Name
            ================================

        Enter Employee Name    : ...............

   Name                Location         DeptName          TelNumber


   _____       _____         _____     _____

   _____       _____         _____     _____


            Press any key to continue
```
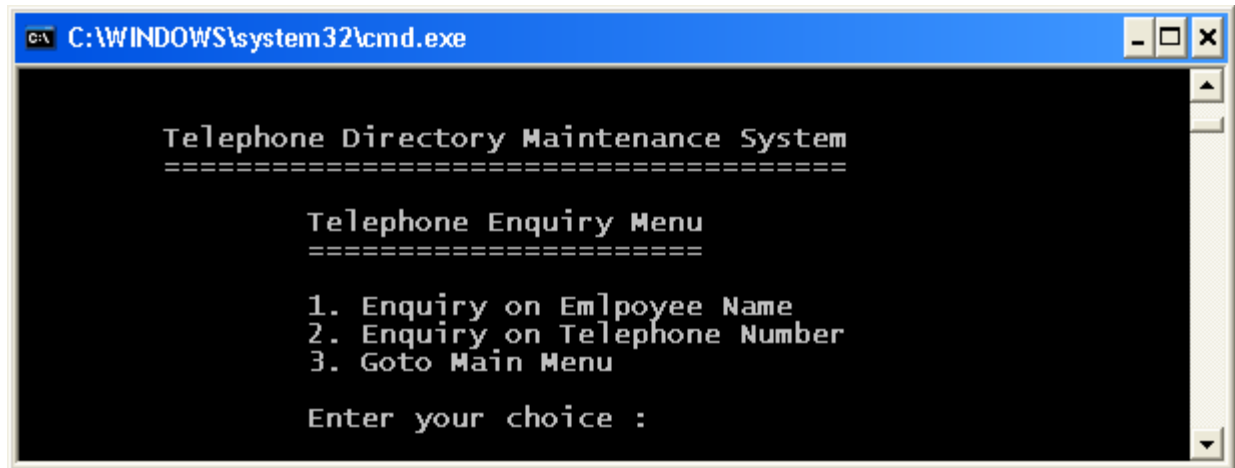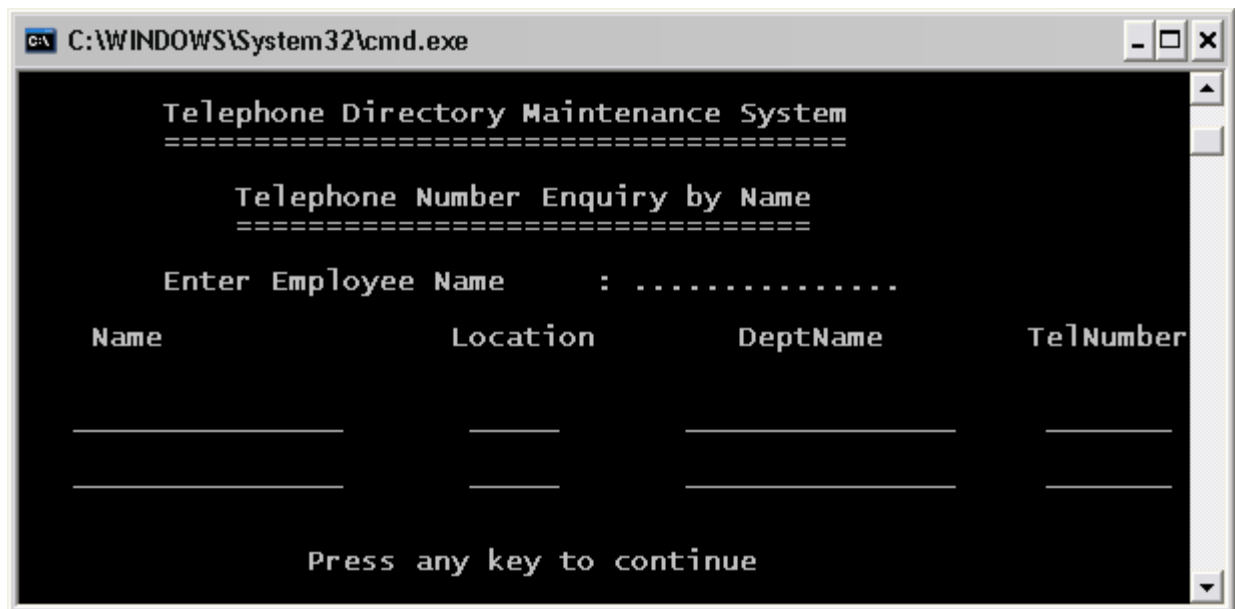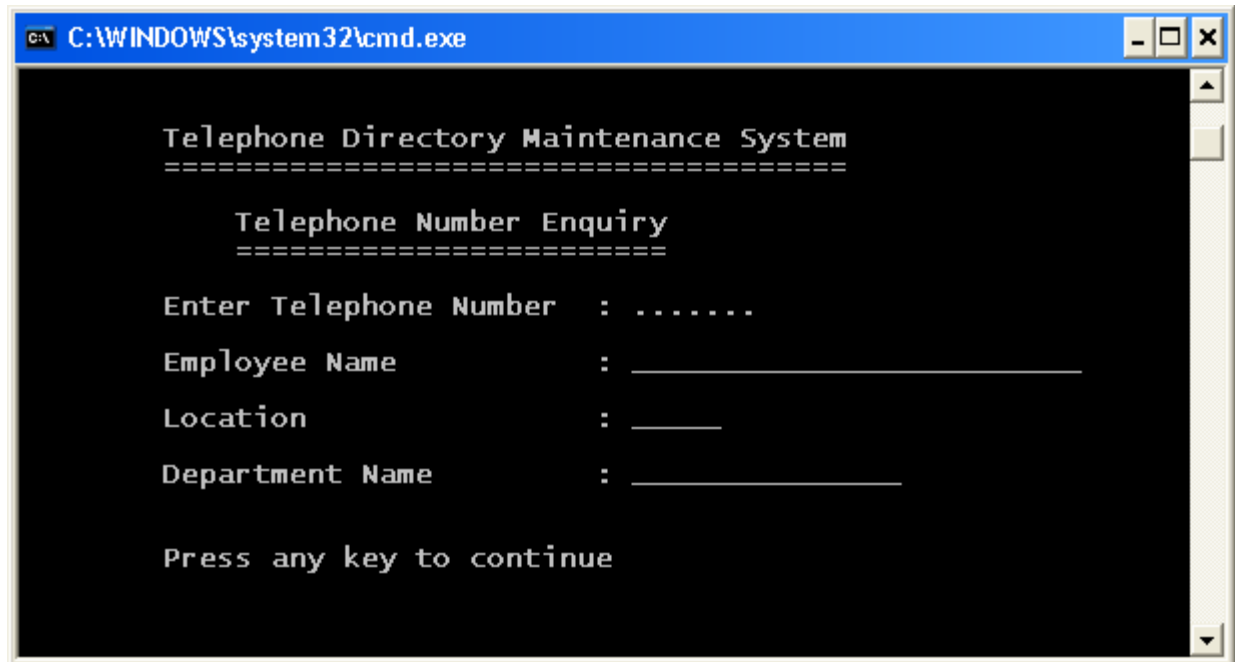
Figure 7-10: Telephone Enquiry by name screen

Figure 7-11: Telephone number enquiry screen