A Course Based Project Report on

PHONE DIRECTORY MANAGEMENT SYSTEM

Submitted to the

Department of Information Technology

in partial fulfilment of the requirements for the completion of course
DATA STRUCTURES LABORATORY(22ES2CS102)

BACHELOR OF TECHNOLOGY

IN

INFORMATION TECHNOLOGY

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Estd.1995

DEPARTMENT OF INFORMATION TECHNOLOGY

VALLURUPALLI NAGESWARA RAO VIGNANA JYOTHI INSTITUTE OF ENGINEERING & TECHNOLOGY

An Autonomous Institute, NAAC Accredited with ‘A++’ Grade, NBA

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VALLURUPALLI NAGESWARA RAO VIGNANA JYOTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY

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CERTIFICATE

This is to certify that the project report entitled "**PHONE DIRECTORY MANAGEMENT SYSTEM**" is a bonafide work done under our supervision and is beingsubmittedby**B.Harshini(22071A1271),CH.Deepthi(22071A1272), CH.Jyothika(22071A1273),C.AtharvaReddy(22071A1274),D.Venkat(22071A1275)** in partial fulfilment for the award of the degree of **Bachelor of Technology** in Information Technology, of the VNRVJIET, Hyderabad during the academic year 2022-2023.

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Estd. 1995

DECLARATION

We declare that the course based project work entitled “**PHONE DIRECTORY MANAGEMENT SYSTEM** ” submitted in the Department of Information Technology, Vallurupalli Nageswara Rao Vignana Jyothi Institute of Engineering and Technology, Hyderabad, in partial fulfilment of the requirement for the award of the degree of **Bachelor of Technology in Information Technology** is a bonafide record of our own work carried out under the supervision of **Mrs.M.Susmitha, Assistant Professor, Department of IT, VNRVJIET.** Also, we declare that the matter embodied in this thesis has not been submitted by us in full or in any part thereof for the award of any degree/diploma of any other institution or university previously.

Place: Hyderabad.

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ABSTRACT

Phone Directory is a C Data Structures based project to store our contacts. We can use it to replace our hard phonebook or even use it as an office-wide phone directory. This will help user to easily search and manage contacts details of an individual. The phone numbers are present in formats like alphabetical order, numerical order. So that user can easily find the required person either by entering first letter of the name or the total name. Or Either by entering total number or entering first digit of the number. In order to keep updated the phone book directory, the admin will have the authority to add and delete the phone numbers within the phone directory. To make all operations as easier as possible, user friendly approach has been taken into account by which users have to select the option given in the menu to make their operations successful. For searching operation, users will able to get any particular record using the name or phone number but the only condition is that, customers record must be available within the file system. If no such record is available, proper error message will be displayed as "Contact not found".

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INTRODUCTION

1.1 PROBLEM DEFINITION

The "Phone Directory Management System" is a command-line interface project implemented in the C programming language, focusing on data structures to efficiently manage a phone directory. The project aims to provide users with a convenient and user-friendly tool to store, retrieve, update, and delete contact information.

1.2OBJECTIVE

The "Phone Directory Management System" is a command-line interface project implemented in the C programming language, focusing on data structures to efficiently manage a phone directory. The project aims to provide users with a convenient and user-friendly tool to store, retrieve, update, and delete contact information.

The system uses data structures like linked lists or hash tables to organize the phone directory efficiently, ensuring quick access to contact details while minimizing memory usage. Users can perform various operations through the command-line interface, such as adding a new contact, searching for a contact by name, updating an existing contact's information, and deleting contacts.

While the core features are well-defined, there is potential for scope expansion through additional features like contact categorization, sorting options, import/export functionality, or integration with external services. The project's scope allows for customization and adaptation based on user needs, making it a versatile tool for contact management.

SOURCE CODE

```
#include<stdio.h>
#include<string.h>
#include<stdlib.h>
typedef struct phone
{
   char a[20],b[20];
   struct phone *link;
}node;
node *book[26]={NULL},*phone[10]={NULL};
void search();
void search_by_letter();
void search_by_name();
void search_by_first_digit();
void search_by_number();
void del();
void delete_by_name(char [],int);
void delete_by_number(char [],int);
void create();
void display();
void display_by_names();
void display_by_number();
void numpage(char[],char[]);

void search()
{
   int choice;
   printf("Menu is :\n1.search by first letter of the name\n2.search by full name\n3-
Search by first digit of number\n4-search by full number\npress '-1' to exit\n");
```

```
    scanf("%d",&choice);
    switch (choice)
    {
    case 1:search_by_letter();
        break;
    case 2:search_by_name();
    break;
    case 3:search_by_first_digit();
    break;
    case 4:search_by_number();
    break;
    case -1:exit(0);
    default:printf("Invalid Input\n");
        break;
    }
}

void search_by_letter()
{
    node *temp;
    char ch[20];
    int n;
    printf("Enter a letter:\n");
    scanf("%s",ch);
    n=ch[0]-'a';
    temp=book[n];
    if(book[n]==NULL)
         printf("Empty\n");
    else
    {
        temp=book[n];
        printf("Available Contacts starting with given letter is \n");
        while(temp!=NULL)
        {
            printf("%s\t%s\n",temp->a,temp->b);
            temp=temp->link;
        }
    }
}

void search_by_name()
{
    char str[20];
    int n;
    node *temp;
    printf("Enter contact:\n");
    scanf("%s",str);
    n=str[0] - 'a';
    temp=book[n];
    while(temp!=NULL )
    {
        if(strcmp(str,temp->a)==0)
        {
            printf("Contact found\n%s\t%s\n",temp->a,temp->b);
            break;
        }
        temp=temp->link;
    }
    if(temp==NULL)
        printf("Contact not found.Sorry!...\n");
}

void del()
{
    int choice;
    int n=2;
    char str[20];
    printf("Menu is \n1.delete by contact name\n2-Delete by number\n3-exit\n");
    printf("Enter choice:\n");
    scanf("%d",&choice);
    switch(choice)
    {
        case 1:
        printf("Enter the contact name to be deleted:\n");
        scanf("%s",str);
        delete_by_name(str,n);
        break;
        case 2:
        printf("Enter the contact number to be deleted:\n");
        scanf("%s",str);
        delete_by_number(str,n);
        break;
        case 3:exit(0);
        default:
        printf("Invalid Input\n");
    }
}

void delete_by_name(char str[],int k)
{
    int n;
    node *temp,*prev,*cur;
    n=str[0] - 'a';
    cur=book[n];
    if(cur==NULL)
         printf("Nothing is there to be deleted\n");
```

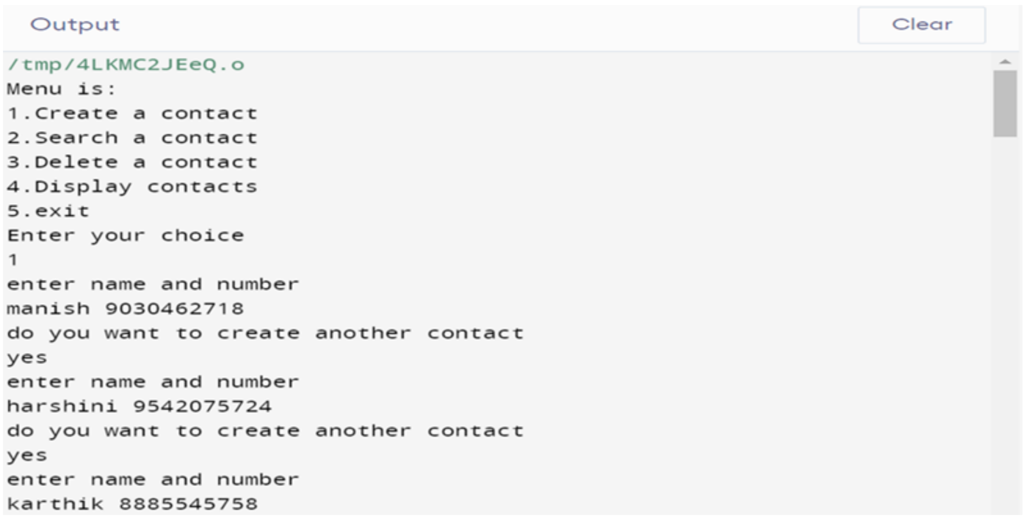
```
else if(strcmp(cur->a,str)==0)
{
   book[n]=cur->link;
   if(k==2)
   printf("%s contact is deleted\n",cur->a);
   if(k==2)
   delete_by_number(cur->b,--k);
   free(cur);
}
else
{
   while(cur->link!=NULL && strcmp(cur->a,str)!=0)
   {
      prev=cur;
      cur=cur->link;
   }
   if(cur->link!=NULL && strcmp(cur->a,str)==0)
   {
      prev->link=cur->link;
      if(k==2)
      printf("%s contact is deleted\n",cur->b);
      if(k==2)
      delete_by_number(cur->b,--k);
      free(cur);
   }
   else if(cur->link==NULL && strcmp(cur->a,str)==0)
   {
      if(k==2)
      printf("%s contact is deleted\n",cur->a);
      prev->link=NULL;
      if(k==2)
      delete_by_number(cur->b,--k);
```

```
            free(cur);
        }
        else
        {
            printf("Contact not found\n");
        }
    }
}

void delete_by_number(char str[],int k)
{
    int n;
    node *temp,*prev,*cur;
    n=str[0] - '0';
    cur=phone[n];
    if(cur==NULL)
         printf("No such type contact\n");
    else if(strcmp(cur->b,str)==0)
    {
        phone[n]=cur->link;
        if(k==2)
        printf("%s contact is deleted\n",cur->b);
        if(k==2)
        delete_by_name(cur->a,--k);
        free(cur);
    }
    else
    {
        while(cur->link!=NULL && strcmp(cur->b,str)!=0)
        {
            prev=cur;
            cur=cur->link;
        }
        if(cur->link!=NULL && strcmp(cur->b,str)==0)
        {
            prev->link=cur->link;
            if(k==2)
            printf("%s contact is deleted\n",cur->b);
            if(k==2)
            delete_by_name(cur->a,--k);
            free(cur);
        }
        else if(cur->link==NULL && strcmp(cur->b,str)==0)
        {
            if(k==2)
            printf("%s contact is deleted\n",cur->b);
            prev->link=NULL;
            if(k==2)
            delete_by_name(cur->a,--k);
            free(cur);
        }
        else
        {
            printf("Contact not found\n");
        }
    }
}

void display()
{
    int n;
    printf("menu:\n1-display according to numbers\n2-display according to names\n3-
exit\n");
    printf("Enter your choice\n");
    scanf("%d",&n);
    switch(n)
    {
        case 1:display_by_number();break;
        case 2:display_by_names();break;
        case 3:exit(0);
        default:printf("Invalid Input\n");
        break;
    }
}

void display_by_names()
{
    node *temp;
    int i,n=0;
    for(i=0;i<26;i++)
    {
        if(book[i]==NULL)
        continue;
        else{
            temp=book[i];
            printf("%c\n",temp->a[0]);
            while(temp!=NULL)
            {
                n=0;
                while(temp->a[n]!='\0')
                {
                    printf("%c",temp->a[n]);
                    n++;
                }
                printf("->");
                for(n=0;temp->b[n]!='\0';n++)
                printf("%c",temp->b[n]);
                printf("\n");
                temp=temp->link;
            }
        }
    }
}

void display_by_number()
{
    node *temp;
    int i,n=0;
    for(i=0;i<10;i++)
    {
        if(phone[i]==NULL)
        continue;
        else{
            temp=phone[i];
            printf("%c\n",temp->b[0]);
            while(temp!=NULL)
            {
                n=0;
                while(temp->b[n]!='\0')
                {
                    printf("%c",temp->b[n]);
                    n++;
                }
                printf("->");
                for(n=0;temp->a[n]!='\0';n++)
                printf("%c",temp->a[n]);
                printf("\n");
                temp=temp->link;
            }
        }
    }
}

void create()
{
    char num[20],name[20],y[20];
    int n,i;
    node *newnode,*cur,*pre;
    do{
        printf("enter name and number\n");
        scanf("%s%s",name,num);
        newnode=(node*)malloc(sizeof(node));
        for(i=0;name[i]!='\0';i++)
        newnode->a[i]=name[i];
        newnode->a[i]='\0';
        for(i=0;num[i]!='\0';i++)
        newnode->b[i]=num[i];
        newnode->b[i]='\0';
        newnode->link=NULL;
        numpage(name,num);
        n=name[0]-'a';
        if(book[n]==NULL)
        book[n]=newnode;
        else
        {
            cur=book[n];
            pre=cur;
            if(strcmp(cur->a,name)>0)
            {
                book[n]=newnode;
                newnode->link=cur;
            }
            else
            {
            while(cur->link!=NULL && strcmp(cur->a,name)<0)
            {
                pre=cur;
                cur=cur->link;
            }
            if(strcmp(cur->a,name)>0)
            {
                newnode->link=pre->link;
                pre->link=newnode;
            }
            else if(strcmp(cur->a,name)==0)
            printf("duplicate file\n");
            else if(cur->link==NULL && strcmp(cur->a,name)<0)
            cur->link=newnode;
            }
        }
    printf("do you want to create another contact\n");
    scanf("%s",y);
    }while(strcmp(y,"yes")==0);
}

int main()
{
    int choice;
    do
    {
    printf("Menu is:\n1.Create a contact\n2.Search a contact\n3.Delete a contact\n4.Display contacts\n5.exit\nEnter your choice\n");
```

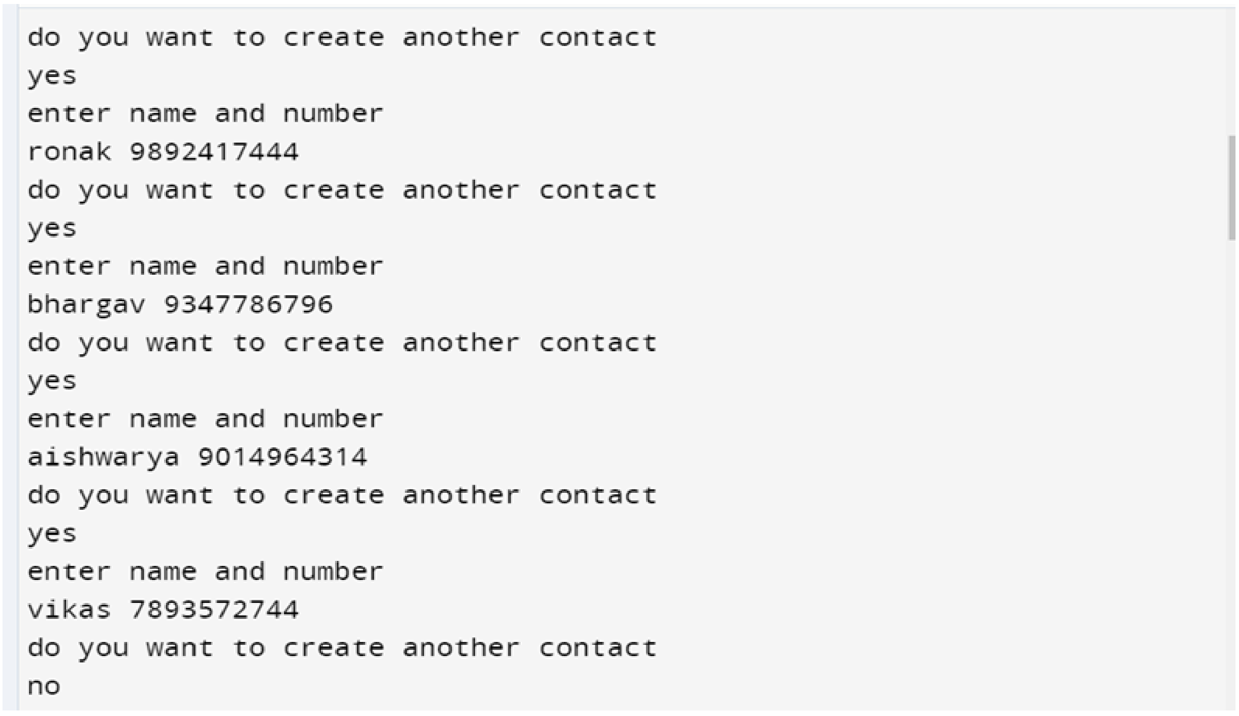
```
   scanf("%d",&choice);
   switch(choice)
   {
      case 1 : create(); break;
      case 2:  search(); break;
      case 3:  del(); break;
      case 4:  display(); break;
      case 5 : exit(0);
      default : printf("Enter valid choice:\n");
               main();
   }
   }
   while(choice>0 && choice<5);
}

void numpage(char name[],char num[])
{
   node *cur,*pre,*newnode;
   int n,i=0;
   newnode=(node*)malloc(sizeof(node));
      for(i=0;name[i]!='\0';i++)
      newnode->a[i]=name[i];
      newnode->a[i]='\0';
      for(i=0;num[i]!='\0';i++)
      newnode->b[i]=num[i];
      newnode->b[i]='\0';
      newnode->link=NULL;
   n= newnode->b[0]-'0';
   if(phone[n]==NULL)
   phone[n]=newnode;
   else
   {
      cur=phone[n];
        pre=cur;
        if(strcmp(cur->b,newnode->b)>0)
        {
           phone[n]=newnode;
           newnode->link=cur;
        }
        else
        {
        while(cur->link!=NULL && strcmp(cur->b,newnode->b)<0)
        {
           pre=cur;
           cur=cur->link;
        }
        if(strcmp(cur->b,newnode->b)>0)
        {
           newnode->link=pre->link;
           pre->link=newnode;
        }
        else if(strcmp(cur->b,newnode->b)==0)
        printf("duplicate file\n");
        else if(cur->link==NULL && strcmp(cur->b,newnode->b)<0)
        cur->link=newnode;
   }
}
}
void search_by_number()
{
   char n[10];
   int i;
   node *temp;
   printf("Enter number to search\n");
```

```
    scanf("%s",n);
    i=n[0]-'0';
    temp=phone[i];
    while(temp!=NULL)
    {
        if(strcmp(temp->b,n)==0)
        {
            printf("Contact found\n");
            printf("%s\t%s\n",temp->b,temp->a);
            break;
        }
        temp=temp->link;
    }
    if(temp==NULL)
    printf("Contact not found\n");
}
void search_by_first_digit()
{
    int i;
    node *temp;
    char s[10];
    printf("Enter first digit of number\n");
    scanf("%s",s);
    i=s[0]-'0';
    temp=phone[i];
    printf("Contact numbers starting with %s are \n",s);
    while(temp!=NULL)
    {
        printf("%s\t%s\n",temp->b,temp->a);
        temp=temp->link;
    }
}
```

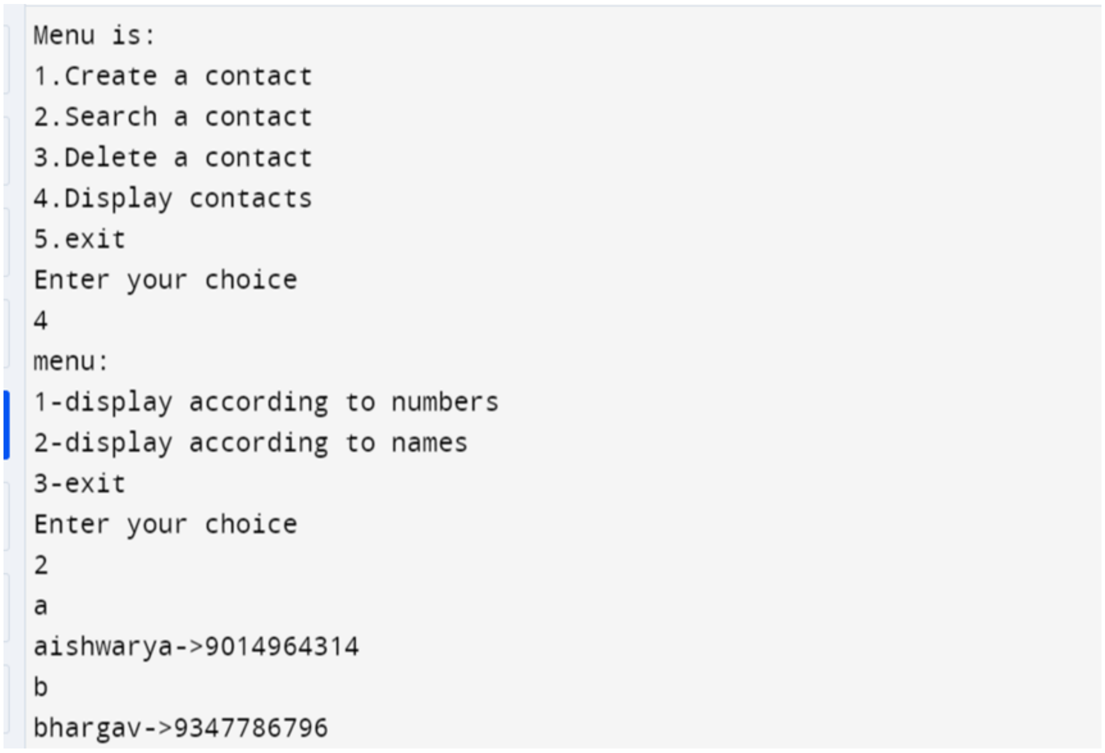
TEST CASES/ OUTPUT



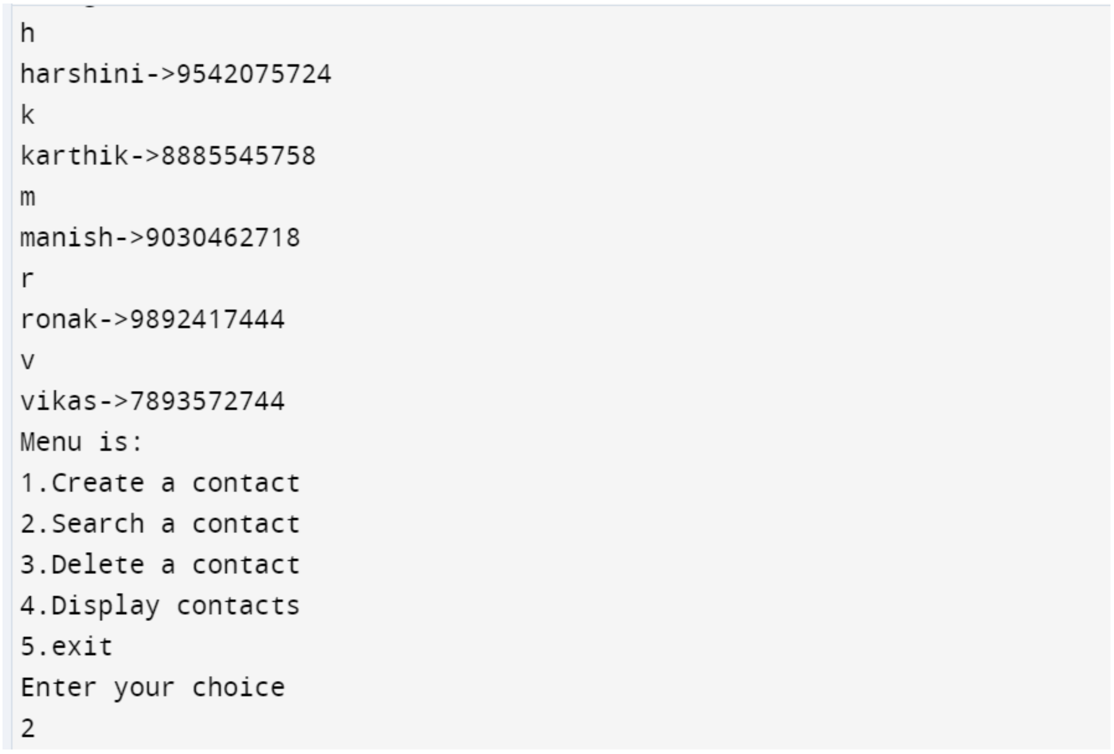
```
/tmp/4LKMC2JEeQ.o
Menu is:
1.Create a contact
2.Search a contact
3.Delete a contact
4.Display contacts
5.exit
Enter your choice
1
enter name and number
manish 9030462718
do you want to create another contact
yes
enter name and number
harshini 9542075724
do you want to create another contact
yes
enter name and number
karthik 8885545758
```



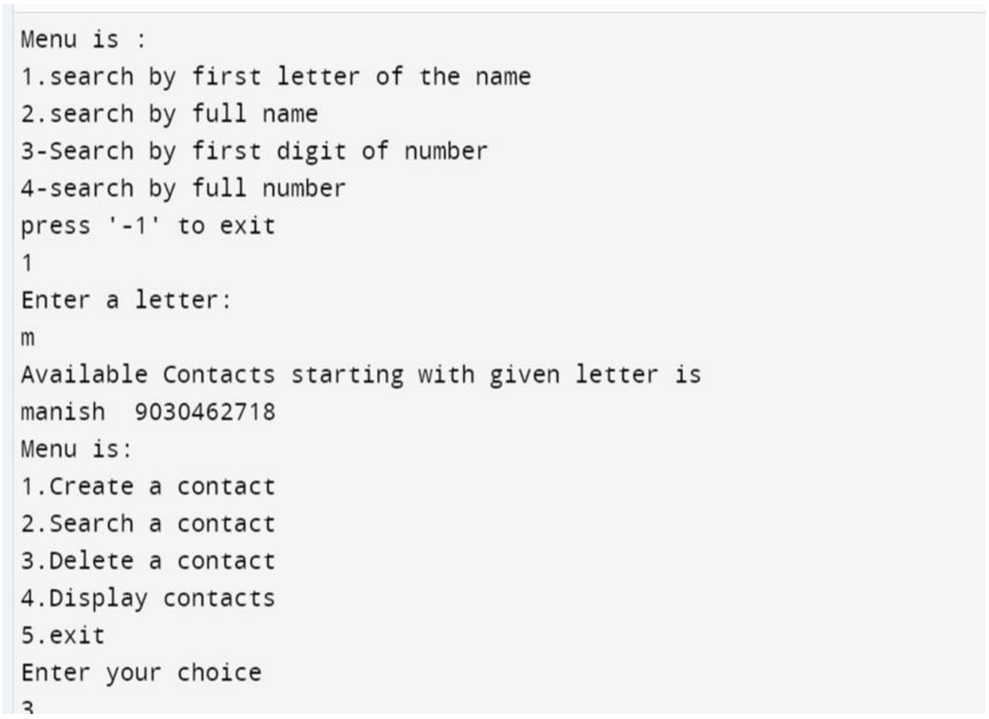
```
do you want to create another contact
yes
enter name and number
ronak 9892417444
do you want to create another contact
yes
enter name and number
bhargav 9347786796
do you want to create another contact
yes
enter name and number
aishwarya 9014964314
do you want to create another contact
yes
enter name and number
vikas 7893572744
do you want to create another contact
no
```



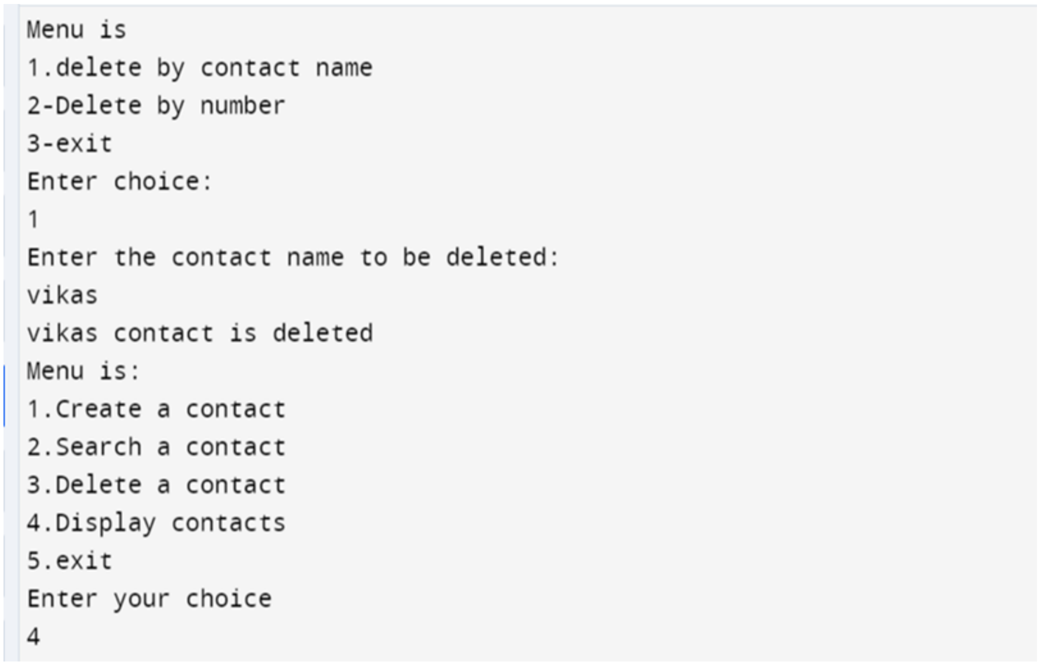
```
Menu is:
1.Create a contact
2.Search a contact
3.Delete a contact
4.Display contacts
5.exit
Enter your choice
4
menu:
1-display according to numbers
2-display according to names
3-exit
Enter your choice
2
a
aishwarya->9014964314
b
bhargav->9347786796
```



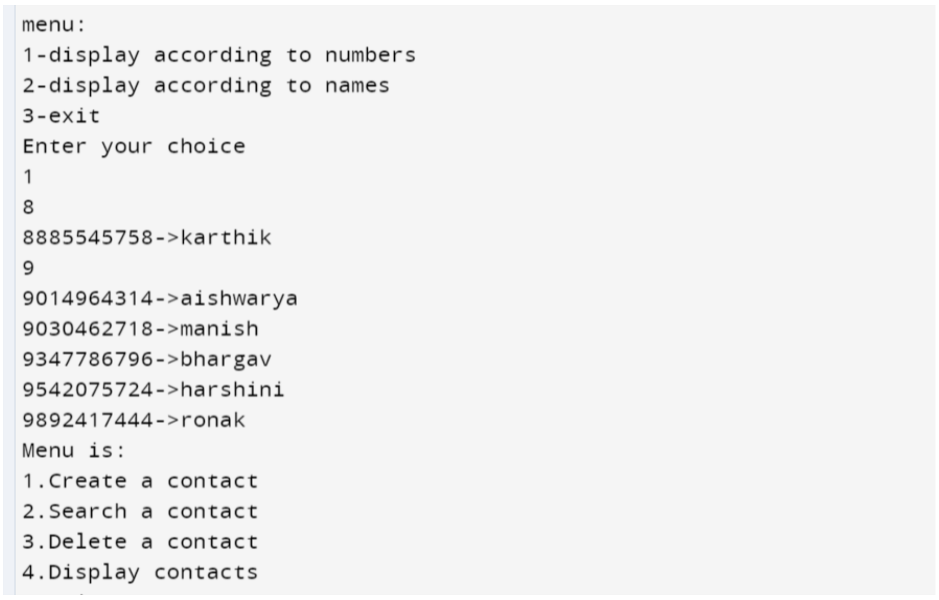
```
h
harshini->9542075724
k
karthik->8885545758
m
manish->9030462718
r
ronak->9892417444
v
vikas->7893572744
Menu is:
1.Create a contact
2.Search a contact
3.Delete a contact
4.Display contacts
5.exit
Enter your choice
2
```



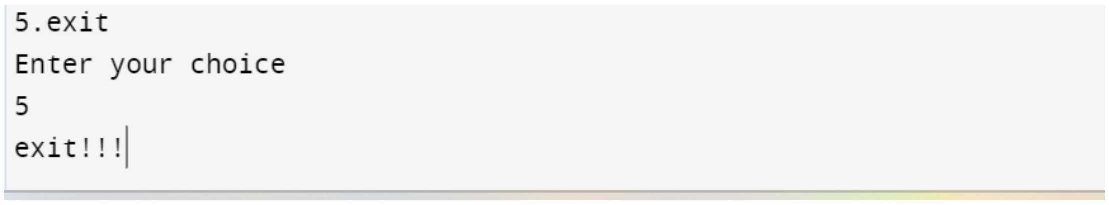
```
Menu is :
1.search by first letter of the name
2.search by full name
3-Search by first digit of number
4-search by full number
press '-1' to exit
1
Enter a letter:
m
Available Contacts starting with given letter is
manish  9030462718
Menu is:
1.Create a contact
2.Search a contact
3.Delete a contact
4.Display contacts
5.exit
Enter your choice
3
```



```
Menu is
1.delete by contact name
2-Delete by number
3-exit
Enter choice:
1
Enter the contact name to be deleted:
vikas
vikas contact is deleted
Menu is:
1.Create a contact
2.Search a contact
3.Delete a contact
4.Display contacts
5.exit
Enter your choice
4
```



```
menu:
1-display according to numbers
2-display according to names
3-exit
Enter your choice
1
8
8885545758->karthik
9
9014964314->aishwarya
9030462718->manish
9347786796->bhargav
9542075724->harshini
9892417444->ronak
Menu is:
1.Create a contact
2.Search a contact
3.Delete a contact
4.Display contacts
```



```
5.exit
Enter your choice
5
exit!!!
```

CONCLUSION

The "Phone Directory Management System" project holds considerable potential for future enhancements and expansions, positioning itself as a dynamic and versatile tool for efficient contact management. With the ever-evolving landscape of technology and user needs, there are several avenues for extending the scope of this project.One potential avenue for future development is the integration of advanced search functionalities, such as fuzzy searching or natural language processing. This would enable users to find contacts even when the input does not exactly match the stored data, enhancing the system's usability. Additionally, integration with online databases or APIs could provide real-time updates for contact details, ensuring accuracy and currency of information.

Another promising direction involves the implementation of a graphical user interface (GUI), transforming the project into a more visually appealing and interactive application. A GUI could offer features like drag-and-drop contact management, customizable contact cards, and visual representations of contact relationships.As mobile devices continue to dominate communication, the adaptation of the project into a mobile app could further expand its reach. Users could access and manage their contacts on the go, leveraging features like QR code sharing or location-based reminders for contacts.

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