



PES UNIVERSITY

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Q1: Create an telephone directory containing the customers details as :
Name, Phone no, Address, Area . Create an ordered doubly list based on
name.

Code:

```
#include<stdio.h>
#include<stdlib.h>
#include <stdio_ext.h>
#include<string.h>

typedef struct node{
    char name[100];
    int ph;
    char add[100];
    char area[100];
    struct node *next,*prev;
}Node;

typedef struct Custname
{
    Node *head;
}CustDetail;

void entry(CustDetail *p);
void display(CustDetail *p);
void sort(CustDetail *p);
void init(CustDetail *p);

int main()
{
    int n;
    CustDetail p;
    init(&p);
    while (1)
    {
        printf("\nEnter Your Choice \n1.Enter The Details \n2.Sort\n3.Display\n0.Exit\nYour Choice : ");
        scanf("%d",&n);

        switch(n){
            case 1: entry(&p);
                    printf("\nEntry Successfull\n\n");
                    break;
            case 2: sort(&p);
                    printf("\nAfter Sort\n");
                    display(&p);
                    break;
```

```

        case 3: display(&p);
                break;
        case 0: exit(0);
    }

}

}

}

void entry(CustDetail *p){
    Node *temp;
    temp = (Node*)malloc(sizeof(Node));

    __fpurge(stdin);

    printf("\nEnter the Customer name\n");
    scanf("%[^\\n]*c",&(temp->name));
    __fpurge(stdin);

    printf("\nEnter the Customer Phone Number\n");
    scanf("%d",&(temp->ph));
    __fpurge(stdin);

    printf("\nEnter the Customer Address\n");
    scanf("%[^\\n]*c",&(temp->add));
    __fpurge(stdin);

    printf("\nEnter the Customer Area\n");
    scanf("%[^\\n]*c",&(temp->area));
    __fpurge(stdin);

    temp->next = NULL;
    temp->prev = NULL;

    if(p->head==NULL)
    {
        p->head=temp;
    }
    else{
        Node *trav;
        trav = p->head;
        while(trav->next != NULL)
        {
            trav = trav->next;
        }

        trav->next=temp;
    }
}

```

```

        temp->next=NULL;
        temp->prev=trav;

    }

}

void display(CustDetail *p)
{
    Node *temp;
    temp= p->head;

    while(temp != NULL)
    {
        printf("\nName : %s\nPhone No: %d\nAddress : %s \nArea : %s\n",
temp->name,temp->ph,temp->add,temp->area);
        temp =temp->next;
    }
}

void sort(CustDetail *p)
{
    Node *temp;
    temp = p->head;
    Node *trav;
    int c=0;
    while(trav !=NULL)
    {
        c++;
        trav = trav->next;
    }
    while(temp != NULL)
    {
        if(strcmp((temp->name),(temp->next->name)))
        {
            temp->prev->next = temp->next;
            temp->next->prev=temp->prev;
            temp->prev = temp->next;
            temp->next->next->prev = temp;
            temp->next = temp->next->next;
            temp->next->next=temp;

            Node *trav;
            int i=0;
            trav = p->head;

```

```

        while(i<c)
        {
            trav=trav->next;
            i++;
        }
        trav->next = NULL;
    }
    temp = temp->next;

}
p->head->prev=NULL;
}

void init(CustDetail *p)
{
    p->head=NULL;
}

```

Output :

```

shrujandev@shrujandev:~/Documents/DS_LAB/Week 4$ ./a.out
Enter Your Choice
1.Enter The Details
2.Sort
3.Display
0.Exit
Your Choice : 1

Enter the Customer name
Shrujan

Enter the Customer Phone Number
787876633

Enter the Customer Address
Add1

Enter the Customer Area
Area 1

Entry Successfull

Enter Your Choice
1.Enter The Details
2.Sort
3.Display
0.Exit
Your Choice : 1

Enter the Customer name
Thishar

Enter the Customer Phone Number
2131313

Enter the Customer Address
ADD2

Enter the Customer Area
area2

Entry Successfull

```

```
Enter Your Choice
1.Enter The Details
2.Sort
3.Display
0.Exit
Your Choice : 1

Enter the Customer name
Thishar

Enter the Customer Phone Number
2131313

Enter the Customer Address
ADD2

Enter the Customer Area
area2

Entry Successfull

Enter Your Choice
1.Enter The Details
2.Sort
3.Display
0.Exit
Your Choice : 1

Enter the Customer name
Yuktesh

Enter the Customer Phone Number
1323143

Enter the Customer Address
Add3

Enter the Customer Area
Area3

Entry Successfull
```

```

Your Choice : 1

Enter the Customer name
Yuktesh

Enter the Customer Phone Number
1323143

Enter the Customer Address
Add3

Enter the Customer Area
Area3

Entry Successfull

Enter Your Choice
1.Enter The Details
2.Sort
3.Display
0.Exit
Your Choice : 3

Name : Shrujan
Phone No: 787876633
Address : Add1
Area : Area 1

Name : Thishar
Phone No: 2131313
Address : ADD2
Area : area2

Name : Yuktesh
Phone No: 1323143
Address : Add3
Area : Area3

Enter Your Choice
1.Enter The Details
2.Sort
3.Display
0.Exit
Your Choice : 0
shrujandev@shrujandev:~/Documents/DS_LAB/Week 4$

```

Q2: Create an Employee with the following fields – SSN, Name, Dept, Designations, Salary, Phone no, Age. Every employee should work in a department and department should have a name and number associated with it.

Code:

```

#include<stdio.h>
#include<stdlib.h>
#include<string.h>

```

```

#include<stdio_ext.h>

int count=0;

typedef struct Department{
    char nam[30];
    int number;
}Department;

typedef struct Node{
    char ssn[20];
    char name[20];
    Department dep;
    int salary;
    int ph;
    int age;
    struct Node *next;
    struct Node *prev;
}Node;

typedef struct Employees{
    Node *head;
}Employees;

void entry(Employees *p);
void disp(Employees *p);
void dispDepartment(Employees *p,char dname[]);
void del(Employees *p);
void init(Employees *p);

int main()
{
    int n;
    Employees p;
    init(&p);
    char dname[100];

    while (1)
    {
        printf("\nEnter Your Choice \n1.Enter The Details \n2.Delete Above Age 58\n3.Display Department\n0.Exit\nYour Choice : ");
        scanf("%d",&n);
    }
}

```



```

switch(n){
    case 1: entry(&p);
            printf("\nEntry Successfull\n\n");
            break;
    case 2: del(&p);
            printf("\nDeleted Record\n");
            disp(&p);
            break;

    case 3: __fpurge(stdin);
            printf("\nEnter Department name\n");
            scanf("%[^\n]%*c", dname);
            __fpurge(stdin);
            dispDepartment(&p, dname);
            break;
    case 0: exit(0);
}

}

}

}

void entry(Employees *p)
{
    Node *t;
    Node *temp=(Node*)malloc(sizeof(Node));

    __fpurge(stdin);
    printf("\nEnter SSN\n");
    scanf("%[^\n]%*c",&(temp->:ssn));
    __fpurge(stdin);

    printf("\nEnter Name\n");
    scanf("%[^\n]%*c",&(temp->name));
    __fpurge(stdin);

    printf("\nEnter Department Name\n");
    scanf("%[^\n]%*c",&(temp->dep.nam));
    __fpurge(stdin);

    printf("\nEnter the Department Number\n");
    scanf("%d",&(temp->dep.number));
    __fpurge(stdin);

    printf("\nEnter Employee Age\n");
    scanf("%d",&(temp->age));
    __fpurge(stdin);
}

```

```

        printf("\nEnter the Employee Phone Number\n");
        scanf("%d",&(temp->ph));
        __fpurge(stdin);

        printf("\nEnter the Salary\n");
        scanf("%d",&(temp->salary));
        __fpurge(stdin);

        temp->prev=NULL;
        temp->next=NULL;
        if(p->head==NULL)
        {
            p->head=temp;
            return ;
        }
        temp->next=p->head;
        p->head->prev=temp;
        p->head=temp;
    }
}

void disp(Employees *p)
{
    if(p->head==NULL)
    {
        printf("List is empty");
    }
    Node *temp=p->head;
    while(temp)
    {

        printf("\nSSN:%s\nName:%s\nPhno:%d\nDepartment No:%d\nDepartmen
t name:%s\nSalary: %d\nAge:%d\n",temp->ssn,temp->name,temp->ph,temp-
>dep.number,temp->dep.nam,temp->salary,temp->age);

        temp=temp->next;
        printf("\n");
    }
}

void dispDepartment(Employees *p,char dname[])
{
    if(p->head==NULL)
    {

```

```

        printf("List is empty");
    }
    Node *temp;
    temp=p->head;

    while(temp)
    {
        if(strcmp(temp->dep.nam,dname)==0)
        {
            printf("\nDetails of \nSSN:%s\nName:%s\nPhno:%d\nDepartme
nt No:%d\nDepartment name:%s\nSalary: %d\nAge:%d\n",temp->ssn,temp-
>name,temp->ph,temp->dep.number,temp->dep.nam,temp->salary,temp->age);

        }
        temp=temp->next;
        printf("\n");
    }
}

void del(Employees *p)
{
    if(p->head==NULL)
    {
        return;
    }
    Node *trav=p->head;
    Node *prev1=NULL;
    Node *next1=NULL;

    while(trav!=NULL)
    {
        if(trav->age>58)
        {
            if(prev1==NULL)
            {
                p->head=trav->next;

                if(p->head==NULL)
                {
                    free(trav);
                    return;
                }

                p->head->next=NULL;
                Node *temp=trav;
                trav=trav->next;
            }
        }
    }
}

```

```

        temp->next=NULL;
        free(temp);
    }

    else
    {
        prev1=trav->prev;
        next1=trav->next;
        if(next1==NULL)
        {
            prev1->next=NULL;
            trav->prev=NULL;
        }
        else
        {
            prev1->next=next1;
            next1->prev=prev1;
        }
        Node *temp=trav;
        prev1=trav;
        trav=trav->next;
        free(temp);
    }
}

else
{
    prev1=trav;
    trav=trav->next;
}
}

}

void init(Employees *p)
{
    p->head =NULL;
}

```

Output:

```
shrujandev@shrujandev:~/Documents/DS_LAB/Week 4$ ./a.out
```

```
Enter Your Choice
1.Enter The Details
2.Delete Above Age 58
3.Display Department
0.Exit
Your Choice : 1
```

```
Enter SSN
PES1231
```

```
Enter Name
Shrujan
```

```
Enter Department Name
IT
```

```
Enter the Department Number
4545
```

```
Enter Employee Age
35
```

```
Enter the Employee Phone Number
969676768
```

```
Enter the Salary
10997781
```

```
Entry Successfull
```

```
Enter Your Choice
1.Enter The Details
2.Delete Above Age 58
3.Display Department
0.Exit
Your Choice : 1
```

```
Enter SSN
PRFS16751
```

```
Enter SSN
PRFS16751
```

```
Enter Name
Ganesh
```

```
Enter Department Name
Management
```

```
Enter the Department Number
543
```

```
Enter Employee Age
62
```

```
Enter the Employee Phone Number
42425245
```

```
Enter the Salary
4242443
```

```
Entry Successfull
```

```
Enter Your Choice
1.Enter The Details
2.Delete Above Age 58
3.Display Department
0.Exit
Your Choice : 1
```

```
Enter SSN
RTGSFFD
```

```
Enter Name
Shreema
```

```
Enter Department Name
IT
```

```
Enter the Department Number
4545
```

4545

Enter Employee Age

40

Enter the Employee Phone Number

832476287

Enter the Salary

42424222

Entry Successfull

Enter Your Choice

- 1.Enter The Details
- 2.Delete Above Age 58
- 3.Display Department
- 0.Exit

Your Choice : 2

Deleted Record

SSN:RTGSFFD

Name:Shreema

Phno:832476287

Department No:4545

Department name:IT

Salary: 42424222

Age:40

SSN:PES1231

Name:Shrujan

Phno:969676768

Department No:4545

Department name:IT

Salary: 10997781

Age:35

Enter Your Choice

- 1.Enter The Details
- 2.Delete Above Age 58
- 3.Display Department
- 0.Exit

Enter Your Choice

- 1.Enter The Details
- 2.Delete Above Age 58
- 3.Display Department
- 0.Exit

Your Choice :

3

Enter Department name

IT

Details of

SSN:RTGSFFD

Name:Shreema

Phno:832476287

Department No:4545

Department name:IT

Salary: 42424222

Age:40

Details of

SSN:PES1231

Name:Shrujan

Phno:969676768

Department No:4545

Department name:IT

Salary: 10997781

Age:35

