

Jaypee Institute of Information Technology University, Noida

T 1 (Even - 2008)

B.Tech (Ist yr-CSE/IT/ECE/BT, II yr-ECE)

Course Code: 07B21CI102

Course Name: Data Structures

MM: 100

Time: 1 Hr

(OPEN BOOK/OPEN NOTES EXAMINATION)

Q1 [70 Marks] Delhi telephone directory is to be created using your program. Name and Telephone Numbers are inputted by user and stored in linear linked list by your program. Further, following user inputted details about telephone connections are to be stored in individual's file. For example, if user name is A, its details are to be stored in A.txt file, if user name is B, its details are to be stored in B.txt file. Individual's file details are - Address, Date of Connection, Zone, Security Money, Billing Details - (Bill No, Date, Amount, Amount Paid).

Sample of individual's file:

Address Flat No 12 , A - 15 , Sector 3 , Dwarka

Date of Connection 23 01 2007

Zone West Delhi

Security Money 2000

Billing Details

Bill Number	Date	Amount	Amount Paid
1	23 02 2007	500	500
2	23 03 2007	600	0
3	23 04 2007	550	1150

Propose appropriate data structure and also efficient algorithms for following queries:

- What is the connection date for a telephone number inputted by user?
- How many subscribers exist in a zone inputted by user?
- Print name and count of the persons for all unique names.

Q2 [30 Marks] Analyze and show the task performed by program.c

program.c

Content of record.txt

23 mohan 12 10 1982

12 sohan 13 06 1999

24 ram 23 04 1955

24 priya 11 08 2000

34 Rakhi 23 10 2001

54 rajesh 10 10 2002

64 mohit 11 10 2002

15 shyam 15 08 2003

struct DOB

```
{
int dd;int mm;int yyyy;
};
```

struct rec

```
{
int ID; char Name[25];
struct DOB *d;
struct rec *next;
}*start=NULL,*temp,*end;
typedef struct rec f;
```

int count=0;

FILE *fp;

void display();

void create();

void main(void)

```
{
fp=fopen("record.txt","r");
create();
display();
}
```

void create()

```
{
int i;
rewind(fp);
clrscr();
while(!feof(fp))
{
temp=(f*)malloc( sizeof(f) );
fscanf(fp,"%d %s",&temp->ID,temp->Name);
fscanf(fp," %d %d %d\n",&(temp->d)->dd,&(temp->d)->mm,&(temp->d)->yyyy);
count++;
if (start==NULL)
{start=end=temp;}
else { end->next=temp;
end=temp;
}
}
end->next=NULL;
}
```

void display()

```
{
int i=1,j=0,flag=0;
temp=start;
while(temp!=NULL)
{
j++;
printf("\n Name=%s DOB=> %d - %d - %d\n",temp->Name,temp->d->dd,temp->d->mm,temp->d->yyyy);
while (i<pow(2,j)&&i<=count)
{
temp=temp->next;//Set node to next one
if(temp==NULL)
{
flag=1;
break;
}
i++;
}
if(flag==1||pow(2,j)>count) {break;}
}
}
```