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Roll No : 2339

****************************Assignment No : 6********************************

Title : Consider a friends’ network on face book social web site. Model it as a graph to represent each node as a user and a link to represent the fried relationship between them. Store data such as date of birth, number of comments for each user.

1. Find who is having maximum friends
2. Find who has post maximum and minimum comments
3. Find users having birthday in this month.

****

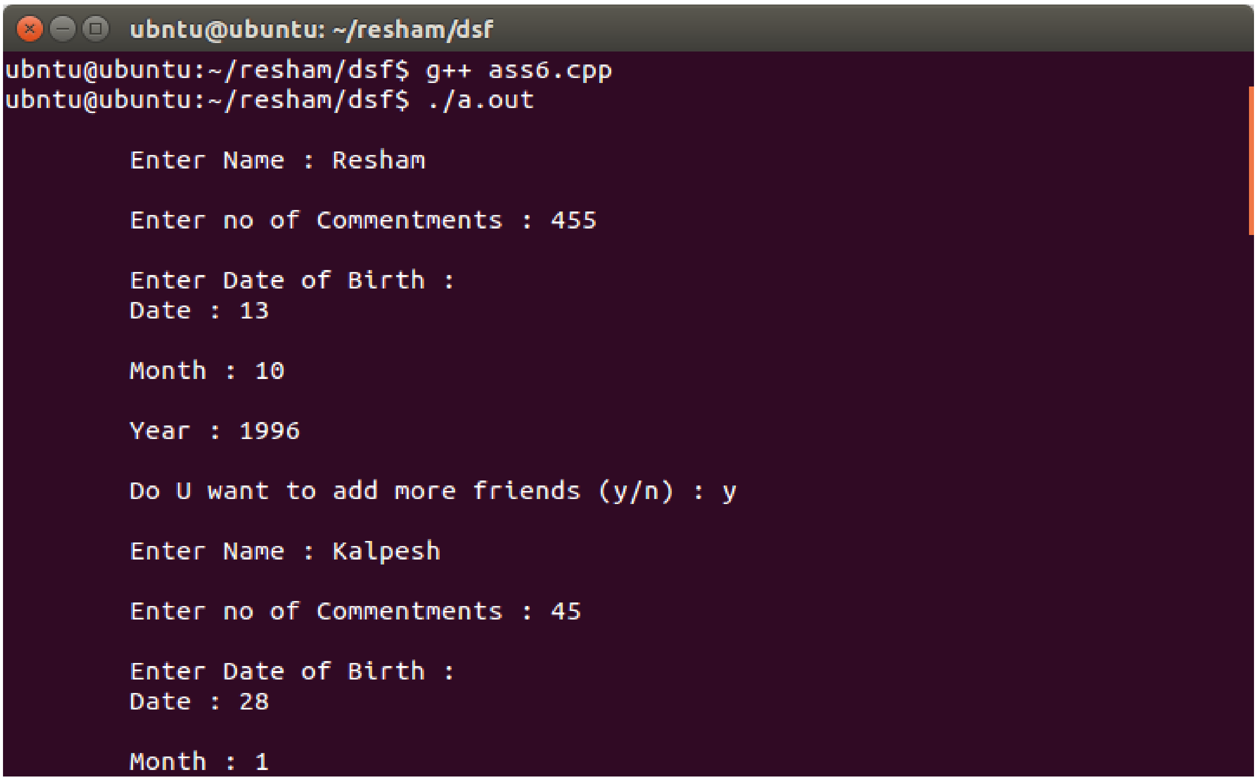
```
#include<iostream>
#include<stack>                                         //standard library
#include<queue>
using namespace std;

class adjlist
{
        public:
                typedef struct node             //creation of node
                {
                        typedef struct dob      //creation of structre for DOB
                        {
                                int date,month,year;
                        }dob;

                        dob t;
                        char name[30];
                        int ncmt,v;
                        struct node *next;
                }node;

                node a[10],*p[10],*p1,*newnode;
                int i,j,k,n,m,l,visited[10],cmt[10],w,v1,min,max,m1;
                char ans,ans1;

                void create();
                void display();
                void comment();
                void bfs(int v1);
                void DOB();
};
```

```
void adjlist::create()                    //function to create a network
{
        i=0;

        do
        {
                p[i]=new node;
                p[i]->v=i;

                cout<<"\n\tEnter Name : ";
                cin>>p[i]->name;

                cout<<"\n\tEnter no of Commentments : ";
                cin>>p[i]->ncmt;

                cout<<"\n\tEnter Date of Birth : ";
                do
                {
                        j=0;

                        cout<<"\n\tDate : ";
                        cin>>p[i]->t.date;

                        if(p[i]->t.date > 31)   //if date is greater than 31 then invalid date
                        {
                                cout<<"\n\t*****************************Invalid***********
                                **************\n\n\tEnter Again : ";
                                j=1;
                        }
                }while(j==1);

                do
                {
                        j=0;

                        cout<<"\n\tMonth : ";
                        cin>>p[i]->t.month;

                        if(p[i]->t.month > 12)  //if month is greater than 12 then invalid month
                        {
                                cout<<"\n\t*****************************Invalid***********
                                **************\n\n\tEnter Again : ";
                                j=1;
                        }
                }while(j==1);

                do
                {
                        j=0;

                        cout<<"\n\tYear : ";
                        cin>>p[i]->t.year;

                        if((p[i]->t.year > 2017) || (p[i]->t.year < 1900))      //if  year  is  greater
                                                than 2017 & less than 1900 then invalid year
                        {
                                cout<<"\n\t*************************Invalid***********
                                **************\n\n\tEnter Again : ";
                                j=1;
                        }
                }while(j==1);

                cout<<"\n\tDo U want to add more friends (y/n) : ";
                cin>>ans;

                p[i]->next=NULL;
                i++;
        }while(ans=='y' || ans=='Y');

        n=i;

        for(i=0; i<n; i++)                                      //loop to create a friends relation
        {
                node *temp=new node;

                do
                {
                        cout<<"\n\tEnter Friends of " <<p[i]->name;
                        cout<<"\n\t1.Yes\n\t2.NO\n\t";
                        cin>>k;

                        if(k==1)
                        {
                                newnode=new node;

                                if(p[i]->next==NULL)
                                        p[i]->next=newnode;
                                else
```

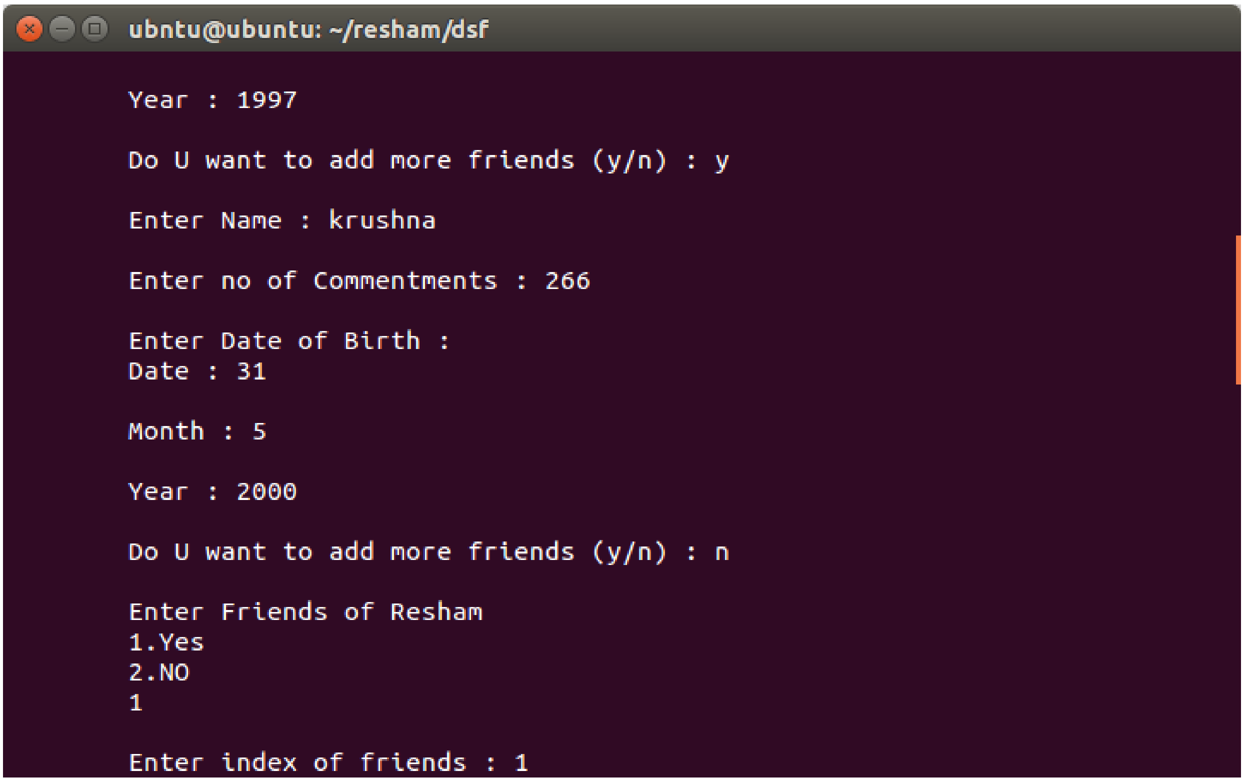
```
                    temp->next=newnode;

                temp=newnode;
                cout<<"\n\tEnter index of friends : ";
                cin>>newnode->v;
            }
        }while(k==1);
        newnode->next=NULL;
    }
}


void adjlist::display()                     //function to display network
{
    for(i=0; i<n; i++)
    {
        cout<<"\n\t"<<p[i]->v;
        p1=p[i]->next;

        while(p1!=NULL)
        {
            cout<<"->"<<p1->v;
            p1=p1->next;
        }
    }
}


void adjlist::bfs(int v1)               //bfs traversal to find minimum & maximum
{
    queue<int> q;                       //initilize for queue
    node *t1;

    for(i=0; i<n; i++)                  //visited arry is initilize to zero
        visited[i]=0;

    q.push(v1);

    cmt[v1]=p[v1]->ncmt;
    visited[v1]=1;

    while(!q.empty())
    {
        v1=q.front();                       //dequeue
        q.pop();

        for(p1=p[v1]; p1=NULL; p1=p1->next)
        {
            w=p1->v;

            if(visited[w]==0)                   //keep track for mini & Max comment
            {
                q.push(w);
                visited[w]=1;
                cmt[v1]=p[v1]->ncmt;
            }
        }
    }
}


void adjlist::comment()
{
    min=999;

    for(i=0; i<n; i++)                          //find minimum no of comment
    {
        if(min > p[i]->ncmt)
        {
            min=p[i]->ncmt;
            j=i;
        }
    }

    cout<<"\n\tMinimum comment in network of "<<p[j]->name<<" has comment
    "<<p[j]->ncmt;

    max=0;

    for(i=0; i<n; i++)                          //find maximum no of comment
    {
        if(max < p[i]->ncmt)
        {
            max=p[i]->ncmt;
            j=i;
        }
    }
```

```
		cout<<"\n\tMaximum comment in network of "<<p[j]->name<<" has comment
		"<<p[j]->ncmt<<"\n";
	}

	void adjlist::DOB()						//function to find this month date of birth
	{
		cout<<"\n\tENter the current Month : ";
		cin>>m1;

		for(i=0; i<n; i++)
		{
			if(m1==p[i]->t.month)
			{
				cout<<"\n\tName : "<<p[i]->name;
				cout<<"\n\tDOB    :  "<<p[i]->t.date<<"-"<<p[i]->t.month<<"-"<<p[i]-
				>t.year<<"\n\n";
			}
		}
	}

	int main()
	{
		adjlist a;
		a.create();
		a.display();
		a.bfs(0);
		a.comment();
		a.DOB();
	}
```

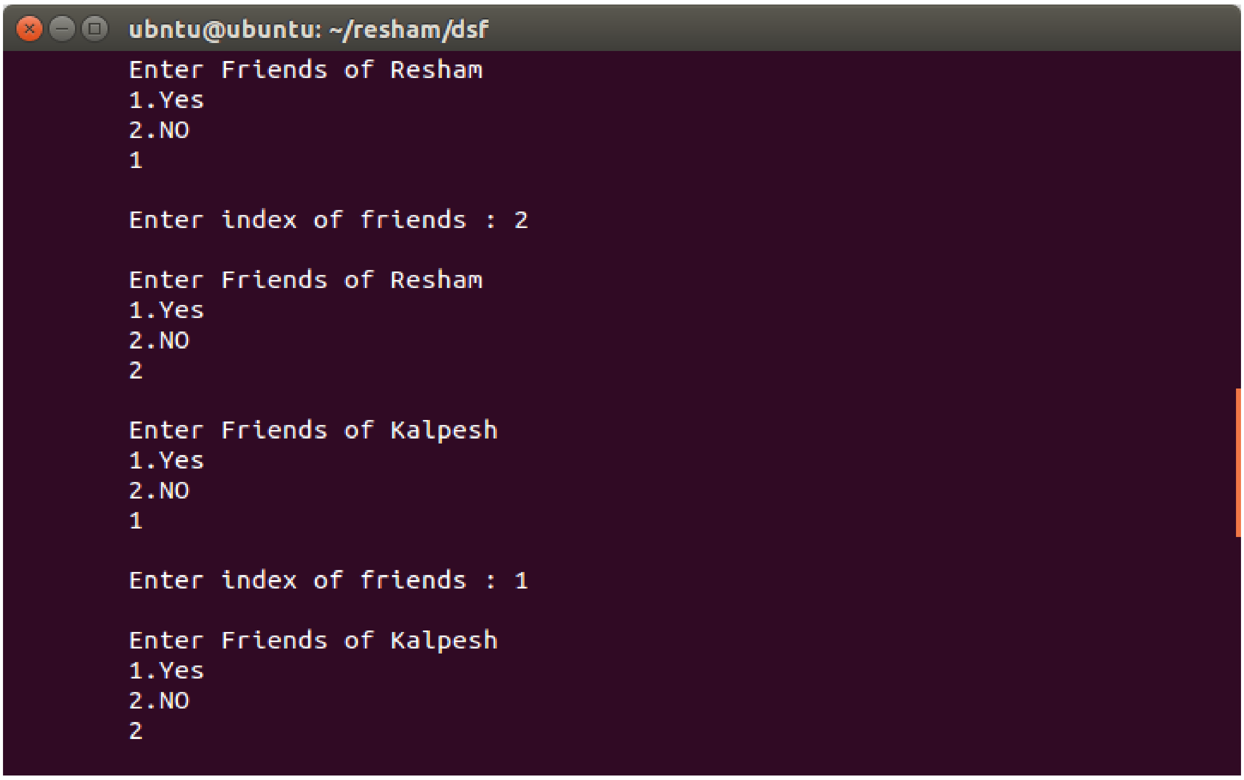
Output :



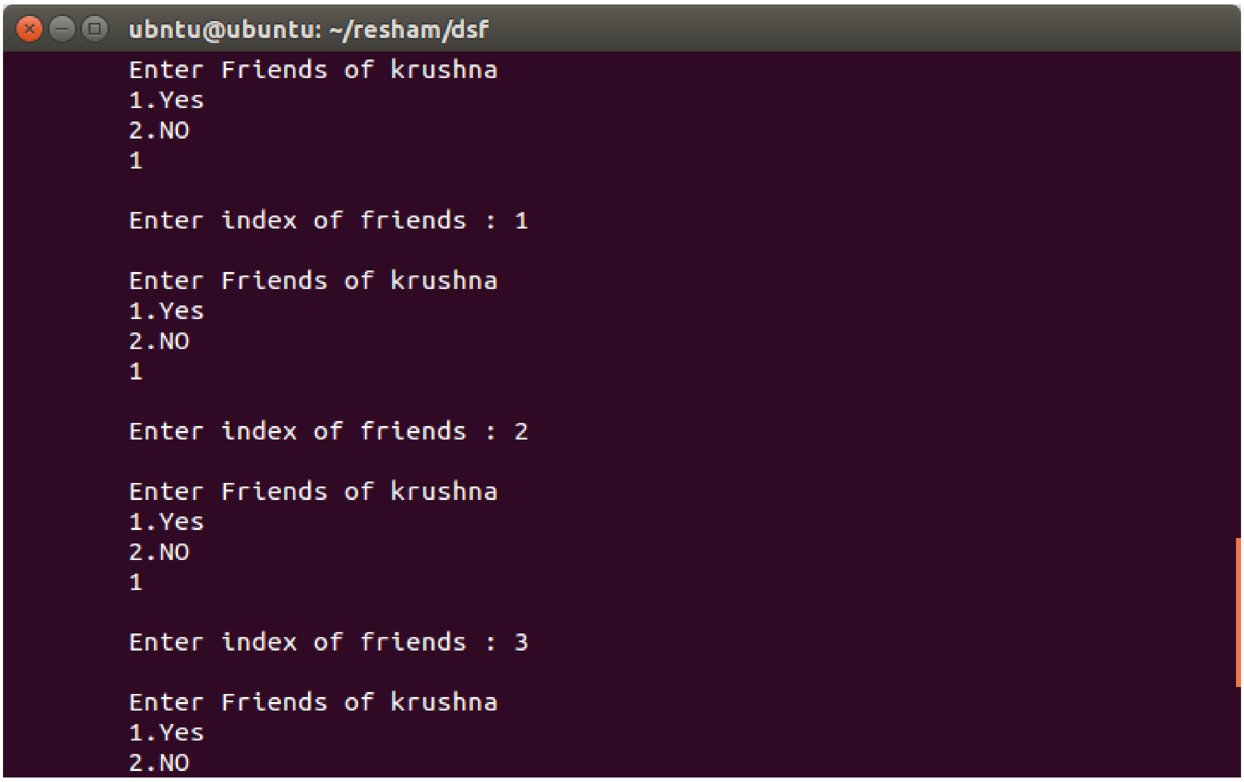
```
ubntu@ubuntu:~/resham/dsf$ g++ ass6.cpp
ubntu@ubuntu:~/resham/dsf$ ./a.out

        Enter Name : Resham

        Enter no of Commentments : 455

        Enter Date of Birth :
        Date : 13

        Month : 10

        Year : 1996

        Do U want to add more friends (y/n) : y

        Enter Name : Kalpesh

        Enter no of Commentments : 45

        Enter Date of Birth :
        Date : 28

        Month : 1
```



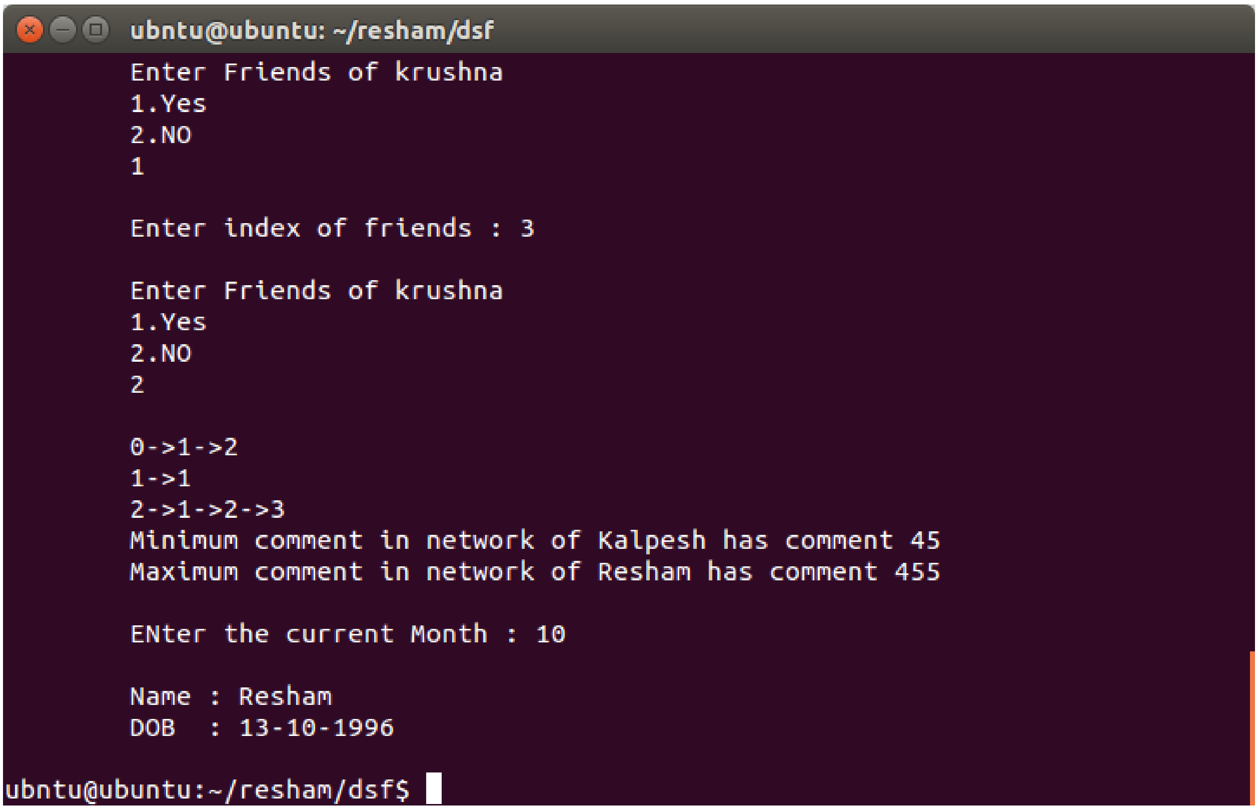
```
        Year : 1997

        Do U want to add more friends (y/n) : y

        Enter Name : krushna

        Enter no of Commentments : 266

        Enter Date of Birth :
        Date : 31

        Month : 5

        Year : 2000

        Do U want to add more friends (y/n) : n

        Enter Friends of Resham
        1.Yes
        2.NO
        1

        Enter index of friends : 1
```



```
Enter Friends of Resham
1.Yes
2.NO
1

Enter index of friends : 2

Enter Friends of Resham
1.Yes
2.NO
2

Enter Friends of Kalpesh
1.Yes
2.NO
1

Enter index of friends : 1

Enter Friends of Kalpesh
1.Yes
2.NO
2
```



```
Enter Friends of krushna
1.Yes
2.NO
1

Enter index of friends : 1

Enter Friends of krushna
1.Yes
2.NO
1

Enter index of friends : 2

Enter Friends of krushna
1.Yes
2.NO
1

Enter index of friends : 3

Enter Friends of krushna
1.Yes
2.NO
```



```
        Enter Friends of krushna
        1.Yes
        2.NO
        1

        Enter index of friends : 3

        Enter Friends of krushna
        1.Yes
        2.NO
        2

        0->1->2
        1->1
        2->1->2->3
        Minimum comment in network of Kalpesh has comment 45
        Maximum comment in network of Resham has comment 455

        ENter the current Month : 10

        Name : Resham
        DOB  : 13-10-1996

ubntu@ubuntu:~/resham/dsf$ 
```