**Assignment No: 06**

There are flight paths between cities. If there is a flight between city A and city B then there is an edge between the cities. The cost of the edge can be the time that flight take to reach city B from A, or the amount of fuel used for the journey. Represent this as a graph. The node can be represented by airport name or name of the city. Use adjacency list representation of the graph or use adjacency matrix representation of the graph.

**Program:**

#include<iostream>

#include<conio.h> #include<string.h> using namespace std;

class flight

{

public:

int am[10][10];

char city\_index[10][10]; flight(); int create();

void display(int city\_count);

};

flight::flight()

{

int i,j; for(i=0;i<10;i++)

{

strcpy(city\_index[i],"xx");

}

for(i=0;i<10;i++)

{

for(j=0;j<10;j++)

{

am[i][j]=0;

}

}

}

int flight::create()

{

int city\_count=0,j,si,di,wt; char s[10],d[10],c; do

{

cout<<"\n\tEnter Source City : "; cin>>s; cout<<"\n\tEnter Destination City : "; cin>>d; for(j=0;j<10;j++)

{

if(strcmp(city\_index[j],s)==0) break;

}

if(j==10)

{

strcpy(city\_index[city\_count],s); city\_count++;

}

for(j=0;j<10;j++)

{

if(strcmp(city\_index[j],d)==0) break;

}

if(j==10)

{

strcpy(city\_index[city\_count],d); city\_count++;

}

cout<<"\n\t Enter Distance From "<<s<<" And "<<d<<": "; cin>>wt;

for(j=0;j<10;j++)

|  |  |
| --- | --- |
| {    if(strcmp(city\_index[j],s)==0) si=j; if(strcmp(city\_index[j],d)==0)    di=j;    }    am[si][di]=wt;    cout<<"\n\t Do you want to add more cities.    cin>>c;    }while(c=='y'||c=='Y'); return(city\_count);  }    void flight::display(int city\_count)    { | (y/n) : "; |

int i,j;

cout<<"\n\t Displaying Adjacency Matrix :\n\t"; for(i=0;i<city\_count;i++) cout<<"\t"<<city\_index[i]; cout<<"\n";

for(i=0;i<city\_count;i++)

{

cout<<"\t"<<city\_index[i]; for(j=0;j<city\_count;j++)

{

cout<<"\t"<<am[i][j];

}

cout<<"\n";

}

}

int main()

{

flight f;

int n,city\_count; char c; do

{

cout<<"\n\t\*\*\* Flight Main Menu \*\*\*\*\*";

cout<<"\n\t1. Create \n\t2. Adjacency Matrix\n\t3. Exit"; cout<<"\n\t Enter your choice : "; cin>>n; switch(n)

{

case 1:

city\_count=f.create(); break; case 2:

f.display(city\_count); break; case 3:

return 0;

}

cout<<"\n\t Do you Want to Continue in Main Menu. (y/n) : ";

cin>>c;

}while(c=='y'||c=='Y'); return 0;

}

**Output:**

