

```
#include <iostream>
#include <vector>
#include <cstdlib>
#include <list> //use doubly list to make graph
structure
#include <iterator>
using namespace std;
```

```
class Edge
{
private:
public:
    int destVertexId, weight;
    Edge() {}
    Edge(int dvId, int w)
    {
        destVertexId = dvId;
        weight = w;
    }
    void setEdgetValues(int dvId, int w)
    {
```

```

        destVertexId = dvId;
        weight = w;
    }
    void setweight(int w)
    {
        weight = w;
    }
    int getDestVertexId()
    {
        return destVertexId;
    }
};

class Vertex
{
private:
public:
    int state_id;
    string state_name;
    list<Edge> edgelist;
    Vertex(){};
    Vertex(int s_id, string s_name)
    {

```

```

        state_id = s_id;
        state_name = s_name;
    }
    int getState_Id()
    {
        return state_id;
    }
    void SetID(int id)
    {
        state_id = id;
    }
    void getState_Name(string name)
    {
        state_name = name;
    }
    list<Edge> getEdgelist()
    {
        return edgelist;
    }
};

class Graph
{

```

```
private:  
public:  
    vector<Vertex> vertices;  
};
```

```
class SmartMap : Graph  
{  
private:  
    struct loc  
    {  
        int CpLocId, CrLocId, DpLocId, DrLocId;  
    } l;  
    string current_location,  
    destination_location;  
  
public:  
    SmartMap()  
    {  
        l.CpLocId = -1;  
        l.CrLocId = -1;  
        l.DpLocId = -1;  
        l.DrLocId = -1;
```

```

    current_location = "";
    destination_location = "";
}
enum current_loc_primary
{
    SatelliteTown = 1,
    TENCHBHATA,
    RAJABAZAR,
    NOIDEA
} clp;
void loc()
{
    int choice, ch;

    cout << "Choose Your Primary Location
from the List" << endl
        << endl;

    cout << "Press " << SatelliteTown << " for
Satellite town" << endl;

    cout << "Press " << TENCHBHATA << " for
TENCH BHATA" << endl;

    cout << "Press " << RAJABAZAR << " for Raja
Bazar" << endl;

    cin >> choice;

```

// Now Restricting the Location on the Map

```
do
{
    if (choice == SatelliteTown)
    {
        l.CpLocId = SatelliteTown;
        system("CLS");
        cout << "Choose Your Nearest
Location on the List" << endl;
        enum SatelliteLoc
        {
            Bblock = 1,
            Eblock,
            AlJanatMallCommercialMarket,
            RehmanaBad,
            noIdea
        } sl;
        system("CLS");
        cout << "Press " << Bblock << " to
select B Block\n";
        cout << "Press " << Eblock << " to
select E Block\n";
```

```

        cout << "Press " <<
AlJanatMallCommercialMarket << " to select Al
Janat Commercial Market\n";

        cout << "Press " << RehmanaBad << "
to select RehmanaBad Chowk\n";

        cin >> ch;

        if (ch == Bblock)
        {
            l.CrLocId = Bblock;
            system("CLS");
            current_location = "B block,Satellite
town";
        }

        else if (ch == Eblock)
        {
            l.CrLocId = Eblock;
            system("CLS");
            current_location = "E block,Satellite
town";
        }

        else if (ch ==
AlJanatMallCommercialMarket)
        {

```

```

        l.CrLocId =
AlJanatMallCommercialMarket;
        system("CLS");
        current_location = "Al Janat Mall,
Commercial Market, Satellite town";
    }
    else if (ch == RehmanaBad)
    {
        l.CrLocId = RehmanaBad;
        system("CLS");
        current_location = "RehmanaBad
Chowk, Satellite town";
    }
    else
    {
        l.CrLocId = -1;
        system("CLS");
        current_location = "Satellite town";
    }
}
else if (choice == TENCHBHATA)
{
    enum TENCHBHATALOC

```



```

{
    FaisalGarments = 1,
    ChinaTownMarket,
    HabibBankLtd,
    AlRehamnElectronicStore,
    noIdea
} tloc;

cout << "Choose Your Nearest
Location on the List" << endl;

cout << "Press " << FaisalGarments <<
" to select Faisal Garments\n";

cout << "Press " << ChinaTownMarket
<< " to select China Town Market\n";

cout << "Press " << HabibBankLtd << "
to select Habib Bank Ltd\n";

cout << "Press " <<
AlRehamnElectronicStore << " to select Al
Rehamn Electronics Store\n";

cout << "Press " << noIdea << " to
select no Idea\n";

cin >> ch;

if (ch == FaisalGarments)
{
    l.CrLocId = FaisalGarments;

```

```
        system("CLS");
        current_location = "Faisal
Garments, TenchBhata";
    }
    else if (ch == ChinaTownMarket)
    {
        l.CrLocId = ChinaTownMarket;
        system("CLS");
        current_location = "China Town
Market, TenchBhata";
    }
    else if (ch == HabibBankLtd)
    {
        l.CrLocId = HabibBankLtd;
        system("CLS");
        current_location = "Habib Bank Ltd,
TenchBhata";
    }
}
else if (choice == RajaBazar)
{
    l.CrLocId = RajaBazar;
    system("CLS");
```

```

        cout << "Choose Your Nearest
Location on the List" << endl;
        enum RajaBazarLoc
        {
            MadinaMarket = 1,
            MakkaMarket,
            JaddaMarket,
            MottiBazar,
            FaisaMarket,
            JamaMasjidRoad,
            noIdea
        } Rloc;

        cout << "Press " << MadinaMarket << "
to select Madina Market\n";

        cout << "Press " << MakkaMarket << "
to select Makka Market\n";

        cout << "Press " << JaddaMarket << "
to select Jadda Market\n";

        cout << "Press " << MottiBazar << " to
select Motti Bazar\n";

        cout << "Press " << FaisaMarket << " to
select Faisa Market\n";

        cout << "Press " << JamaMasjidRoad
<< " to select Jama Masjid Road\n";

```

```
        cout << "Press " << noIdea << " to  
select no Idea\n";  
        cin >> ch;  
        if (ch == MadinaMarket)  
        {  
            l.CrLocId = MadinaMarket;  
            system("CLS");  
            current_location = "Madina Market,  
RajaBazar";  
        }  
        else if (ch == MakkaMarket)  
        {  
            l.CrLocId = MakkaMarket;  
            system("CLS");  
            current_location = "Makka Market,  
RajaBazar";  
        }  
        else if (ch == JaddaMarket)  
        {  
            l.CrLocId = JaddaMarket;  
            system("CLS");  
            current_location = "Jadda Market,  
RajaBazar";
```

```
    }  
    else if (ch == MottiBazar)  
    {  
        l.CrLocId = MottiBazar;  
        system("CLS");  
        current_location = "Motti Bazar,  
RajaBazar";  
    }  
    else if (ch == FaisaMarket)  
    {  
        l.CrLocId = FaisaMarket;  
        system("CLS");  
        current_location = "Faisa Market,  
RajaBazar";  
    }  
    else if (ch == JamaMasjidRoad)  
    {  
        l.CrLocId = JamaMasjidRoad;  
        system("CLS");  
        current_location = "Jama Masjid  
Road";  
    }  
    else
```

```

        {
            l.CrLocId = -1;
            system("CLS");
            current_location = "Raja Bazar";
        }
    }
    else
    {
        cout << "Invalid Option Choose
Correct Option\n";
    }
    } while (choice != SatelliteTown || choice
!= TenchBhata || choice != RajaBazar);
    }
};

int main() {}

```