#include<iostream>

#include<set>

using namespace std;

class Set{

public:

bool subset(const set<long>&A,const set<long>&B){

if(A.empty()) return false;

set<long>::iterator si;

for(si=A.begin();si!=A.end();si++){

if(B.count(\*si)==0) return false;

}

return true;

}

void Union(const set<long>&A,const set<long>&B,set<long>&C){

C.clear();

C=A;

set<long>::iterator si;

for(si=B.begin();si!=B.end();si++){

C.insert(\*si);

}

}

void intersection(const set<long>&A,const set<long>&B,set<long>&C){

C.clear();

set<long>::iterator si;

for(si=A.begin();si!=A.end();si++){

if(B.count(\*si)>0){

C.insert(\*si);

}

}

}

void difference(const set<long>&A,const set<long>&B,set<long>&C){

C.clear();

set<long>::iterator si;

for(si=A.begin();si!=A.end();si++){

if(B.count(\*si)==0){

C.insert(\*si);

}

}

}

};

int main(){

int choice,ch;

Set obj;

set<long>set1,set2,set3;

set1.insert(9);

set1.insert(8);

set1.insert(5);

set1.insert(3);

set1.insert(1);

set2.insert(80);

set2.insert(25);

set2.insert(15);

set2.insert(1);

set<long>::iterator itr;

do{

cout<<"\*\*\*\*\*\*\*\*Set operations\*\*\*\*\*\*\*\*\*"<<"\n";

cout<<"Enter 1. to represent set A"<<"\n";

cout<<"Enter 2. to represent set B"<<"\n";

cout<<"Enter 3. to represent subset operation"<<"\n";

cout<<"Enter 4. to represent union operation"<<"\n";

cout<<"Enter 5. to represent intersection operation"<<"\n";

cout<<"Enter 6. to represent difference operation"<<"\n";

cin>>choice;

switch(choice){

case 1:

for(itr=set1.begin();itr!=set1.end();itr++){

cout<<" "<<\*itr;

}

break;

//cout<<endl;

case 2:

cout<<"Set 2 is represented as"<<"\n";

for(itr=set2.begin();itr!=set2.end();itr++){

cout<<" "<<\*itr;

}

break;

//cout<<endl;

case 3:

cout<<"Subset of set1 and set2 is present or not"<<"\n";

if(obj.subset(set1,set2)){

cout<<"Present"<<"\n";

}

else{

cout<<"not Present"<<"\n";

}

break;

case 4:

obj.Union(set1,set2,set3);

cout<<"Union of set 1 and set 2";

for(itr=set3.begin();itr!=set3.end();itr++){

cout<<" "<<\*itr;

}

break;

//cout<<endl;

case 5:

obj.intersection(set1,set2,set3);

cout<<"intersection of set 1 and set 2:";

for(itr=set3.begin();itr!=set3.end();itr++){

cout<<" "<<\*itr;

}

break;

//cout<<endl;

case 6:

obj.difference(set1,set2,set3);

cout<<"difference of set 1 and set 2:";

for(itr=set3.begin();itr!=set3.end();itr++){

cout<<" "<<\*itr;

}

}

cout<<"Do you want to continue"<<"\n";

cin>>ch;

}while(ch==7);

}