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**AI ASSIGNMENTS**

**Assignment -3**

#include <iostream>

#include <map>

#include <vector>

#include <string>

using namespace std;

map<string, string> husband;

map<string, string> wife;

map<string, vector<string>> siblings;

void addMarriage(string h, string w) {

husband[h] = w;

wife[w] = h;

}

void addSibling(string a, string b) {

siblings[a].push\_back(b);

siblings[b].push\_back(a);

}

bool isHusband(string h, string w) {

return husband[h] == w;

}

bool isWife(string w, string h) {

return wife[w] == h;

}

bool isSibling(string a, string b) {

if (a == b) return false;

for (string sib : siblings[a]) {

if (sib == b) return true;

}

return false;

}

bool isUncle(string u, string n) {

// If u is brother of n's parent (husband case)

for (auto &entry : husband) {

string father = entry.first;

string mother = entry.second;

if (isSibling(u, father)) return true;

}

return false;

}

bool isAunt(string a, string n) {

// If a is sister of n's parent (wife case)

for (auto &entry : wife) {

string mother = entry.first;

string father = entry.second;

if (isSibling(a, mother)) return true;

}

return false;

}

bool isCousin(string a, string b) {

// Cousins if their parents are siblings

for (auto &entry1 : husband) {

string parent1 = entry1.first;

for (auto &entry2 : husband) {

string parent2 = entry2.first;

if (isSibling(parent1, parent2)) return true;

}

}

return false;

}

int main() {

addMarriage("Ramesh", "Sunita");

addMarriage("Mahesh", "Kavita");

addSibling("Ramesh", "Mahesh");

addSibling("Anita", "Sunita");

cout << "Is Ramesh husband of Sunita? " << (isHusband("Ramesh", "Sunita") ? "Yes" : "No") << endl;

cout << "Is Sunita wife of Ramesh? " << (isWife("Sunita", "Ramesh") ? "Yes" : "No") << endl;

cout << "Are Ramesh and Mahesh siblings? " << (isSibling("Ramesh", "Mahesh") ? "Yes" : "No") << endl;

cout << "Is Ramesh uncle of Kavita? " << (isUncle("Ramesh", "Kavita") ? "Yes" : "No") << endl;

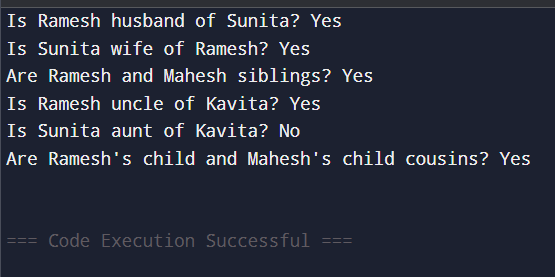
cout << "Is Sunita aunt of Kavita? " << (isAunt("Sunita", "Kavita") ? "Yes" : "No") << endl;

cout << "Are Ramesh's child and Mahesh's child cousins? "

<< (isCousin("Child1", "Child2") ? "Yes" : "No") << endl;

return 0;

}

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