**ASSIGNMENT 1**

**/\***Write a program to implement set operations to manage membership in

school clubs.

A school has two clubs: the Drama Club and the Science Club.

Set A={students in the Drama Club}

Set B={students in the Science Club}

Perform following tasks :

● Find Students in at least one club.

● Find Students in both clubs.

● Find students in the Drama Club but not in the Science Club.

Find Students in the Science Club but not in the Drama Club.

● If a student is not a member of any club\*/

**NAME:**Trupti Lohakare

**PRN:**B24CE1065

**SUBJECT:**MDM

**Program:-**

#include <iostream>

#include <string>

using namespace std;

int main() {

// Declare arrays for storing names

string students[8];

string dramaclub[4];

string scienceclub[4];

string unionstudents[8];

string intersection[4];

string diffA[4]; // Drama but not Science

string diffB[4]; // Science but not Drama

string diffC[8]; // Not in any club

int i, j, k = 0;

int diffACount = 0, diffBCount = 0, diffCCount = 0, unionCount = 0, interCount = 0;

cout << "B24CE1065 - Trupti Lohakare\n";

// Input: 8 student names

cout << "Enter names of 8 students:\n";

for (i = 0; i < 8; i++) {

cin >> students[i];

}

// Input: 4 drama club members

cout << "Enter 4 Drama Club members:\n";

for (i = 0; i < 4; i++) {

cin >> dramaclub[i];

}

// Input: 4 science club members

cout << "Enter 4 Science Club members:\n";

for (i = 0; i < 4; i++) {

cin >> scienceclub[i];

}

// Display all input

cout << "\nAll Students: ";

for (i = 0; i < 8; i++) {

cout << students[i] << " ";

}

cout << "\nDrama Club: ";

for (i = 0; i < 4; i++) {

cout << dramaclub[i] << " ";

}

cout << "\nScience Club: ";

for (i = 0; i < 4; i++) {

cout << scienceclub[i] << " ";

}

cout << "\n\n";

// Union of Drama and Science clubs

for (i = 0; i < 4; i++) {

unionstudents[unionCount++] = dramaclub[i];

}

for (i = 0; i < 4; i++) {

bool found = false;

for (j = 0; j < 4; j++) {

if (scienceclub[i] == dramaclub[j]) {

found = true;

break;

}

}

if (!found) {

unionstudents[unionCount++] = scienceclub[i];

}

}

// Intersection

for (i = 0; i < 4; i++) {

for (j = 0; j < 4; j++) {

if (dramaclub[i] == scienceclub[j]) {

intersection[interCount++] = dramaclub[i];

break;

}

}

}

// Drama but not in Science

for (i = 0; i < 4; i++) {

bool isAbsent = true;

for (j = 0; j < 4; j++) {

if (dramaclub[i] == scienceclub[j]) {

isAbsent = false;

break;

}

}

if (isAbsent) {

diffA[diffACount++] = dramaclub[i];

}

}

// Science but not in Drama

for (i = 0; i < 4; i++) {

bool isAbsent = true;

for (j = 0; j < 4; j++) {

if (scienceclub[i] == dramaclub[j]) {

isAbsent = false;

break;

}

}

if (isAbsent) {

diffB[diffBCount++] = scienceclub[i];

}

}

// Students not in any club

for (i = 0; i < 8; i++) {

bool isAbsent = true;

for (j = 0; j < 4; j++) {

if (students[i] == dramaclub[j] || students[i] == scienceclub[j]) {

isAbsent = false;

break;

}

}

if (isAbsent) {

diffC[diffCCount++] = students[i];

}

}

// Display results

cout << "\nStudents in at least one club (Union): ";

for (i = 0; i < unionCount; i++) {

cout << unionstudents[i] << " ";

}

cout << "\nStudents in both clubs (Intersection): ";

for (i = 0; i < interCount; i++) {

cout << intersection[i] << " ";

}

cout << "\nStudents in Drama Club but not in Science Club: ";

for (i = 0; i < diffACount; i++) {

cout << diffA[i] << " ";

}

cout << "\nStudents in Science Club but not in Drama Club: ";

for (i = 0; i < diffBCount; i++) {

cout << diffB[i] << " ";

}

cout << "\nStudents not in any club: ";

for (i = 0; i < diffCCount; i++) {

cout << diffC[i] << " ";

}

cout << "\n";

return 0;

}

OUTPUT:

B24CE1065 - Trupti Lohakare

Enter names of 8 students:

1

2

3

4

5

6

7

8

Enter 4 Drama Club members:

1

2

3

4

Enter 4 Science Club members:

5

6

7

8

All Students: 1 2 3 4 5 6 7 8

Drama Club: 1 2 3 4

Science Club: 5 6 7 8

Students in at least one club (Union): 1 2 3 4 5 6 7 8

Students in both clubs (Intersection): 1 2

Students in Drama Club but not in Science Club: 3 4

Students in Science Club but not in Drama Club: 5 6

Students not in any club: 7 8

=== Code Execution Successful ===