

**Name - Srushti Bhivaji Salgar**

**PRN - B24CE1079**

**SUB - Mathematical Foundation for GenAI**

**ASSIGNMENT 2 - Inclusion and Exclusion Principle**

### **CODE**

/\*Write a program to implement principle of Inclusion and Exclusion for finding student participation in Sports Club and Music Club in a university survey. The university has 200 students, and the data collected from the survey is as follows:

- 120 students are members of the Sports Club.
- 90 students are members of the Music Club.
- 50 students are members of both the Sports Club and the Music Club.

Using the Inclusion-Exclusion Principle, Perform following tasks :

- The total number of students who are members of at least one of the clubs (either Sports Club, Music Club, or both).
- The number of students who are only members of the Sports Club.
- The number of students who are only members of the Music Club.
- The number of students who are members of neither of the two clubs.\*/\*

```
#include<iostream>
```

```
using namespace std;
```

```
int main(){
```

```
    int total_students =200; // total no. of students
```

```
    int sports_club=120;    // no. of students in sports club
```

```
    int music_club=90;    //no. of students in music club
```

```
    int intersection=50;    //common students in both clubs
```

```
    int unionclubs = sports_club + music_club - intersection ; //no. of students in atleast one club
```

```
    int onlymusic = music_club - intersection;    //no.of students only member of music club
```

```
    int onlports = sports_club - intersection;    //no. of students only member of sports club
```

```
    int neitherclub = total_students - unionclubs;    //no.of students who are member of neither of two clubs
```

```
cout<<"\n no.of students in atleast one club: ";
cout<< unionclubs <<" ";
cout<<"\n no.of students only member of sports club:";
cout<< onlypsports <<" ";
cout<<"\n no.of students only member of music club: ";
cout<< onlymusic <<" ";
cout<<"\n no.of students who are member of neither of two clubs: ";
cout<< neitherclub <<" ";

return 0 ;

}
```

## OUTPUT

```
no.of students in atleast one club: 160
no.of students only member of sports club:70
no.of students only member of music club: 40
no.of students who are member of neither of two clubs: 40
-----
```