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PRN - B24CE1069

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<< onlports <<" " ;
```

```
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
```

=== Code Execution Successful ===