Problem statement : In Second year Computer Engineering class of M students, set A of students play cricket and set B ofstudents play badminton. Write C/C++ program to find and display-

i. Set of students who play either cricket or badminton or both
ii. Set of students who play both cricket and badminton
iii. Set of students who play only cricket
iv. Set of students who play only badminton
Number of students who play neither cricket nor badminton

```
#include<iostream>
using namespace std;
class Set
{
   int x,y,z;
   int *SetA,*SetB;
   public:
   void getdata();
   void calcase1();
   void calcase2();
   void calcase3();
   void calcase4();
   void calcase5();
   int common();
};
int Set::common()
{
   int common=0;
   for(int i=y-1;i>=0;i--)
   {
      for(int j=z-1;j>=0;j--)
      {
         if(SetA[i] == SetB[j])
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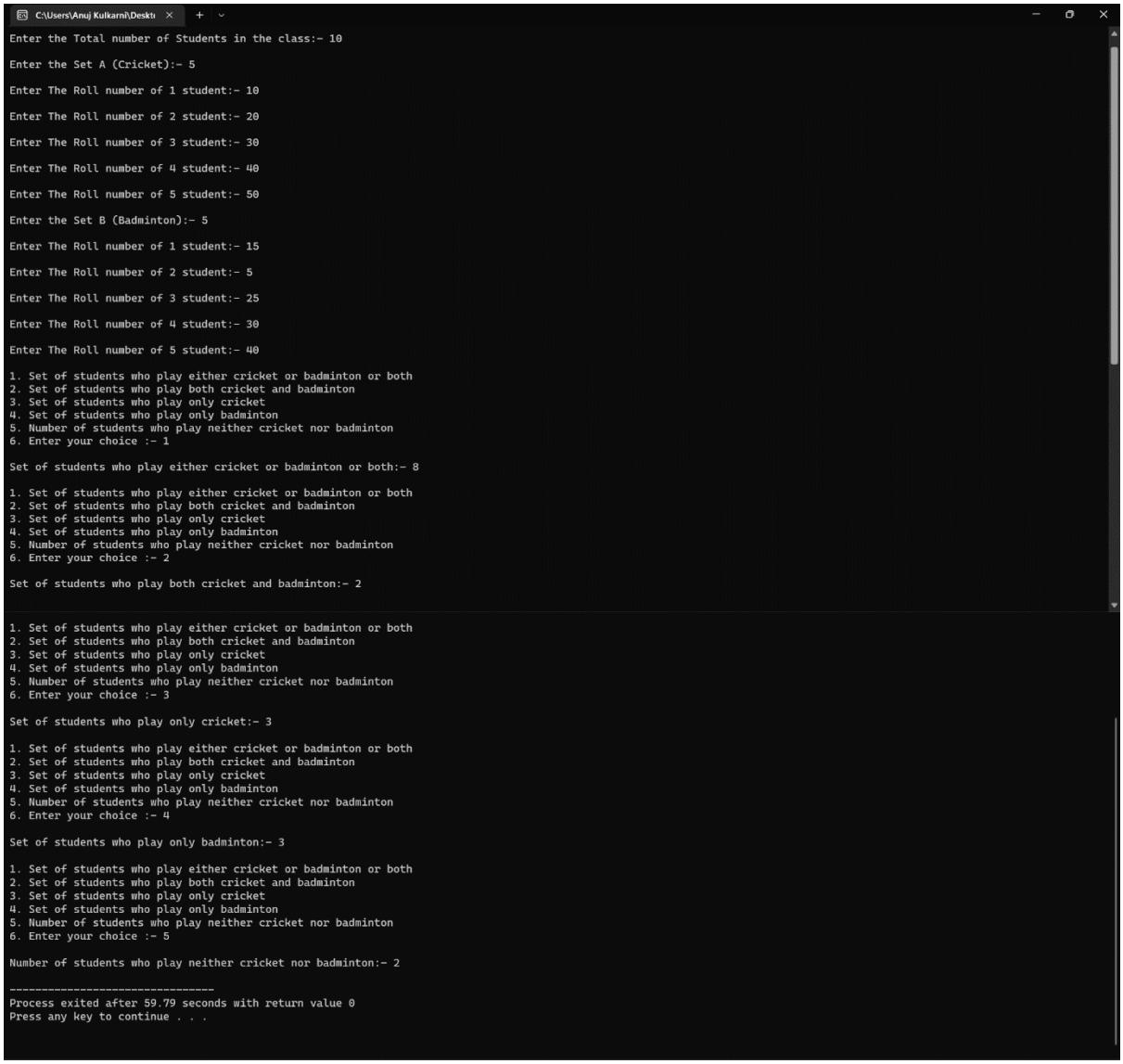
```
        {
            common++;
        }
      }
   }
   return common;
}
void Set::getdata()
{
   cout<<"\nEnter the Total number of Students in the class:- ";
   cin>>x;
   cout<<"\nEnter the Set A (Cricket):- ";
   cin>>y;
   SetA=new int[y];
   for(int i=0;i<y;i++)
   {
      cout<<"\nEnter The Roll number of "<<i+1<<" student:- ";
      cin>>SetA[i];
   }
   cout<<"\nEnter the Set B (Badminton):- ";
   cin>>z;
   SetB=new int[z];
   for(int i=0;i<y;i++)
   {
      cout<<"\nEnter The Roll number of "<<i+1<<" student:- ";
      cin>>SetB[i];
   }
}
void Set::calcase1()
{
   cout<<"\nSet of students who play either cricket or badminton or
both:- "<<y+z-common()<<endl;
```

```
}
void Set::calcase2()
{
   cout<<"\nSet of students who play both cricket and badminton:-
"<<common()<<endl;
}
void Set::calcase3()
{
   cout<<"\nSet of students who play only cricket:- "<<y-
common()<<endl;
}
void Set::calcase4()
{
   cout<<"\nSet of students who play only badminton:- "<<z-
common()<<endl;
}
void Set::calcase5()
{
   cout<<"\nNumber of students who play neither cricket nor
badminton:- "<<x-y-z+common()<<endl;
}
int main()
{
   int n;
   Set obj;
   obj.getdata();
   for(int i=1;i<=5;i++)
   {
   cout<<"\n1. Set of students who play either cricket or badminton
or both \n2. Set of students who play both cricket and badminton
\n3. Set of students who play only cricket \n4. Set of students who
```

```
play only badminton \n5. Number of students who play neither
cricket nor badminton \n6. Enter your choice :- ";
   cin>>n;
   switch(n)
   {
   case 1:
   obj.calcase1();
   break;
   case 2:
   obj.calcase2();
   break;
   case 3:
   obj.calcase3();
   break;
   case 4:
   obj.calcase4();
   break;
   case 5:
   obj.calcase5();
   break;
   }
   }
return 0;
}
```

OUTPUT :-


C:\Users\Anuj Kulkarni\Deskt
Enter the Total number of Students in the class:- 10
Enter the Set A (Cricket):- 5
Enter The Roll number of 1 student:- 10
Enter The Roll number of 2 student:- 20
Enter The Roll number of 3 student:- 30
Enter The Roll number of 4 student:- 40
Enter The Roll number of 5 student:- 50
Enter the Set B (Badminton):- 5
Enter The Roll number of 1 student:- 15
Enter The Roll number of 2 student:- 5
Enter The Roll number of 3 student:- 25
Enter The Roll number of 4 student:- 30
Enter The Roll number of 5 student:- 40
1. Set of students who play either cricket or badminton or both
2. Set of students who play both cricket and badminton
3. Set of students who play only cricket
4. Set of students who play only badminton
5. Number of students who play neither cricket nor badminton
6. Enter your choice :- 1
Set of students who play either cricket or badminton or both:- 8
1. Set of students who play either cricket or badminton or both
2. Set of students who play both cricket and badminton
3. Set of students who play only cricket
4. Set of students who play only badminton
5. Number of students who play neither cricket nor badminton
6. Enter your choice :- 2
Set of students who play both cricket and badminton:- 2
1. Set of students who play either cricket or badminton or both
2. Set of students who play both cricket and badminton
3. Set of students who play only cricket
4. Set of students who play only badminton
5. Number of students who play neither cricket nor badminton
6. Enter your choice :- 3
Set of students who play only cricket:- 3
1. Set of students who play either cricket or badminton or both
2. Set of students who play both cricket and badminton
3. Set of students who play only cricket
4. Set of students who play only badminton
5. Number of students who play neither cricket nor badminton
6. Enter your choice :- 4
Set of students who play only badminton:- 3
1. Set of students who play either cricket or badminton or both
2. Set of students who play both cricket and badminton
3. Set of students who play only cricket
4. Set of students who play only badminton
5. Number of students who play neither cricket nor badminton
6. Enter your choice :- 5
Number of students who play neither cricket nor badminton:- 2

Process exited after 59.79 seconds with return value 0
Press any key to continue . . .