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/*
name : Durvesh D. Dhake
section: A
roll no: A-48
batch: A-2
*/
// 2. A program for set operations: Union, Intersection, Difference, Symmetric difference.
#include <stdio.h>
void main()

{
	int a[5], b[5], c[5], fl = 0, ch;

	char ans;

	int i, j, n, m, k, x;
	printf(" Enter limit of set A= ");
	scanf("%d", &n);
	printf(" Enter value of set A=");
	for (i = 0; i < n; i++)
		scanf("%d", &a[i]);
	printf(" Set A:{");
	for (i = 0; i < n; i++)
		printf("%d,", a[i]);
	printf("}");

	printf(" Enter limit of setB= ");
	scanf("%d", &m);
	printf(" Enter value of set B=");
	for (j = 0; j < m; j++)
		scanf("%d", &b[j]);

	printf(" Set B:{");
	for (j = 0; j < m; j++)
		printf("%d,", b[j]);
	printf("}");
	do
	{
		printf("\n1.Intersection\n2.Union\n3.A-B\n4.B-A\n5.Symmetric
Difference\n6.Exit\nEnter ur choice=");
		scanf("%d", &ch);
		switch (ch)
		{
		case 1:
			k = 0;
			for (i = 0; i < n; i++)
			{
				for (j = 0; j < m; j++)
				{
					if (a[i] == b[j])
					{
						c[k] = a[i];
						k++;
					}
				}
			}
			printf("\nIntersection of A nd B:{");
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        for (i = 0; i < k; i++)
        {

                printf(" %d,", c[i]);
        }
        printf("}");

        break;

case 2:
        k = 0;
        x = 0;
        for (i = 0; i < n; i++)
        {
                c[x] = a[i];
                x++;
        }
        k = x;
        for (i = 0; i < n; i++)
        {
                fl = 0;
                for (j = 0; j < m; j++)
                {
                        if (a[j] == b[i])
                        {
                                fl = 0;
                                break;
                        }
                        else
                                fl = 1;
                }
                if (fl == 1)
                {
                        c[k] = b[i];
                        k++;
                }
        }
        printf("\n Union of A nd B:{");
        for (i = 0; i < k; i++)
        {
                printf(" %d,", c[i]);
        }
        printf("}");
        break;
case 3:
        k = 0;
        for (i = 0; i < n; i++)
        {
                fl = 0;
                for (j = 0; j < m; j++)
                {
                        if (a[i] == b[j])
                        {
                                fl = 0;
                                break;
                        }
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                else
                {
                        fl = 1;
                }
        }
        if (fl == 1)
        {
                c[k] = a[i];
                k++;
        }
    }
    printf("\nDifference is A-B:{");
    for (i = 0; i < k; i++)
    {
        printf(" %d,", c[i]);
    }
    printf("}");
    break;
case 4:
    k = 0;
    for (i = 0; i < n; i++)
    {
        fl = 0;
        for (j = 0; j < m; j++)
        {
                if (b[i] == a[j])
                {
                        fl = 0;
                        break;
                }
                else
                        fl = 1;
        }
        if (fl == 1)
        {
                c[k] = b[i];
                k++;
        }
    }
    printf("\n Difference is B-A:{");
    for (i = 0; i < k; i++)
    {
        printf(" %d,", c[i]);
    }
    printf("}");
    break;
case 5:
    k = 0;
    for (i = 0; i < n; i++)
    {
        fl = 0;
        for (j = 0; j < m; j++)
        {
                {
                        fl = 1;
                }
        }
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                    if (fl == 1)
                    {
                        c[k] = a[i];
                        k++;
                    }
                }
                printf("\nDifference is A-B:{");
                for (i = 0; i < k; i++)
                {
                    printf(" %d,", c[i]);
                }
                printf("}");
                break;

            case 6:
                break;
            }

        } while (ch != 6);
}
/*
output:
  Enter limit of set A= 2
  Enter value of set A=1 2
  Set A:{1,2,} Enter limit of setB= 2
  Enter value of set B=4 5
  Set B:{4,5,}
1.Intersection
2.Union
3.A-B
4.B-A
5.Symmetric Difference
6.Exit
Enter ur choice=1

Intersection of A nd B:{}
1.Intersection
2.Union
3.A-B
4.B-A
5.Symmetric Difference
6.Exit
Enter ur choice=2

  Union of A nd B:{ 1, 2, 4, 5,}
1.Intersection
2.Union
3.A-B
4.B-A
5.Symmetric Difference
6.Exit
Enter ur choice=3

Difference is A-B:{ 1, 2,}
1.Intersection
2.Union
3.A-B
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4.B-A
5.Symmetric Difference
6.Exit
Enter ur choice=4

  Difference is B-A:{ 4, 5,}
1.Intersection
2.Union
3.A-B
4.B-A
5.Symmetric Difference
6.Exit
Enter ur choice=5

Difference is A-B:{ 1, 2,}
1.Intersection
2.Union
3.A-B
4.B-A
5.Symmetric Difference
6.Exit
Enter ur choice=6
*/
```