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**========================================================================**

**Name : Set Operators**

**Author : Gaurav Ghati**

**Class : SE 10**

**Batch : F 10**

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**\*/**

#define MAX 30

#include<stdio.h>

#include<conio.h>

void create(int set[]);

void print(int set[]);

void Union(int set1[],int set2[],int set3[]);

void intersection(int set1[],int set2[],int set3[]);

void difference(int set1[],int set2[],int set3[]);

void symmdiff(int set1[],int set2[],int set3[]);

int member(int set[],int x);

void main(){

int set1[MAX],set2[MAX],set3[MAX];

int x,op;

set1[0]=set2[0]=set3[0]=0;

do{

printf("\n1)Create\n2)Print\n3)Union\n4)Intersection\n5)Difference");

printf("\n6. Symmetrec Difference \n7)Quit");

printf("\nEnter Your Choice:");

scanf("%d",&op);

switch(op){

case 1:

printf("\nCreting First Set\*\*\*\*\*\*\*");

create(set1);

printf("\nCreating Second Set\*\*\*\*\*");

create(set2);

break;

case 2:

printf("\nFirst Set :\n");

print(set1);

printf("\n\nSecond Set :\n");

print(set2);

printf("\n\nThird Set :\n");

print(set3);

break;

case 3: Union(set1,set2,set3);print(set3);break;

case 4: intersection(set1,set2,set3);print(set3);break;

case 5: difference(set1,set2,set3);print(set3);break;

case 6: symmdiff(set1,set2,set3);print(set3);break;

}

}while(op!=7);

}

void create(int set[]){

int n,i,x;

set[0]=0;

printf("\n No. of elements in the set:");

scanf("%d",&n);

printf("\n enter set elements :");

for(i=1;i<=n;i++)

scanf("%d",&set[i]);

set[0]=n; //Number of elements.

}

void print(int set[]){

int i,n;

n=set[0];

printf("\Members of the set :--> ");

for(i=1;i<=n;i++)

printf("%d ",set[i]);

}

void Union(int set1[],int set2[],int set3[]){

int i,n;

set3[0]=0;

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

set3[i]=set1[i];

}

n=set2[0];

for(i=1;i<=n;i++)

if(!member(set3,set2[i]))

set3[++set3[0]]=set2[i]; // insert and increment no. of elements

}

void intersection(int set1[],int set2[],int set3[]){

int i,n;

set3[0]=0;

n=set1[0];

for(i=1;i<=n;i++)

if(member(set2,set1[i])) /\* all common elements are inserted in set3[]\*/

set3[++set3[0]]=set1[i]; // insert and increment no. of elements

}

int member(int set[],int x){

int i,n;

n=set[0];

for(i=1;i<=n;i++)

if(x==set[i])

return(1);

return(0);

}

void difference(int set1[],int set2[],int set3[]){

int i,n;

n=set1[0]; /\* number of elements in the set\*/

set3[0]=0; /\*make it a null set\*/

for(i=1;i<=n;i++)

if(!member(set2,set1[i]))

set3[++set3[0]]=set1[i]; // insert and increment no. of elements

}

void symmdiff(int set1[],int set2[],int set3[]){

int i,n;

n=set1[0];

set3[0]=0;

for(i=1;i<=n;i++)

if(!member(set2,set1[i]))

set3[++set3[0]]=set1[i];

n=set2[0];

for(i=1;i<=n;i++)

if(!member(set1,set2[i]))

set3[++set3[0]]=set2[i]; // insert and increment no. of elements

}

**OUTPUT :**

1. Create

2. Print

3. Union

4. Intersection

5. Difference

6. Symmetrec Difference

7. Quit

Enter Your Choice:1

Creting First Set...

No. of elements in the set:5

enter set elements :1 2 3 4 5

Creating Second Set...

No. of elements in the set:5

enter set elements :3 4 5 6 7

1. Create

2. Print

3. Union

4. Intersection

5. Difference

6. Symmetrec Difference

7. Quit

Enter Your Choice:2

First Set :

Members of the set : 1 2 3 4 5

Second Set :

Members of the set : 3 4 5 6 7

Third Set :

Members of the set :

1. Create

2. Print

3. Union

4. Intersection

5. Difference

6. Symmetrec Difference

7. Quit

Enter Your Choice:3

Union is :

Members of the set : 1 2 3 4 5 6 7

1. Create

2. Print

3. Union

4. Intersection

5. Difference

6. Symmetrec Difference

7. Quit

Enter Your Choice:4

Intersection is :

Members of the set : 3 4 5

1. Create

2. Print

3. Union

4. Intersection

5. Difference

6. Symmetrec Difference

7. Quit

Enter Your Choice:5

Difference is :

Members of the set : 1 2

1. Create

2. Print

3. Union

4. Intersection

5. Difference

6. Symmetrec Difference

7. Quit

Enter Your Choice:6

Symmetric Difference is :

Members of the set : 1 2 6 7

1. Create

2. Print

3. Union

4. Intersection

5. Difference

6. Symmetrec Difference

7. Quit

Enter Your Choice:7