day01

```
package day01;

public class Program01 {

 public static void main(String[] args) {
  System.out.println("Hello");

 }

}
```

****

day02

```
package day02;

public class Program01 {


 public static void fun()
 {
  int x=101234567;
  char y='a';
  boolean a=true;
  byte b=127;
  short c=32000;
  long d=1234567890l;
  double a1;
  a1=12345.4567d;
  float a2=23456.67f;
  System.out.println(a2);
  System.out.println(a1);
  System.out.println(d);
  System.out.println("Good Morning..!");
  System.out.println(x*x);
 }


 public static void main(String[] args) {
  System.out.println("Good");
  System.out.println(" day");
  fun();
 }

}
```

****

```
package day02;

public class Program02{


 public static int fun()
 {
  int x=10;
  System.out.println(x*x);
  return x*x;
```

```
 }


 public static void main(String[] args) {
  long a=fun();//64,32//100.0
  System.out.println(a+a);//200.0
 }

}
```

****

day03

```
package day03.test01;

public class Program01 {

 public void addMethod(int a,int b)
 {
  System.out.println(a+b);
 }

 public static void subMethod(int a,int b)
 {
  System.out.println(a-b);
 }

 public static void mulMethod(int a,int b)
 {
  System.out.println(a*b);
 }
}

package day03.test01;

public class Program02 extends Program01{
 //Program01- super class(parent)
 //Program02- sub class(child)
 public static void main(String[] args) {
  Program02 xyz= new Program02();
  xyz.addMethod(10, 20);
  subMethod(20, 10);
  mulMethod(20, 30);
 }

}
```

****

```
package day03;

public class Program01 {

 public static void main(String[] args) {

  cal(10,20);
  System.out.println("###################");
  cal(30,50);
 }
```

```
 public static void cal(int a,int b)
 {
  System.out.println(a+b);
  System.out.println(a-b);
  System.out.println(a*b);
 }



}
package day03;

public class Program02 {

 public static void main(String[] args) {
  Program02 xyz= new Program02();
  addMethod(20,30);
  xyz.subMethod(10, 5);
  xyz.mulMethod(10, 10);

  addMethod(120,230);
  xyz.subMethod(110, 15);
  xyz.mulMethod(10, 6);

 }

 public static void addMethod(int a,int b)
 {
  System.out.println(a+b);
 }

 public void subMethod(int a,int b)
 {
  System.out.println(a-b);
 }
 public void mulMethod(int a,int b)
 {
  System.out.println(a*b);
 }

}
**************************************
Day04
package day04.test01;

public class Program01 {
 public static void addMethod(int a,int b)
 {
  System.out.println(a+b);
 }
 private static void subMethod(int a,int b)
 {
  System.out.println(a-b);
 }
```

```
 protected static void mulMethod(int a,int b)
 {
  System.out.println(a*b);
 }
 static void sqrtMethod(int a)
 {
  System.out.println(a*a);
 }

 public void addMethodNonStatic(int a,int b)
 {
  System.out.println(a+b);
 }
 private void subMethodNonStatic(int a,int b)
 {
  System.out.println(a-b);
 }
 protected void mulMethodNonStatic(int a,int b)
 {
  System.out.println(a*b);
 }
 void sqrtMethodNonStatic(int a)
 {
  System.out.println(a*a);
 }
 public static void main(String[] args) {
  addMethod(10, 10);
  subMethod(20, 10);
  mulMethod(3, 2);
  sqrtMethod(10);
  Program01 x= new Program01();
  x.addMethodNonStatic(100, 10);
  x.subMethodNonStatic(20, 5);
  x.mulMethodNonStatic(30, 20);
  x.sqrtMethodNonStatic(4);
 }
}
package day04.test01;

public class Program02 extends Program01{

 public static void main(String[] args) {
  addMethod(10, 10);
  //subMethod(20, 10); //It's Private Method-not visible
  mulMethod(3, 2);
  sqrtMethod(10);
  Program01 x= new Program01();
  x.addMethodNonStatic(100, 10);
  //x.subMethodNonStatic(20, 5); //It's Private Method-not visible
  x.mulMethodNonStatic(30, 20);
  x.sqrtMethodNonStatic(4);
 }

}
************************************************
```

```
package day04.test02;

import day04.test01.Program01;

public class Program03 extends Program01{

 public static void main(String[] args) {
  addMethod(10, 10);
  //subMethod(20, 10); //It's Private Method-not visible
  mulMethod(3, 2);
  //sqrtMethod(10); //It's default Method-not visible
  Program03 x= new Program03();//current class object
  x.addMethodNonStatic(100, 10);
  //x.subMethodNonStatic(20, 5); //It's Private Method-not visible
  x.mulMethodNonStatic(30, 20);
  //x.sqrtMethodNonStatic(4); //It's default Method-not visible


 }

}
package day04.test02;

import day04.test01.Program01;

public class Program04 {

 public static void main(String[] args) {
  Program01 x= new Program01();
  x.addMethodNonStatic(10, 20);
  //x.mulMethodNonStatic(30, 20); //It's protected Method-not visible
 }

}
**********************************************************************
Day05
package day05.test01;

public class Program01 {

 public static void main(String[] args) {
  add(10,20);
  add(1.1,2.2);
  add(1,2,3);
  System.out.println(main(1,2));
  main();

 }

 public static int main(int a, int b)
 {
  return a+b;
 }

 public static void main()
```

```
 {
  System.out.println("Good Day..!");
 }

 public static void add(int a,int b)
 {
  System.out.println(a+b);
 }

 public static void add(double a,double b)
 {
  System.out.println(a+b);
 }

 public static void add(int a,int b,int c)
 {
  System.out.println(a+b+c);
 }
}
package day05.test01;

public class Program02 {


 public void add(int a, int b)
 {
  System.out.println(a+b);
 }

}
package day05.test01;

public class Program03 extends Program02 {

 public static void main(String[] args) {
  Program03 x= new Program03();
  x.add(10, 20);

 }

 @Override
 public void add(int a,int b)
 {
  System.out.println((a*a)+(b*b));
 }

}
**************************************
package day05.test02;

public class Program01{

 public static void display1()
 {
  System.out.println("Good Morning..!");
```

```
 }

 public void display1NonStatic()
 {
  System.out.println("Good Morning..!");
 }

}
package day05.test02;

public class Program02 extends Program01{

 public static void display2()
 {
  System.out.println("Good Day..!");
 }

 public void display2NonStatic()
 {
  System.out.println("Good Day..!");
 }

}
package day05.test02;

public class Program03 extends Program02 {

 public static void main(String[] args) {
   display1();
   display2();
   Program03 x= new Program03();
   x.display1NonStatic();//Program01-class
   x.display2NonStatic();//Program02-class
   }

}
**********************************************************************
Day06
package day06;

import java.util.Scanner;

public class Program01 {

 public static void main(String[] args) {
  // + - * /(Q)  %(R) Numbers
  Scanner x= new Scanner(System.in);
  System.out.println("Enter Int Value of a:- ");
  int a=x.nextInt();
  System.out.println("Enter Int Value of b:- ");
  int b=x.nextInt();

  System.out.println("Enter Double Value of c:- ");
  double c=x.nextDouble();
  x.close();
```

```
  // int () int--->int
  //int () double/float---> double/float

  System.out.println(a+b);
  System.out.println(a+c);

  System.out.println(a-b);
  System.out.println(a-c);

  System.out.println(a*b);
  System.out.println(a*c);

  System.out.println(a/b);
  System.out.println(a/c);

  System.out.println(a%b);
  System.out.println(a%c);

 }

}
package day06;

public class Program02 {

 public static void main(String[] args) {
  // < > <= >= == !=  --->true/false
  int a=10;
  int b=20;
  double c=20.0;
  System.out.println("%%%%%%%%%%%%%%%");
  System.out.println(a>b);//f
  System.out.println(b>a);//t
  System.out.println(a<b);//t
  System.out.println(b<a);//f
  System.out.println("%%%%%%%%%%%%%%%");
  System.out.println(a>=b);//f
  System.out.println(b>=a);//t
  System.out.println(a<=b);//t
  System.out.println(b<=c);//t
  System.out.println("%%%%%%%%%%%%%%%");
  System.out.println(a==b);//f
  System.out.println(b!=a);//t
  System.out.println(b==c);//t
  System.out.println(b!=c);//f




 }

}
package day06;
```

```
public class Program03 {

 public static void main(String[] args) {
  // && || !
  int a=100;
  int b=20;
  int c=30;

  System.out.println((a>b) && (a>c));//t
  System.out.println((b>a) && (b>c));//f
  System.out.println((c>a) && (c>b));//f
  System.out.println("**********************");
  System.out.println((a>b) || (a>c));//t
  System.out.println((b>a) || (b>c));//f
  System.out.println((c>a) || (c>b));//t
  System.out.println("**********************");
  System.out.println(!(a>b));//f
  System.out.println(!(b>c));//t
 }

}
```

****

Day07

```
package day07;

public class Program01 {

 public static void main(String[] args) {
  int a=10;
  int b=20;

  System.out.println("Start Program...!");

  if(a>b)
  {
   System.out.println("Good Day..!");
   System.out.println("Good Morning..!");
  }

  System.out.println("End Program...!");

 }

}
package day07;

public class Program02 {

 public static void main(String[] args) {
  int a=100;
  int b=20;

  System.out.println("Start Program...!");

  if(a>b)
```

```
  {
   System.out.println("a is greater..!");
  }
  else
  {
   System.out.println("b is greater..!");
  }

  System.out.println("End Program...!");

 }

}
package day07;

import java.util.Scanner;

public class Program03 {

 public static void main(String[] args) {
  Scanner x= new Scanner(System.in);
  System.out.println("Enter the Number:-  ");
  int a=x.nextInt();
  x.close();
  System.out.println("Start Program...!");

  if(a%2==0)
  {
   System.out.println("a is even..!");
  }
  else
  {
   System.out.println("a is odd..!");
  }

  System.out.println("End Program...!");

 }

}
package day07;


public class Program04 {

 public static void main(String[] args) {

  int a=100;
  int b=100;

  System.out.println("Start Program...!");

  if(a>b)
  {
   System.out.println("a is greater..!");
```

```
  }
  else if(a<b)
  {
   System.out.println("b is greater..!");
  }
  else
  {
   System.out.println("a & b are equal..!");
  }

  System.out.println("End Program...!");



 }

}
```

****

Day08

```
package day08;

public class Program01 {

 public static void main(String[] args) {

  int a=90;
  int b=10;
  int c=100;

  if(a>=b && a>=c)
  {
   if(a==b && a==c)
   {
    System.out.println("a,b, & c are equal");
   }
   else if(a==b && a>c)
   {
    System.out.println("a &b are equal and greater than c");
   }
   else if(a==c && a>b)
   {
    System.out.println("a &c are equal and greater than b");
   }
   else if(b>c)
   {
    System.out.println("a is greater than b and b is greater than c");
   }
   else if(c>b)
   {
    System.out.println("a is greater than c and c is greater than b");
   }
   else
   {
    System.out.println("a is greater than b & c, b &c are equal");
   }
```

```
  }
  else if(b>=a && b>=c)
  {
   if(b==c)
   {
    System.out.println("b & c are equal and greater than a");
   }
   else if(a>c)
   {
    System.out.println("b is greater than a and a is greater than c");
   }
   else if(c>a)
   {
    System.out.println("b is greater than c and c is greater than a");
   }
   else
   {
    System.out.println("b is greater than a and c, a & c are equal");

   }
  }
  else
  {
   if(a>b)
   {
    System.out.println("c is greater than a and a is greater than b");

   }
   else if(b>a)
   {
    System.out.println("c is greater than b and b is greater than a");

   }
   else
   {
    System.out.println("c is greater than a and b, a & b are equal");
   }
  }









 }

}
```

****

Day09

```
package day09;
```

```
public class Program01 {

 public static void main(String[] args) {
  System.out.println("Start Program..!");
  //1-5
  int a=1;
  while(a<=5)//1<=5 2<=5 3<=5 4<=5 5<=5
  {
  System.out.println("Good Day..!");//1 2 3 4 5
  a=a+1;//2 3 4 5 6
  }

  double b=0.5;
  while(b>=0.1)
  {
   System.out.println("Good Morning..!");
   b=b-0.1;
  }

  int c=-11;
  while(c>=-15)
  {
   System.out.println("@@@@@@");
   c=c-1;
  }

  System.out.println("End Program..!");

 }

}
```

****

Day10

```
package day10;

public class Program01 {

 public static void main(String[] args) {

  int a=1;
  do
  {
   System.out.println("Good Day..!");//1 2 3 4 5
   a=a+1;
  }while(a<=5);//2 3 4 5 6
  System.out.println("$$$$$$$$$$$$$$$$$$");

  int b=5;
  do
  {
   System.out.println("Good Day..!");
   b=b-1;
  }while(b>=1);
```

```
 }

}
package day10;

public class Program02 {

 public static void main(String[] args) {

  for(int a=1;a<=5;a=a+1)
  {
   System.out.println("Good Day..!");
  }

  for(int b=-1;b>=-5;b=b-1)
  {
   System.out.println("Good Morning..!");
  }

 }

}
package day10;

public class Program03 {

 public static void main(String[] args) {
  int table=6;
  System.out.println("----While Program----");
  int a=1;
  while(a<=10)
  {
   System.out.println(table+"x"+a+"="+table*a);
   a=a+1;
  }

  System.out.println("----Do- While Program----");
  int b=1;
  do {
   System.out.println(table+"x"+b+"="+table*b);
   b=b+1;
  }while(b<=10);

  System.out.println("----For Program----");
  for(int c=1;c<=10;c=c+1)
  {
   System.out.println(table+"x"+c+"="+table*c);
  }

 }

}
package day10;

public class Program04 {
```

```
 public static void main(String[] args) {
  int n=10;
  System.out.println("----While Program----");
  int a=1;
  int temp=1;
  while(a<=n)
  {
   temp=temp*a;
   System.out.println(a+"    "+temp);
   a=a+1;
  }

  System.out.println("----Do- While Program----");
  int b=1;
  temp=1;
  do
  {
   temp=temp*b;
   System.out.println(b+"    "+temp);
   b=b+1;
  }while(b<=n);

  System.out.println("----For Program----");
  temp=1;
  for(int c=1;c<=n;c=c+1)
  {
   temp=temp*c;
   System.out.println(c+"    "+temp);
  }

 }

}
```

****

DAY11

```
package day11;

public class Program01 {

 public static void main(String[] args) {
  int a=1;
  //a++, ++a  ---> a=a+1
  System.out.println(a);
  int b= a++;//b=1,a=2
  System.out.println(b+"   "+a);
  int c=++a;//a=3,c=3
  System.out.println(c+"   "+a);

  //a=3
  //a--,--a --->a=a-1
  int d=a--;//d=3,a=2
  System.out.println(d+"   "+a);
  int e=--a;//e=1,a=1
  System.out.println(e+"   "+a);
```

```
 }

}
package day11;

public class Program02 {

 public static void main(String[] args) {
  /*
   1
   12
   123
   1234
   12345
   */

  for(int i=1;i<=1;i++)
  {
   System.out.print(i);
  }
  System.out.println();
  for(int i=1;i<=2;i++)
  {
   System.out.print(i);
  }
  System.out.println();
  for(int i=1;i<=3;i++)
  {
   System.out.print(i);
  }
  System.out.println();
  for(int i=1;i<=4;i++)
  {
   System.out.print(i);
  }
  System.out.println();
  for(int i=1;i<=5;i++)
  {
   System.out.print(i);
  }
  System.out.println();
 }

}
package day11;

public class Program03 {

 public static void main(String[] args) {
  /*
   1
   12
   123
   1234
```

```
  12345

  12345
  1234
  123
  12
  1
  */

 for(int i=1;i<=5;i++)//1 2 3 4 5
 {
 for(int j=1;j<=i;j++)
 {
  System.out.print(j);
 }
 System.out.println();
 }


 for(int i=5;i>=1;i--)//5 4 3 2 1
 {
 for(int j=1;j<=i;j++)
 {
  System.out.print(j);
 }
 System.out.println();
 }


 }

}
package day11;

public class Program04 {

 public static void main(String[] args) {
  /*
   54321
   4321
   321
   21
   1

   1
   21
   321
   4321
   54321

   */

 for(int i=5;i>=1;i--)// 5 4 3 2 1
 {
 for(int j=i;j>=1;j--)
```

```
  {
   System.out.print(j);
  }
  System.out.println();
  }


  for(int i=1;i<=5;i++)// 1 2 3 4 5
  {
  for(int j=i;j>=1;j--)
  {
   System.out.print(j);
  }
  System.out.println();
  }


 }

}
package day11;

public class Program05 {

 public static void main(String[] args) {
  /*
  1
  22
  333
  4444
  55555


   55555
   4444
   333
   22
   1

   */

  for(int i=1;i<=5;i++)
  {
  for(int j=1;j<=i;j++)
  {
   System.out.print(i);
  }
  System.out.println();

  }

  for(int i=5;i>=1;i--)
  {
  for(int j=1;j<=i;j++)
  {
```

```
   System.out.print(i);
  }
  System.out.println();

  }


 }

}
```

****

DAY12

```
package day12;

public class Program01 {

 public static void main(String[] args) {


  for(int i=1;i<=5;i++)//i=5
  {
   boolean x=true;
   for(int j=1;j<=i;j++)//j=1, j=2, j=3, j=4,j=5
   {
    if(x)
    {
     System.out.print(i+"\t");//5
     x=false;
    }
    else
    {
     System.out.print(i*i+"\t");// 25
     x=true;
    }

   }
   System.out.println();
  }

 }

}
package day12;

public class Program02 {

 public static void main(String[] args) {


  for(int i=1;i<=5;i++)
  {
   for(int j=1;j<=i;j++)//j=1, j=2, j=3, j=4,j=5
   {
    if(j%2==1)
    {
```

```
     System.out.print(i+"\t");
    }
    else
    {
     System.out.print(i*i+"\t");
    }
   }
   System.out.println();
  }

 }

}
package day12;

public class Program03 {

 public static void main(String[] args) {


  for(int i=1;i<=5;i++)
  {
   for(int j=1;j<=i;j++)
   {
     System.out.print("*\t");
   }
   System.out.println();
  }

 }

}
package day12;

public class Program04 {

 public static void main(String[] args) {

  int temp=1;
  for(int i=1;i<=5;i++)
  {
   for(int j=1;j<=i;j++)
   {
     System.out.print(temp+"\t");
     temp++;
   }
   System.out.println();
  }

 }

}
package day12;

public class Program05 {
```

```
 public static void main(String[] args) {

  /*
  0 1 1 2 3 5 8 13 21 34 55 89 144 233 377
   */
  int x=0;
  int y=1;
  for(int i=1;i<=15;i++)
  {

   System.out.println(x);
   int z=x+y;
   x=y;
   y=z;
  }

 }

}
package day12;

public class Program06 {

 public static void main(String[] args) {

  /*
  0
  1 1
  2 3 5
  8 13 21 34
  55 89 144 233 377
   */

  int x=0;
  int y=1;
  for(int i=1;i<=5;i++)
  {
   for(int j=1;j<=i;j++)
   {
   System.out.print(x+"\t");
   int z=x+y;
   x=y;
   y=z;
   }
   System.out.println();
  }

 }

}
```

****

Day13

```
package day13;
```

```
public class Program01 {

 public static void main(String[] args) {
  int[] x= new int[5];//0-4 index
  x[0] = 100;
  x[4] =300;
  x[2]= 400;

  System.out.println(x[0]);//100
  System.out.println(x[1]);//0
  System.out.println(x.length);
  System.out.println("Index loop");
  for(int i=0;i<x.length;i++)
  {
   System.out.println(x[i]);
  }
  System.out.println("For- Each loop");
  for(int a:x)//100,0,400,0,300
  {
   System.out.println(a);
  }

  String[] name= { "abc","bcd","cde","def"};
  System.out.println(name.length);
  System.out.println(name[0]);//abc
  name[0]="ABC";
  System.out.println(name[0]);

 }

}
package day13;

public class Program02 {

 public static void main(String[] args) {
  int[] x= {10,1,20,23,45,65,78,92,100,2};
  System.out.println("Even Numbers :- ");
  for(int i=0;i<x.length;i++)
  {
   if(x[i]%2==0)
   {
    System.out.println(x[i]);
   }
  }

  System.out.println("Odd Numbers :- ");
  for(int y:x)
  {
   if(y%2==1)
   {
    System.out.println(y);
   }
  }
```

```
 }

}
package day13;

import java.util.Arrays;

public class Program03 {

 public static void main(String[] args) {
  int[] x= {10,1,20,23,45,65,78,92,100,2};

  System.out.println(Arrays.toString(x));
  Arrays.sort(x);
  System.out.println(Arrays.toString(x));

  System.out.println("Copy Function");
  //int[y] =x
  int[] y=Arrays.copyOf(x, x.length);
  System.out.println(Arrays.toString(x));
  System.out.println(Arrays.toString(y));
  x[0]=111;
  System.out.println(Arrays.toString(x));
  System.out.println(Arrays.toString(y));
  System.out.println(x);
  System.out.println(y);

 }

}
****************************************
Day14
package day14;

public class Program01 {

 public static void main(String[] args) {
  int[] x1= {10,1,20,23,45,65,78,92,100,2};

  for(int x:x1)
  {
  boolean a=true;
  for(int i=2;i<x;i++)
  {
   if(x%i==0)
   {
    a=false;
    break;
   }
  }
  if(a)
  {
   System.out.println(x);
```

```
  }
  }

 }

}
package day14;

public class Program02 {

 public static void main(String[] args) {
  int x1[]= {153, 370, 371, 507, 1634, 8208, 9476};

  for(int x:x1)
  {
   String y = String.valueOf(x);
   int count = y.length();
   double z=0;
   for(int i=0;i<count;i++)
   {
    z=Math.pow(Integer.parseInt(y.charAt(i)+""), count)+z;
   }
   if(z==x)
   {
    System.out.println("ArmStrong Number "+x);
   }
  }
 }

}
************************************************************
DAY15
package day15;

import java.util.ArrayList;
import java.util.Arrays;

public class Program01 {

 public static void main(String[] args) {

  ArrayList<Integer> x= new ArrayList<>();
  x.add(10);//0
  x.add(30);//1
  x.add(20);//2
  x.add(40);//3
  System.out.println(x);
  System.out.println(x.get(2));
  x.add(10);//4
  x.add(30);//5
  x.add(20);//6
  x.add(40);//7
  System.out.println(x);

  x.remove(7);
```

```
  System.out.println(x);
  x.remove(6);
  System.out.println(x);
  x.remove(5);
  System.out.println(x);
  x.remove(4);
  System.out.println(x);
  System.out.println(x.size());
  System.out.println(x.get(0));
  x.remove(0);
  System.out.println(x.get(0));

  Integer[] y= {30,50,60,10,70,90,80,30};
  x.addAll(Arrays.asList(y));
  System.out.println(x);

  Integer[] z= {30,90,66};
  x.removeAll(Arrays.asList(z));
  System.out.println(x);

  System.out.println(x.contains(60));//true/false
  System.out.println(x.contains(600));

  Integer[] a1= {10,20,40};
  System.out.println(x.containsAll(Arrays.asList(a1)));//true

  Integer[] a2= {10,20,30,40};
  System.out.println(x.containsAll(Arrays.asList(a2)));//false

  System.out.println(x);
  //[20, 40, 50, 60, 10, 70, 80]
  x.add(2, 66);
  System.out.println(x);

  x.set(2, 666);
  System.out.println(x);

  System.out.println(x.isEmpty());//false

  x.clear();
  System.out.println(x);
  System.out.println(x.isEmpty());//true


 }

}
package day15;

import java.util.*;
import java.util.Arrays;

public class Program02 {

 public static void main(String[] args) {
```

```
  HashSet<Integer> x= new HashSet<>();
  x.add(10);
  x.add(30);
  x.add(20);
  x.add(40);
  System.out.println(x);

  x.add(10);
  x.add(30);
  x.add(20);
  x.add(40);
  System.out.println(x);


  x.remove(10);
  System.out.println(x);


  Integer[] y= {30,50,60,10,70,90,80,30};
  x.addAll(Arrays.asList(y));
  System.out.println(x);

  Integer[] z= {30,90,66};
  x.removeAll(Arrays.asList(z));
  System.out.println(x);

  System.out.println(x.contains(60));//true/false
  System.out.println(x.contains(600));

  Integer[] a1= {10,20,40};
  System.out.println(x.containsAll(Arrays.asList(a1)));//true

  Integer[] a2= {10,20,30,40};
  System.out.println(x.containsAll(Arrays.asList(a2)));//false

  System.out.println(x);

  System.out.println(x.isEmpty());//false

  x.clear();
  System.out.println(x);
  System.out.println(x.isEmpty());//true




 }

}
```

****
Day16

```
package day16;

import java.util.Arrays;
import java.util.HashSet;

public class Program01 {

 public static void main(String[] args) {
  HashSet<Integer> x= new HashSet<>();
  x.addAll(Arrays.asList(1,2,3,4));
  System.out.println(x);

  HashSet<Integer> y= new HashSet<>();
  y.addAll(Arrays.asList(3,4,5,6));
  System.out.println(y);

  HashSet<Integer> union= new HashSet<>(x);
  union.addAll(y);
  System.out.println(union);


  HashSet<Integer> intersection= new HashSet<>(x);
  intersection.retainAll(y);
  System.out.println(intersection);


  HashSet<Integer> xdiffy= new HashSet<>(x);
  xdiffy.removeAll(y);
  System.out.println(xdiffy);


  HashSet<Integer> ydiffx= new HashSet<>(y);
  ydiffx.removeAll(x);
  System.out.println(ydiffx);

 }

}
package day16;

import java.util.HashMap;
import java.util.Map.Entry;

public class Program02 {

 public static void main(String[] args) {
  HashMap<String,Integer> x= new HashMap<>();
  x.put("aa", 101);
  x.put("bb", 102);
  x.put("cc", 103);
  x.put("dd", 104);
  x.put("ee", 105);
  System.out.println(x);
```

```
  System.out.println(x.keySet());

  System.out.println(x.values());

  System.out.println(x.entrySet());

  System.out.println(x.containsKey("bb"));

  System.out.println(x.containsValue(102));

  System.out.println(x.get("cc"));

  System.out.println(x.isEmpty());

  System.out.println(x.size());

  for(String keys:x.keySet())
  {
   System.out.println(keys);
  }

  for(Integer value:x.values())
  {
   System.out.println(value);
  }

  for(Entry<String, Integer> entry: x.entrySet())
  {
   System.out.println(entry.getKey() +"   "+entry.getValue());
  }

  x.clear();

  System.out.println(x);

 }

}
package day16;

import java.util.*;
import java.util.Map.Entry;

public class Program03 {

 public static void main(String[] args) {
  Hashtable<String,Integer> x= new Hashtable<>();
  x.put("aa", 101);
  x.put("bb", 102);
  x.put("cc", 103);
  x.put("dd", 104);
  x.put("ee", 105);
  System.out.println(x);
```

```
  System.out.println(x.keySet());

  System.out.println(x.values());

  System.out.println(x.entrySet());

  System.out.println(x.containsKey("bb"));

  System.out.println(x.containsValue(102));

  System.out.println(x.get("cc"));

  System.out.println(x.isEmpty());

  System.out.println(x.size());

  for(String keys:x.keySet())
  {
   System.out.println(keys);
  }

  for(Integer value:x.values())
  {
   System.out.println(value);
  }

  for(Entry<String, Integer> entry: x.entrySet())
  {
   System.out.println(entry.getKey() +"   "+entry.getValue());
  }

  x.clear();

  System.out.println(x);

 }

}
```