Code : 1  
package Topic\_07\_Recursion;

import java.io.\*;

import java.util.\*;

public class A\_PrintDecreasing2 {

public static void main(String[] args) throws Exception {

// write your code here

Scanner s = new Scanner(System.in);

printDecreasing(s.nextInt());

}

public static void printDecreasing(int n) {

if (n == 0)

return;

System.out.println(n);

printDecreasing(n - 1);

}

}

Code : 2  
package Topic\_07\_Recursion;

import java.io.\*;

import java.util.\*;

public class B\_PrintIncreasing {

public static void main(String[] args) throws Exception {

// write your code here

printIncreasing(new Scanner(System.in).nextInt());

}

public static void printIncreasing(int n) {

if (n == 0)

return;

printIncreasing(n - 1);

System.out.println(n);

}

}

Code : 3  
package Topic\_07\_Recursion;

import java.io.\*;

import java.util.\*;

public class C\_PrintIncreasingAndDecreasing {

public static void main(String[] args) throws Exception {

// write your code here4

pdi(new Scanner(System.in).nextInt());

}

public static void pdi(int n) {

if (n == 0)

return;

System.out.println(n);

pdi(n - 1);

System.out.println(n);

}

}

Code : 4  
package Topic\_07\_Recursion;

import java.io.\*;

import java.util.\*;

public class D\_Factorial {

public static void main(String[] args) throws Exception {

// write your code here

Scanner s = new Scanner(System.in);

int rv = factorial(s.nextInt());

System.out.println(rv);

}

public static int factorial(int n) {

if (n == 1)

return 1;

return n \* factorial(n - 1);

}

}

Code : 5  
package Topic\_07\_Recursion;

import java.io.\*;

import java.util.\*;

public class E\_PowerLinear {

public static void main(String[] args) throws Exception {

// write your code here

Scanner s = new Scanner(System.in);

int x = s.nextInt();

int n = s.nextInt();

int rv = power(x, n);

System.out.print(rv);

}

public static int power(int x, int n) {

if (n == 0) {

return 1;

}

return x \* power(x, n - 1);

}

}

Code : 6  
package Topic\_07\_Recursion;

import java.io.\*;

import java.util.\*;

public class F\_PowerLinearlogarithmic {

public static void main(String[] args) throws Exception {

// write your code here

Scanner s = new Scanner(System.in);

int x = s.nextInt();

int n = s.nextInt();

int rv = power(x, n);

System.out.print(rv);

}

public static int power(int x, int n) {

if (n == 0) {

return 1;

}

int xpn2 = power(x, n / 2);

int xn = xpn2 \* xpn2;

if (n % 2 == 1) {

xn = xn \* x;

}

return xn;

}

}

Code : 7  
package Topic\_07\_Recursion;

import java.io.\*;

import java.util.\*;

public class G\_PrintZigZag {

public static void main(String[] args) throws Exception {

// write your code here

Scanner s = new Scanner(System.in);

int n = s.nextInt();

printZigZag(n);

}

public static void printZigZag(int n) {

if (n <= 0) {

return;

}

System.out.print(n + " ");

printZigZag(n - 1);

System.out.print(n + " ");

printZigZag(n - 1);

System.out.print(n + " ");

}

}

Code : 8  
package Topic\_07\_Recursion;

import java.util.\*;

public class H\_TowerOfHonoi {

public static void toh(int n, int src, int dest, int help) {

if (n == 0) {

return;

}

toh(n - 1, src, help, dest);

System.out.println(n + "[" + src + " -> " + dest + "]");

toh(n - 1, help, dest, src);

}

public static void main(String[] args) throws Exception {

Scanner scn = new Scanner(System.in);

int n = scn.nextInt();

int t1 = scn.nextInt();

int t2 = scn.nextInt();

int t3 = scn.nextInt();

toh(n, t1, t2, t3);

}

}