/\*\*

\* Gets a command-line argument (int), and prints all the divisors of the given number.

\*/

public class Divisors {

public static void main (String[] args) {

//// Put your code here

int x = Integer.parseInt(args[0]);

int d = 1;

while (d <= x) {

if (x % d == 0) {

System.out.println(d);

}

d++;

}

}

}

/\*\*

\* Prints a given string, backward. Then prints the middle character in the string.

\* The program expects to get one command-line argument: A string.

\*/

public class Reverse {

public static void main (String[] args){

//// Put your code here

String s = args [0];

int length = s.length() -1;

for (int i = length ; i >= 0; i--){

System.out.print(s.charAt(i));

}

char middle = s.charAt(length/2);

System.out.println();

System.out.println("The middle character is " + middle);

}

}

/\*\*

\* Generates and prints random integers in the range [0,10),

\* as long as they form a non-decreasing sequence.

\*/

public class InOrder {

public static void main (String[] args) {

//// Write your code here

int a = (int)(Math.random() \* 10);

System.out.println(a);

int b = a;

while (b >= a) {

b = (int)(Math.random() \* 10);

if (b >= a) {

System.out.println(b);

a = b;

}

}

}

}

/\*\*

\* Gets a command-line argument (int), and chekcs if the given number is perfect.

\*/

public class Perfect {

public static void main (String[] args) {

//// Put your code here

int n = Integer.parseInt(args[0]);

String isPerfect = (n + " is a perfect number since " + n + " = 1");

int sum = 1;

String add;

for (int divisor = 2 ; divisor <= (n-1) ; divisor++) {

if (n % divisor == 0){ //checks if divisor is a divider of n

add = " + " + divisor;

isPerfect = isPerfect + add;

sum = sum + divisor;

}

}

if (n == sum) { //checks if n is perfect

System.out.println(isPerfect);

}

else {

System.out.println(n + " is not a perfect number");

}

}

}

/\*\*

\* Gets a command-line argument n (int), and prints an n-by-n damka board.

\*/

public class DamkaBoard {

public static void main(String[] args) {

//// Put your code here

int n = Integer.parseInt(args[0]);

for(int col = 1; col <= n; col++){

for(int row = 1; row <= n; row++){

if(col % 2 != 0){

System.out.print("\* ");

}

else{

System.out.print(" \*");

}

}

System.out.println();

}

}

}

/\*\*

\* Simulates the formation of a family in which the parents decide

\* to have children until they have at least one child of each gender.

\*/

public class OneOfEach {

public static void main (String[] args) {

//// Put your code here

boolean boy = false;

boolean girl = false;

char gender;

int sum = 0;

while(boy == false || girl == false ){

double child = Math.random();

sum++;

if(child < 0.5){

gender = 'b';

boy = true;

}

else{

gender = 'g';

girl = true;

}

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

}

System.out.println();

System.out.println("You made it... and you have " + sum + " children");

}

}

/\*\*

\* Computes some statistics about families in which the parents decide

\* to have children until they have at least one child of each gender.

\* The program expects to get one command-line argument: an int value

\* that determines how many families to simulate.

\*/

public class OneOfEachStats1 {

public static void main (String[] args) {

//// Put your code here

int T = Integer.parseInt(args[0]);

int twoChild = 0; //count the number of families with 2 kids

int threeChild = 0; //count the number of families with 3 kids

int fourChild = 0; //count the number of families with 4 or more kids.

int totalChildren = 0; //count the total number of kids is all of the families

for(int t = 1 ; t <= T ; t++){

boolean boy = false;

boolean girl = false;

char gender;

int numberOfChildren = 0; //count the number of kids of a specific family

while(boy == false || girl == false ){

double child = Math.random();

numberOfChildren++;

if(child < 0.5){

gender = 'b';

boy = true;

}

else{

gender = 'g';

girl = true;

}

}

totalChildren = totalChildren + numberOfChildren;

if(numberOfChildren >= 4){

fourChild++;

}

else if(numberOfChildren == 3){

threeChild++;

}

else if(numberOfChildren == 2){

twoChild++;

}

}

double avg = (double)totalChildren / T;

System.out.println("Average: " + avg + " children to get at least one of each gender.");

System.out.println("Number of families with 2 children: " + twoChild );

System.out.println("Number of families with 3 children: " + threeChild);

System.out.println("Number of families with 4 or more children: " + fourChild);

if((twoChild > threeChild) && (twoChild > fourChild)){ //2 children is most common

System.out.println("The most common number of children is 2.");

}

else{

if(threeChild > fourChild){

System.out.println("The most common number of children is 3.");

}

else{

System.out.println("The most common number of children is 4 or more.");

}

}

}

}

import java.util.Random;

/\*\*

\* Computes some statistics about families in which the parents decide

\* to have children until they have at least one child of each gender.

\* The program expects to get two command-line arguments: an int value

\* that determines how many families to simulate, and an int value

\* that serves as the seed of the random numbers generated by the program.

\* Example usage: % java OneOfEachStats 1000 1

\*/

public class OneOfEachStats {

public static void main (String[] args) {

// Gets the two command-line arguments

int T = Integer.parseInt(args[0]);

int seed = Integer.parseInt(args[1]);

// Initailizes a random numbers generator with the given seed value

Random generator = new Random(seed);

int twoChild = 0; //count the number of families with 2 kids

int threeChild = 0; //count the number of families with 3 kids

int fourChild = 0; //count the number of families with 4 or more kids.

int totalChildren = 0; //count the total number of kids is all of the families

for(int t = 1 ; t <= T ; t++){

boolean boy = false;

boolean girl = false;

char gender;

int numberOfChildren = 0; //count the number of kids of a specific family

while(boy == false || girl == false ){

double child = generator.nextDouble();

numberOfChildren++;

if(child < 0.5){

gender = 'b';

boy = true;

}

else{

gender = 'g';

girl = true;

}

}

totalChildren = totalChildren + numberOfChildren;

if(numberOfChildren >= 4){

fourChild++;

}

else if(numberOfChildren == 3){

threeChild++;

}

else if(numberOfChildren == 2){

twoChild++;

}

}

double avg = (double)totalChildren / T;

System.out.println("Average: " + avg + " children to get at least one of each gender.");

System.out.println("Number of families with 2 children: " + twoChild );

System.out.println("Number of families with 3 children: " + threeChild);

System.out.println("Number of families with 4 or more children: " + fourChild);

if((twoChild > threeChild) && (twoChild > fourChild)){ //2 children is most common

System.out.println("The most common number of children is 2.");

}

else{

if(threeChild > fourChild){

System.out.println("The most common number of children is 3.");

}

else{

System.out.println("The most common number of children is 4 or more.");

}

}

//// In the previous version of this program, you used a statement like:

//// double rnd = Math.random();

//// Where "rnd" is the variable that stores the generated random value.

//// In this version of the program, replace this statement with:

//// double rnd = generator.nextDouble();

//// This statement will generate a random value in the range [0,1),

//// just like you had in the previous version, except that the

//// randomization will be based on the given seed.

//// This is the only change that you have to do in the program.

}

}