Random

Random Class
Math.random()

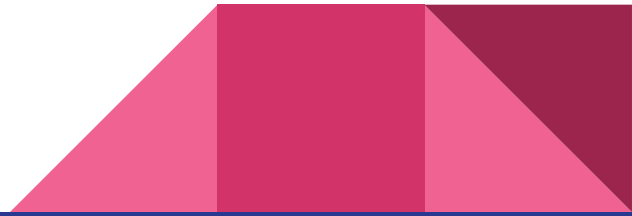
Java.util.Random class

It is used to generate pseudo-random numbers (predictable random sequence).

Random sequences need an initial value, **seed**.

If two sequences start at the same seed, the resulting sequence is the same.

Different seeds => different sequences.

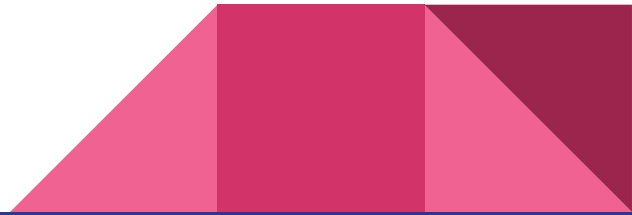


Random Class

It is used as a random number generator object which uses a seed.

If two instances of Random are created with the same seed, and the same sequence of method calls is made for each, they will generate and return identical sequences of numbers. (ORACLE)

https://docs.oracle.com/en/java/javase/17/docs/api/java.base/java/util/Random.html



Random Class

Constructors:

Random(): Creates a new random number generator. Java uses the system time in miliseconds as seed.

Random(long seed): Creates a new random number generator using a single long seed.

Methods:

int nextInt(): Returns the next pseudorandom, uniformly distributed int value from this random number generator sequence.

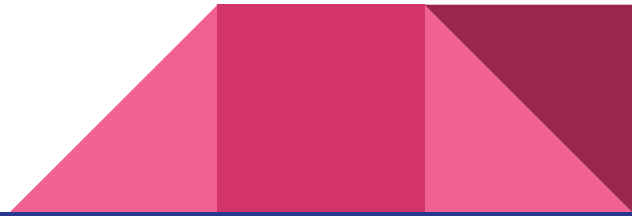
int nextInt(int bound): Returns a pseudorandom, uniformly distributed int value between 0 (inclusive) and the specified value (exclusive), drawn from this random number generator's sequence.

double nextDouble(): Returns the next pseudorandom, uniformly distributed double value between 0.0 and 1.0 from this random number generator sequence.

Math.random()

It returns a double value with a positive sign, greater than or equal to 0.0 and less than 1.0.

Math.random() method is pseudorandom (the user cannot specify the seed)



Example

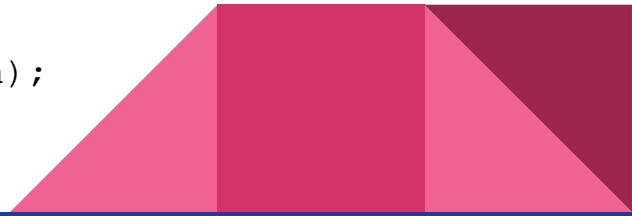
Generates a number between 10 (inclusive) and 20 (inclusive)

```
int min = 10;
int max = 20;
int range = max - min + 1;

// with Random class
Random rand = new Random();

System.out.println(rand.nextInt(range) + min)

// with Math.random
System.out.println((int) (Math.random() * range) + min);
```



Example

Generates a number between 10 (inclusive) and 20 (exclusive)

```
int min = 10;
int max = 20;
int range = max - min;

// with Random class
Random rand = new Random();

System.out.println(rand.nextInt(range) + min)

// with Math.random
System.out.println((int) (Math.random() * range) + min);
```