Random class

An instance of the Random class can be used to generate a stream of random values

1.Create a Random object
2.Use the object to get random values

nextInt()	returns a random integer
nextInt(max)	returns a random value in **[**0, max **)**
nextDouble	returns a random value in **[**0.0, 1.0 **)**
nextBoolean()	returns a random value from [true, false]

Random class

code to display a random Rock-Paper-Scissors:

```
// three outcomes, all equally likely
Random rand = new Random();
switch(rand.nextInt(3)) {
case 0:
        System.out.println("Rock");
        break;
case 1:
        System.out.println("Paper");
        break;
case 2:
        System.out.println("Scissors");
        break;
}
```

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code to display a random coin toss:

```
// two-sided coin: heads/tails
Random rand = new Random();
switch(rand.nextInt(2)) {
case 0:
        System.out.println("Heads");
        break;
case 1:
        System.out.println("Tails");
        break;}
```

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ASIDE: What does a random number generator look like?

https://en.wikipedia.org/wiki/Linear_congruential_generator

next ← (a * previous + c) mod m

Java: next ← (25214903917*previous + 11) mod 2^{31}

uses 48-bit values at each iteration but returns the 32 most significant bits

Random class

Example 2: Simulate tossing a coin 100 times

```
public class TossCoin
{
public static void main ( String [] args )
{
    int heads = 0;
    System.out.print("\ n100 tosses : ");
    Random g = new Random () ;
    for (int i=0; i<100; i++)
        if( g.nextBoolean() ) heads ++;
              System.out.println("\ nHeads : "+ heads
              +"\ nTails : "+(100 - heads ) ) ;
    }
}
```