

Generating Integer Random Number Tech Tips:

<http://java.sun.com/developer/JDCTechTips/2001/tt0925.html#tip1>

Random Number:

You can use `Math.random()` to create random number `java.lang.Math` class.

— some *constants*:

```
public static final double E
public static final double PI
```

— some *methods*:

```
public static int abs( int a );
public static native double sin( double a );
public static native double cos( double a );
public static native double tan( double a );
public static native double pow( double a, double b );
public static native double sqrt( double a );
public static double random();
```

. As we explained in the class, it is really not random. If you repeat the `Math.random` number generation so many times, you will see repetition.

```
/*Card Game*/
public class ex7a {
public static void main ( String[] args ) {
int n = 10, count;
int card=(int)( Math.random()*52 );
for ( count=1; count<=n; count++ ) {
    card=(int)( Math.random()*52 );
    System.out.println( "count="+count+" card="+card );
} // end for
System.out.println( "DONE!! count="+count+" card="+card
System.exit( 0 );
} // end of main
} // end of class ex7a
```

- there is another way to generate random numbers besides using the `Math.random()` from the `java.lang.Math` class
- **Use** `java.util.Random` class
- there are two methods defined in the `Random` class:

```
public Random();
public Random( long seed );
/* constructor -- can be called with or without a seed*/
public void setSeed( long seed );
/* sets the seed for the random number generator*/
```

- this class implements a *pseudo random number generator* which is really a sequence of numbers
- the *seed* tells the random number generator where to start the sequence
- more methods defined in the `Random` class, used to get the random numbers:

```
public float nextFloat();
/* returns a random number between 0.0 (inclusive) and
 1.0 (exclusive)*/
public int nextInt();
/* returns a random number that ranges over all possible
  int values (positive and negative)*/
```

`java.util.Date` class (1).

- this class is handy for getting the current date
- or creating a `Date` object set to a certain date

- some methods defined in the `Date` class:

```
public Date();
public Date( long date );
// constructor -- called without an argument, uses the
// current time; otherwise uses the time argument
public boolean after( Date arg );
public boolean before( Date arg );
public boolean equals( Object arg );
public long getTime();
public String toString();
```

- computer time is measured in milliseconds since midnight, January 1, 1970 GMT
- a `Date` object is handy to use as a seed for a random number generator
- for example:

```
/*Code Starts Here*/
```

```
import java.util.*;/*Must import util package to use Random
class.*
public class ex7g {
public static void main( String[] args ) {
Date now = new Date();
Random rnd = new Random( now.getTime() );
System.out.println( "here's the first random number: "+
rnd.nextInt() );
} // end of main()
} // end of class ex7g
```