CECS 174 – Lecture 8 – Random Numbers and Date Libraries

Random Numbers – Math.random() - generates a double value *x*, that is in the range of 0.0 <= *x* < 1.0. It is in the Math class, which is automatically included in every program (so you do not have to import it).

```
double rand = Math.random();
```

If you wish to specify a range of values for an integer:

```
int upperBound = 100;
int lowerBound = 1;
int rand = (int) ((Math.random() * (upperBound -
lowerBound + 1)) + lowerBound);
```

so for a six-sided die it would be:

```
int rand1 = (int) (Math.random() * 6) + 1;
```

When creating a range for a random number, it is important to preserve the uniform distribution so that each number is equally likely to come up.

Date – an easy way of displaying the date.

```
import java.util.Calendar;
public class PrintDate {
     public static void main (String[] args){
          Calendar now = Calendar.getInstance();
          System.out.print("The date and time is: ");
          System.out.println(now.getTime());
     }
}
/* Output
The date and time is: Mon Jan 31 03:11:48 PST 2011
*/
```

Time – an easy way of calculating the run time of your program.

```
import java.util.Date;
public class CalcTime {
     public static void main (String[] args){
          Date start = new Date();

          System.out.println("Calculating...");

          Date end = new Date();
          long diff= end.getTime()-start.getTime();
          System.out.println("Run Time = "+diff+"ms");
     }
}
/* Output
Calculating...
Run Time = 10ms
*/
```