RainFall Demonstration
BE-104, Spring '05, Dr. C. S. Tritt

RainFall.java File:

```
import java.io.*; // For File class.
import java.util.*; // For Scanner and Formatter.

public class RainFall {

   private double precip; // Precipitation in cm.
   private double high; // High temperature in deg. C.
   private double low; // Low temperature in deg. c.
   private static boolean DEBUG = true; // Debug flag for extra outpu.
/**
 * This main method demonstrates reading and writting of data files
 * and use of arrays.
 *
 * @param args
 * @throws IOException
 */
   public static void main(String[] args) throws IOException {

      File inFile = new File("weather.txt");
      Scanner inScan = new Scanner(inFile);
      File outFile = new File("weather.out");
      Formatter outForm = new Formatter(outFile);

      if (DEBUG) {
         System.out.println("inFile.canRead() = " + inFile.canRead());
         System.out.println("inScan.hasNext() = " + inScan.hasNext());
         System.out.println("outFile.canWrite() = " + inFile.canWrite());
      }

      double precip = 0.; // Local version of precip.
      double high = 0.; // Local version of high.
      double low = 0.; // Local version of low.
      int i = 0;
      RainFall[] rain = new RainFall[7]; // Array holds a week of data.

      while (inScan.hasNext()) {
         precip = inScan.nextDouble(); // Read precip value.
         high = inScan.nextDouble(); // Read high value.
         low = inScan.nextDouble(); // Read low value.
         rain[i%7] = new RainFall(precip, high, low);
         if (DEBUG) System.out.println("Precip = " + precip);
         if ((i+1)%7 == 0) { // Calculate and save weekly average.
            double sum = 0.0;
            for (int j = 0; j < 7; j++) {
               sum = sum + rain[j].getPrecip();
            }
            double ave = sum/7.;
            outForm.format("Week %d: %3f\n", 1+ i/7, ave);
            outForm.format("Above average precipitation on days: ");
            for (int j = 0; j < 7; j++) {
               if (rain[j].getPrecip() > ave) outForm.format("%d ", j+1);
```

```
            }
            outForm.format("\n"); // End the line.
         }
         i++;
      }
      inScan.close(); // Nice to close input files.
      outForm.close(); //Always close output files.
      System.out.println("Done. " + i + " values processed.");
   }

   public RainFall(double precip, double high, double low) {
      this.precip = precip;
      this.high = high;
      this.low = low;
   }

   public double getPrecip() {
      return precip;
   }
}
```

weather.txt file:

```
0.3 30. 20.
0.2 45. 29.
0.0 40. 30.
0.7 32. 22.
…
```

weather.out file:

```
Week 1: 0.271429
Above average precipitation on days: 1 4 5 7
Week 2: 0.314286
Above average precipitation on days: 3 5 7
Week 3: 0.342857
Above average precipitation on days: 2 3 5 7
```