

```
import java.io.FileReader;
import java.io.IOException;
import java.util.Scanner;

/**
 * Reads a data set from a file. The file must have the format numberOfValues
 * value1 value2 . . .
 *
 * Copyright: Horstmann, Big Java 3e, Chapter 11
 */
public class DataSetReader {

    /**
     * Reads a data set.
     *
     * @param filename
     *         the name of the file holding the data
     * @return the data in the file
     */
    public double[] readFile(String filename) throws IOException,
        BadDataException {
        FileReader reader = new FileReader(filename);
        try {
            Scanner in = new Scanner(reader);
            readData(in);
        } finally {
            reader.close();
        }
        return data;
    }

    /**
     * Reads all data.
     *
     * @param in
     *         the scanner that scans the data
     */
    private void readData(Scanner in) throws BadDataException {
        if (!in.hasNextInt()) {
            throw new BadDataException("Length expected");
        }
        int numberOfValues = in.nextInt();
        data = new double[numberOfValues];

        for (int i = 0; i < numberOfValues; i++) {
            readValue(in, i);
        }

        if (in.hasNext()) {
            throw new BadDataException("End of file expected");
        }
    }

    /**
     * Reads one data value.
     *
     * @param in
     *         the scanner that scans the data
     * @param i
     *         the position of the value to read
     */
    private void readValue(Scanner in, int i) throws BadDataException {
        if (!in.hasNextDouble()) {
            throw new BadDataException("Data value expected");
        }
    }
}
```

```
        }  
        data[i] = in.nextDouble();  
    }  
    private double[] data;  
}
```