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1 // fo1/7/files/JFile.java
2 //
3 //
4 // Copyright 2003 Bill Campbell and Ethan Bolker
5
6 import java.util.Date;
7 import java.io.File;
8
9 /**
10 * A JFile object models a file in a hierarchical file system.
11 * <p>
12 * Extend this abstract class to create particular kinds of JFiles,
13 * e.g.:<br>
14 * Directory _
15 * a JFile that maintains a list of the files it contains.<br>
16 * TextFile _
17 * a JFile containing text you might want to read.<br>
18 *
19 * @see Directory
20 * @see TextFile
21
22 * @version 7
23 */
24
25 public abstract class JFile
26 {
27     /**
28      * The separator used in pathnames.
29      */
30
31     public static final String separator = File.separator;
32
33     private String name; // a JFile knows its name
34     private User owner; // the owner of this file
35     private Date createDate; // when this file was created
36     private Date moddate; // when this file was last modified
37     private Directory parent; // the Directory containing this file
38
39     /**
40      * Construct a new JFile, set owner, parent, creation and
41      * modification dates. Add this to parent (unless this is the
42      * root Directory).
43      *
44      * @param name the name for this file (in its parent directory).
45      * @param creator the owner of this new file.
46      * @param parent the Directory in which this file lives.
47      */
48
49     protected JFile( String name, User creator, Directory parent )
50     {
51         this.name = name;
52         this.owner = creator;
53         this.parent = parent;
54         if (parent != null) {
55             parent.addJFile( name, this );
56         }

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57         createDate = moddate = new Date(); // set dates to now
58     }
59
60     /**
61      * The name of the file.
62      *
63      * @return the file's name.
64      */
65
66     public String getName()
67     {
68         return name;
69     }
70
71     /**
72      * The full path to this file.
73      *
74      * @return the path name.
75      */
76
77     public String getPathName()
78     {
79         if (this.isRoot()) {
80             return separator;
81         }
82         if (parent.isRoot()) {
83             return separator + getName();
84         }
85         return parent.getPathName() + separator + getName();
86     }
87
88     /**
89      * The size of the JFile
90      * (as defined by the child class)..
91      *
92      * @return the size.
93      */
94
95     public abstract int getSize();
96
97     /**
98      * Suffix used for printing file names
99      * (as defined by the child class)..
100      *
101      * @return the file's suffix.
102      */
103
104     public abstract String getSuffix();
105
106     /**
107      * Set the owner for this file.
108      *
109      * @param owner the new owner.
110      */
111
112     public void setOwner( User owner )

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113     {
114         this.owner = owner;
115     }
116
117     /**
118     * The file's owner.
119     *
120     * @return the owner of the file.
121     */
122
123     public User getOwner()
124     {
125         return owner;
126     }
127
128     /**
129     * The date and time of the file's creation.
130     *
131     * @return the file's creation date and time.
132     */
133
134     public String getCreateDate()
135     {
136         return createDate.toString();
137     }
138
139     /**
140     * Set the modification date to "now".
141     */
142
143     protected void setModDate()
144     {
145         modDate = new Date();
146     }
147
148     /**
149     * The date and time of the file's last modification.
150     *
151     * @return the date and time of the file's last modification.
152     */
153
154     public String getModDate()
155     {
156         return modDate.toString();
157     }
158
159     /**
160     * The Directory containing this file.
161     *
162     * @return the parent directory.
163     */
164
165     public Directory getParent()
166     {
167         return parent;
168     }

```

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169
170     /**
171     * A JFile whose parent is null is defined to be the root
172     * (of a tree).
173     *
174     * @return true when this JFile is the root.
175     */
176
177     public boolean isRoot()
178     {
179         return (parent == null);
180     }
181
182     /**
183     * How a JFile represents itself as a String.
184     * That is,
185     * <pre>
186     * owner      size      modDate      name+suffix
187     * </pre>
188     *
189     * @return the String representation.
190     */
191
192     public String toString()
193     {
194         return getOwner() + "\t" +
195             getSize() + "\t" +
196             getModDate() + "\t" +
197             getName() + getSuffix();
198     }
199 }

```