```
 1
 2 /**
 3  * This class Represent a Musical note.
 4  *
 5  * <ul>
 6  * <li> Name: Note.java
 7  * <li> Description: Note
 8  * <li> Class: Java 145
 9  * <li> Instructor: Ken Hang
10  * <li> Date: Feb 4 2015
11  * </ul>
12  *
13  * @author  Hai H Nguyen (Bill)
14  * @version Winter 2015
15  */
16
17 public class Note {
18
19    private double duration;
20
21    private Pitch note;
22
23    private int octave;
24
25    private Accidental accidental;
26
27    private boolean repeat;
28
29    /**
30     * Main Constructor of Note
31     * @param duration      Duration of Node, must be positive
32     * @param note       Pitch of the Node
33     * @param octave     The octave must be within [1,9]
34     * @param accidental Indicator to Raise or Lower note
35     * @param repeat     Repetition indicator
36     */
37    public Note(double duration, Pitch note, int octave,
38             Accidental accidental, boolean repeat) {
39       this (duration, note, repeat);
40
41       if (octave >= 10 || octave <= 0){
42          throw new IllegalArgumentException ("Invalid Octave (0,10): " + octave);
43       } else {
44          this.octave = octave;
45       }
46
47       this.accidental = accidental;
48    }
49
50    /**
51     * Short constructor of Note
52     * Initialize the note with passed duration, pitch and repeat indicator
53     * @param duration      Duration of Node, must be positive
54     * @param note       Pitch of the Node
55     * @param repeat     Repetition indicator
56     */
57    public Note(double duration, Pitch note, boolean repeat) {
58       setDuration(duration);
59
60       this.note = note;
61
62       this.repeat = repeat;
63    }
64
65    /**
66     * Get the duration of the note.
67     * @return        Return the Duration of the Node
68     */
```

```
69    public double getDuration() {
70       return duration;
71    }
72
73    /**
74     * Set the duration of the note to time.
75     * @param duration      New Duration of the Note
76     */
77    public void setDuration(double duration) {
78       if (duration < 0){
79          throw new IllegalArgumentException ("Invalid Duration (0,oo): " + duration );
80       } else {
81          this.duration = duration;
82       }
83    }
84
85    /**
86     * Tell if the note is the indicator of a repeated section
87     * @return        The repeat Indicator of the Note
88     */
89    public boolean isRepeat() {
90       return repeat;
91    }
92
93    /**
94     * Play the sound this note represents.
95     */
96    public void play() {
97       StdAudio.play(duration, note, octave, accidental);
98    }
99
100   /**
101    * Returns a string represent the note in the format:
102    * If rest: "<duration> <pitch> <repeat>"
103    * Else: "<duration> <pitch> <octave> <accidental> <repeat>"
104    * @return        A formatted string describe the note
105    */
106   public String toString() {
107      String out = duration + " " + note.toString() + " ";
108
109      if (!note.equals(Pitch.R)){
110         out += octave + " " + accidental.toString() + " ";
111      }
112
113      out +=  (repeat ? ("true"):("false"));
114
115      return out;
116   }
117 }
```