```
 1 package entity;
 2
 3 import java.io.Serializable;
 4 import java.time.LocalDate;
 5 import java.util.Objects;
 6
 7 /**
 8  *
 9  * @author Chew Lip Sin
10  */
11 public class Course implements Serializable {
12
13     private String courseCode;
14     private String title;
15     private int creditHours;
16     private Sem semester;
17     private LocalDate createdAt;
18     private LocalDate updatedAt;
19
20     /**
21      * Enumeration for different intake semesters.
22      */
23     public enum Sem {
24         /**
25          * Represents all semesters.
26          */
27         ALL,
28         /**
29          * Represents the January semester.
30          */
31         JAN,
32         /**
33          * Represents the July semester.
34          */
35         JUL;
36
37         /**
38          * Returns the string representation of a semester.
39          *
40          * @param sem The semester to convert to a string.
41          * @return The string representation of the semester.
42          */
43         public String getString(Sem sem) {
44             switch (sem) {
45                 case ALL:
46                     return "ALL";
```

```
47                  case JAN:
48                      return "JAN";
49                  case JUL:
50                      return "JUL";
51              }
52              return "ALL";
53          }
54
55      };
56
57      /**
58       * Constructs a new Course instance with specified details.
59       *
60       * @param courseCode The code of the course.
61       * @param title The title of the course.
62       * @param creditHours The credit hours of the course.
63       * @param semester The intake semester of the course.
64       */
65      public Course(String courseCode, String title, int creditHours,
66              Sem semester) {
67          this.courseCode = courseCode;
68          this.title = title;
69          this.creditHours = creditHours;
70          this.semester = semester;
71          this.createdAt = LocalDate.now();
72          this.updatedAt = LocalDate.now();
73      }
74
75      /**
76       * Default constructor for the Course class.
77       */
78      public Course() {
79      }
80
81      /**
82       * Returns the course code.
83       *
84       * @return The course code.
85       */
86      public String getCourseCode() {
87          return courseCode;
88      }
89
90      /**
91       * Returns the title of the course.
92       *
```

```
 93      * @return The title of the course.
 94      */
 95     public String getTitle() {
 96         return title;
 97     }
 98 
 99     /**
100      * Returns the credit hours of the course.
101      *
102      * @return The credit hours of the course.
103      */
104     public int getCreditHours() {
105         return creditHours;
106     }
107 
108     /**
109      * Updates the updatedAt date of the course to the current date.
110      */
111     public void update() {
112         this.updatedAt = LocalDate.now();
113     }
114 
115     /**
116      * Sets the course code of the course.
117      *
118      * @param courseCode The new course code to set.
119      */
120     public void setCourseCode(String courseCode) {
121         this.courseCode = courseCode;
122     }
123 
124     /**
125      * Gets the date when the course was created.
126      *
127      * @return The creation date of the course.
128      */
129     public LocalDate getCreatedAt() {
130         return createdAt;
131     }
132 
133     /**
134      * Gets the date when the course was last updated.
135      *
136      * @return The last updated date of the course.
137      */
138     public LocalDate getUpdatedAt() {
```

```
139         return updatedAt;
140     }
141 
142     /**
143      * Sets the date when the course was last updated.
144      *
145      * @param updatedAt The updated date to set.
146      */
147     public void setUpdatedAt(LocalDate updatedAt) {
148         this.updatedAt = updatedAt;
149     }
150 
151     /**
152      * Sets the date when the course was created.
153      *
154      * @param createdAt The creation date to set.
155      */
156     public void setCreatedAt(LocalDate createdAt) {
157         this.createdAt = createdAt;
158     }
159 
160     /**
161      * Sets the title of the course.
162      *
163      * @param title The new title to set.
164      */
165     public void setTitle(String title) {
166         this.title = title;
167     }
168 
169     /**
170      * Sets the credit hours of the course.
171      *
172      * @param creditHours The new credit hours to set.
173      */
174     public void setCreditHours(int creditHours) {
175         this.creditHours = creditHours;
176     }
177 
178     /**
179      * Computes and returns the hash code value for this course.
180      *
181      * @return The hash code value for this course.
182      */
183     @Override
184     public int hashCode() {
```

```
185         int hash = 3;
186         hash = 59 * hash + Objects.hashCode(this.courseCode);
187         hash = 59 * hash + Objects.hashCode(this.title);
188         hash = 59 * hash + this.creditHours;
189         return hash;
190     }
191 
192     /**
193      * Indicates whether some other object is "equal to" this course.
194      *
195      * @param obj The reference object with which to compare.
196      * @return {@code true} if this course is the same as the obj
197      * argument;{@code false} otherwise.
198      */
199     @Override
200     public boolean equals(Object obj) {
201         if (this == obj) {
202             return true;
203         }
204         if (obj == null) {
205             return false;
206         }
207         if (getClass() != obj.getClass()) {
208             return false;
209         }
210         final Course other = (Course) obj;
211         if (this.creditHours != other.creditHours) {
212             return false;
213         }
214         if (!Objects.equals(this.courseCode, other.courseCode)) {
215             return false;
216         }
217         return Objects.equals(this.title, other.title);
218     }
219 
220     /**
221      * Returns the semester of the course.
222      *
223      * @return The semester of the course.
224      */
225     public Sem getSemester() {
226         return semester;
227     }
228 
229     /**
230      * Sets the semester of the course.
```

```
231      *
232      * @param semester The new semester to set.
233      */
234     public void setSemester(Sem semester) {
235         this.semester = semester;
236     }
237 
238     /**
239      * Compares this course's semester with another semester.
240      *
241      * @param sem The semester to compare against.
242      * @return A negative integer, zero, or a positive
243      * integer as this semester is less than, equal
244      * to, or greater than the specified semester.
245      */
246     public int compareSem(Sem sem) {
247         if (this.semester.compareTo(sem) < 0) {
248             return -1;
249         } else if (this.semester.compareTo(sem) == 0) {
250             return 0;
251         } else {
252             return 1;
253         }
254     }
255 
256     /**
257      * Returns a string representation of the course's semester.
258      *
259      * @param semester The semester to convert to a string.
260      * @return The string representation of the semester.
261      */
262     public String semToString(Sem semester) {
263         if (semester == Sem.JAN) {
264             return "JAN";
265         } else if (semester == Sem.JUL) {
266             return "JUL";
267         } else if (semester == Sem.ALL) {
268             return "ALL";
269         } else {
270             return null;
271 
272         }
273     }
274 
275     /**
276      * Returns a string representation of the Course object.
```

```
277      *
278      * @return A formatted string representation of the Course object.
279      */
280     @Override
281     public String toString() {
282         String sems;
283         if (semester == Sem.JAN) {
284             sems = "JAN";
285         } else if (semester == Sem.JUL) {
286             sems = "JUL";
287         } else {
288             sems = "ALL";
289         }
290         return String.format("|%-12s|%-52s|  %-2d          |  %-8s|%-12s|"
291                 + "%-12s", courseCode, title,
292                 creditHours, sems, createdAt, updatedAt);
293     }
294 }
```