

```
1
2 package utility;
3
4 import adt.ArrList;
5 import adt.ListInterface;
6 import entity.Course;
7 import entity.CourseCodeComparator;
8 /**
9  *
10  * @author Chew Lip Sin
11  */
12 public class Search<T> {
13     private final CourseCodeComparator cCodeC = new CourseCodeComparator();
14     // Returns index of x if it is present in courseList,
15     // else return -1
16     public int binarySearch(ListInterface<Course> courseList, String x) {
17         ListInterface<Course> courseList2 = courseList;
18         ArrList.insertionSort(courseList, cCodeC, "asc");
19         int l = 0, r = courseList2.size() - 1;
20
21         // Loop to implement Binary Search
22         while (l <= r) {
23
24             // Calculatiing mid
25             int m = l + (r - l) / 2;
26             Course midValue = courseList2.getEntry(m + 1);
27             int res = x.compareTo(midValue.getCourseCode());
28
29             // Check if x is present at mid
30             if (res == 0) {
31                 return m;
32             }
33
34             // If x greater, ignore left half
35             if (res > 0) {
36                 l = m + 1;
37             } // If x is smaller, ignore right half
38             else {
39                 r = m - 1;
40             }
41         }
42
43         return -1;
44     }
45
46 }
```