```java
 1
 2 package control;
 3
 4 import adt.ArrList;
 5 import adt.ArrayStack;
 6 import adt.DoublyLinkedList;
 7 import adt.LinkedListInterface;
 8 import adt.ListInterface;
 9 import adt.StackInterface;
10 import boundary.CourseGenerateReportMaintenanceUI;
11 import dao.DAO;
12 import dao.Initializer;
13 import entity.Course;
14 import entity.CourseProgram;
15 import entity.Program;
16 import java.io.IOException;
17 import utility.Command;
18 import utility.MessageUI;
19
20 /**
21  *
22  * @author Chew Lip Sin
23  */
24 public class CourseGenerateReportMaintenance {
25
26     private static final DAO<Course> cDAO = new DAO<>();
27     private static final DAO<Program> pDAO = new DAO<>();
28     private final DAO<CourseProgram> cpDAO = new DAO<>();
29     private final Initializer in = new Initializer();
30
31     public void runCourseGenerateReportMaintenance() throws IOException,
InterruptedException {
32         LinkedListInterface<CourseProgram> cp = new DoublyLinkedList<>();
33         ListInterface<Course> courses = new ArrList<>();
34 //        cp = in.CourseProgramInitializer();
35 //        cpDAO.saveToFile(cp, "courseProgram.dat");
36         cp = cpDAO.dLLRetrieveFromFile("courseProgram.dat");
37         courses = cDAO.retrieveFromFile("course.dat");
38         CourseGenerateReportMaintenanceUI cReportUI = new
CourseGenerateReportMaintenanceUI(cp, courses);
39
40         int choice;
41         System.out.println("\n\n");
42         do {
43             Command.cls();
44             cReportUI.displayHeader();
```

```java
45                 cReportUI.displayReportMenu();
46                 choice = cReportUI.getChoices();
47                 switch (choice) {
48
49                     case 0:
50                         break;
51                     case 1:
52                         generateCourseProgramReport();
53                         break;
54                     case 2:
55                         generateCourseReport();
56                         break;
57                     default:
58                         MessageUI.displayInvalidChoiceMessage();
59
60                 }
61         } while (choice != 0);
62     }
63
64     private void generateCourseProgramReport() throws IOException, InterruptedException {
65         LinkedListInterface<CourseProgram> cp = new DoublyLinkedList<>();
66         ListInterface<Course> courses = new ArrList<>();
67         cp = cpDAO.dLLRetrieveFromFile("courseProgram.dat");
68         courses = cDAO.retrieveFromFile("course.dat");
69         CourseGenerateReportMaintenanceUI cReportUI = new
CourseGenerateReportMaintenanceUI(cp, courses);
70         cReportUI.progress();
71         cReportUI.displayCoursePReportHeader();
72
73         cReportUI.displayCourseProgramReport();
74     }
75
76     private void generateCourseReport() {
77         LinkedListInterface<CourseProgram> cp = new DoublyLinkedList<>();
78         ListInterface<Course> courses = new ArrList<>();
79         StackInterface<String> choice = new ArrayStack<>();
80         StackInterface<String> arrangeChoice = new ArrayStack<>();
81         String line = "";
82         boolean report = false;
83         cp = cpDAO.dLLRetrieveFromFile("courseProgram.dat");
84         courses = cDAO.retrieveFromFile("course.dat");
85         CourseGenerateReportMaintenanceUI cReportUI = new
CourseGenerateReportMaintenanceUI(cp, courses);
86         choice = cReportUI.getCourseReportMenu(choice);
87         for (int i = 0; i < 65; i++) {
88             line += "-";
```

```
 89                }
 90            if (!choice.isEmpty()) {
 91                cReportUI.progress();
 92                cReportUI.displayCourseReportHeader();
 93            }
 94            while (!choice.isEmpty()) {
 95                arrangeChoice.push(choice.pop());
 96            }
 97            while (!arrangeChoice.isEmpty()) {
 98                String choice2 = arrangeChoice.pop();
 99                if (choice2.equals("Course Code Report")) {
100                    cReportUI.displayCourseCodeReport();
101                }
102
103                if (choice2.equals("Credit Hour Report")) {
104                    cReportUI.displayCreditHoursReport();
105                }
106
107                if (choice2.equals("Semester Report")) {
108                    cReportUI.displayCourseSemesterReport();
109                }
110                report = true;
111
112            }
113            if (report) {
114                System.out.println("\t\t\t" + line);
115                cReportUI.displayReportFooter();
116                System.out.println("");
117                System.out.print("\t\t\t");
118                Command.pressEnterToContinue();
119            }
120        }
121 }
```