CSE201 Advanced Programming

Placements are about to start at college and you have been approached by the placement office for designing a software application for simplifying the application procedure. The purpose of this software is to allow the students to register themselves for applying to different companies visiting for campus placements. These companies would use this information to shortlist potential candidates. Placement cell understand that GUI programming is not yet taught to you, hence they are fine with a command line interface for this software. You **must** use Object Oriented programming concepts taught in the lectures for your software implementation. Detailed description of this software is as mentioned below:

Each student can register themselves only once, and they must provide their CGPA and their branch name for registration. Your software must ensure that each student applicant is registered with a unique roll number. Different possible branches are CSE, ECE, CSD, CSAM, CSB and CSSS. A student might get a chance to appear in the technical round of all the companies visiting the campus. Your software should allow storing the marks obtained by a student in the technical round of different companies.

Every company has a different course criteria for shortlisting students for the technical round. Any student who fits this criteria can automatically apply for that company and must give the technical round for that company. When a company account is created by the placement office, the office must also enter the score of each student in the technical round of that company.

A company can only recruit a fixed number of students, although this number could be different for different companies. If fewer students are left in the placement process, then the company will take all the remaining students. A company also has its application status as **OPEN** or **CLOSED**.

The students are shortlisted by any company according to their CGPA and their score in the

technical round. The student with a higher score in the technical round is given preference over the CGPA. If two students score equally in the technical round, then the student with the higher CGPA is given preference. Assume that no two students can have the same score in technical round as well as same CGPA.

Once a company has selected the required number of students, the applications for that company closes. Later, the account is removed from the application by the placement office. Once a student is placed, he/she can not apply anywhere else and that student's account is also removed by the placement office.

Your application must exit once all the students have been placed.

Following are the different kinds of queries that must be handled by the system:

1) Add company
Inputs: name, course criteria, number of required students
The course criteria input will be taken in the following manner: number of courses eligible (say x), the next x strings will be the courses.
Display details of the company (*Company Name, Course Criteria, Number of required students, Application Status*)

2) Remove the accounts of the placed students
Output: *Display roll numbers of students whose accounts were removed*

3) Remove the accounts of companies whose applications are closed
Output: *Display name of companies whose accounts were removed*

4) Display number of unplaced students

5) Display names of companies whose applications are open

6) Select students
Input: Company name
Output: *Roll numbers of selected students*

7) Display details of the company
Input: Company name
Output: *Company Name, Course Criteria, Number of required students, Application Status*

8) Display details of the student
Input: Roll number
Output: *Roll number, CGPA, Course, Placement Status, Company in which student is placed (if not placed, display nothing)*

9) Display names of companies for which the student has applied and their scores in technical round of that company
Input: Roll number

Note : The following input format will always be followed. You should strictly follow

object-oriented programming approach in your implementation as discussed in class lectures. **There is no need to show us the sequence diagram.**

Input Format:
The first line will have an integer N for the number of students in the college. Each of the next N lines will have two space separated variable: CGPA (float) and Course (string).
The first input in the line will always be an integer specifying the query type. The rest of the inputs in the line will depend on the type of query to be performed.

Sample Case:
4
9 CSE
7.8 ECE
8 CSAM
9.2 CSD
---- students registered ----
8 1 //depends on the type of query to be performed ; **8**- 8th query **1**- roll no. 1
9.0
CSE
Placement Status: Not placed
1
myntra
Number Of Eligible Courses = **2**
CSE
CSAM
Number Of Required Students = **1**
myntra
Course Criteria
CSE
CSAM
Number Of Required Students = 1
Application Status = OPEN
Enter scores for the technical round.
Enter score for Roll no. 1
90
Enter score for Roll no. 3
90
5
myntra

4

4 students left.

7 myntra

myntra

Course Criteria

CSE

CSAM

Number Of Required Students = 1

Application Status = OPEN

9 1

myntra 90

6 myntra

Roll Number of Selected Students

1

4

3 students left.

5

2

Accounts removed for

1

3

Accounts removed for

myntra

9 1

No student with the given roll number has an account.