CS246: Database Management Systems Lab

Lab # 02 (1 Questions, 100 Marks)
Lab session: AL1
Held on: 29-Jan-2024 (Mon)
Lab Timings: 14:00 to 17:00 Hours   Pages: 4
Submission time: 16:45 Hrs, 29-Jan-2024
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Question 1:   (100 points)
Implement the following problem using C Programming Language. Use of any programming language other than C is not allowed and will lead to awarding 0 marks.

Input description Five files are shared with you.

1. **student.csv** text file contains list of registered students. It contains two columns as described.

Column #	Description
1st	Roll number
2nd	Name

   A total of 121 rows are present in this file.

2. **curriculum.csv** text file contains list of courses a CSE student must do to. It contains three columns.

Column #	Description
1st	Course number
2nd	Course credits
3rd	Semester number

   A total of 64 rows are present in this file.

3. **grade.csv** text file contains grades obtained by a student in a course. It contains four columns.

Column #	Description
1st	Roll number
2nd	Course number
3rd	Grade
4th	Offered in Semester

   A total of 7563 rows are present in this file.

4. **no-dues.csv** text file contains no dues information from appropriate department or section. It contains seven columns.

Column #	Description
1st	Roll number
2nd	Hostel
3rd	Department
4th	NCC
5th	COS
6th	NSO
7th	Institute

A total of 121 rows are present in this file.

5. **disciplinary.csv** text file contains disciplinary action, if any, against a student. It contains two columns. First columns is the roll number. Second column is disciplinary action taken against the student or not.

Column #	Description
1st	Roll number
2nd	Disciplinary Action Status

A total of 121 rows are present in this file.

Task Given roll number as argument, check whether the student is eligible for award of degree or not by **May 2031**. Your program should take command line arguments as described:

- No command line argument: perform eligibility check for all the students.
- One roll number given as command line argument: perform eligibility check for the given roll number.
- More than one roll number is given as command line argument: perform eligibility check for the given roll numbers in the command line argument.

Output format The following merely indicates how your program should emit output. When a student is not meeting eligibility requirement, elaborate which specific requirement is violated.

- 270101002   Not Eligible.
  - Core course (CS101) requirement violation
  - Core course (CS345) requirement violation
- 270101001   Not Eligible.
  - Elective (CS503) requirement violation
- 270101003   Not Eligible.
  - SA course (SA101) requirement violation
- 270101004   Not Eligible.
  - HSS course (HS101) requirement violation
  - HSS course (HS200) requirement violation
  - HSS course (HS201) requirement violation
- 270101005   Not Eligible.
  - No dues requirement violation (Hostel)

– No dues requirement violation (COS)
- `270101006   Not Eligible.`
  – Disciplinary requirement violation
- `270101008   Not Eligible.`
  – Total mandatory credits requirement violation
- `270101001   Eligible.`

Ordinance As per the ordinance, a student shall be declared to be eligible for the award of B. Tech. degree if he/she has :

- Completed all the credit requirements for the degree with a grade "DD" or higher grade in each of the subjects (Theoretical, Laboratory, Studio, Workshop, Sessional etc), Seminar, Project etc;
- Satisfactorily completed all the non-credit requirements for the degree viz Extra Academic Activities, Industrial Training, etc (if any);
- No dues to the Institute, Department, Hostels, NCC, COS (Community Service) and NSO; and
- No disciplinary action is pending against him/her

Ordinance equivalent program checks Following check must be performed to meeting the ordinance requirements.

1. **Core course requirement**: A student must credit and obtain "DD" in the core courses. Following are the core courses.
   - Semester 1: All courses
   - Semester 2: All courses
   - Semester 3: All courses
   - Semester 4: All courses
   - Semester 5: All courses except CS501.
   - Semester 6: Courses whose course number is less than 500
   - Semester 7: Only CS498.
   - Semester 8: Only CS499.
2. **Elective course requirement**: A student must credit and obtain "DD" in the elective courses. All courses offered by CSE department which are equal to or greater than 500 level.
3. **HSS course requirement**: A student must credit and obtain "PP" in the HS101. In all other HSS courses, student must register and get "DD".
4. **SA course requirement**: A student must credit and obtain "PP" in all the SA courses.
5. **Credit requirement**: A student must do a minimum of 315 credits.

Marks Distribution of marks

1. (5 marks) for reading 5 input files
2. (3 marks) for 0 command line arguments

3. (2 marks) for 1 or more command line arguments
4. (1 mark) for student data structure
5. (1 mark) for curriculum data structure
6. (1 mark) for grade data structure
7. (1 mark) for no-dues data structure
8. (1 mark) for disciplinary action structure
9. (10 marks) Checking core courses requirements
10. (10 marks) Checking elective courses requirements
11. (10 marks) Checking HSS courses requirements
12. (10 marks) Checking SA courses requirements
13. (10 marks) Checking total credits requirements
14. (10 marks) Checking No dues requirements
15. (10 marks) Checking disciplinary action requirements
16. (15 marks) Correct output