

Bind with the nested structure, Array of Structures and any other Concept

Company Information:

A company database needs to store information about employees identified by emp_id,Emp_name,Job,Salary,Dept-Id and working under department which identifies (Dept-ID,Dname) with 20 employees and 5 different department like CSE,ECE,ME,EEE & IT with Dept_id are 100,200,300,400 & 500.

Please be calculate the DA below:

DA is 10% of salary for Dept. of CSE.

DA is 20% of salary for Dept. of ECE.

DA is 30% of salary for Dept. of ME.

DA is 35% of salary for Dept. of EEE.

DA is 40% of salary for Dept. of IT.

Input:

Emp_id	EmpName	Job	Salary	Dept_id	Dept_Name	DA	Total Salary
C101	XXXX	Professor	50000	100	CSE		

- Emp_id is start with Alphabet and follows digits (C-CSE,E-ECE,M-ME,EE-EEE,I-IT)
- Dept. Structurer should be initialize.
- Total Salary=Salary+DA
- EmpName Accepts only Alphabets .
- If Dep_ID is not found in the list, then it should be message like “ Not a Valid Department”. Other Case allow other information.
- Job role should be Professor/Associate Professor/Assistant Professor(not allowed any other Roles).

Display the report like Below Department name wise for all 20 employees.

Emp_id	EmpName	Job	Salary	Dept_id	Dept_Name	DA	Total Salary
C101	XXXX	Professor	50000	100	CSE	5000	55000
E101	XXXX	Associate Professor	40000	200	ECE	8000	48000

Student information System:

- We have a B.Tech Program with different Departments(CSE,ECE,MECH,CIVIL).
- Each Department have various properties like Dept Id, HOD, location(floor number-1,2,3,4,5).
- The B.Tech Program offers various courses to Students. Each Course has Name, course Id, department which it belongs to.

A student can take maximum of 10 courses in his program .He can take courses from other Majors.

- For every student, he will have a marks card for having result for every course.
The result includes Course details , marks(max 100), no of attempts made(max of 4 attempts), grade(A,B,C,P,F)

Marks Card:

CourseName	CourseID	Dept	Marks	Grade	No of attempts made
C programming	15CS1234	CSE	80	B	2
DS	15CS1235	CSE	90	A	1
DSD	15EC1234	ECE	75	B	1

- Marks card calculation
 1. When a student makes an attempt for the exam , his no of attempts will increase and if he reached the maximum limit , he is not allowed to take the exam.
 2. The marks are calculated based on the best of all attempts
 3. Grade (A- (85-100) , B-(70-84) , C-(60-69) , P-(35-59) , F-(<35))
- Whenever a student enrolls
 1. His personal details are taken (Age(int), Name,Gender(F,M),email-(valid,only gmail))
 2. He is enrolled into department
 3. He is given a student ID(5 digit-only numbers)
 4. He should be enrolled into at least one course from his department immediately. Later he can enroll for other courses.
- When a student takes an exam
 1. He is asked for CourseId of the course
 2. If he already completed maximum attempts(4) he is not allowed to take exam
 3. If he takes the exam , marks are to be taken as input by default

The Program should perform following tasks

- Enroll a student
- Show marks card of a student
- Display courses in
 1. B.Tech Program
 2. Specific to a department
 3. Based On course ID
- Display students enrolled for a course
- Pass Percentage of each department(course wise)
Score : If student passes - 1 else 0
Pass percentage = total score for all students enrolled for that particular course/total no of students
- Student taking an exam
- Show student details based on student-ID
- No of students in overall program who didn't pass (one or more subjects are considered as one student) within maximum attempts