

Department of Computer Science & Engineering, RUET

Question: CSE 3102

Note: Only red colored part need to be completed.

Believe you enough confident about the SQL and Database Management System with appropriate constraints already. The following is a snapshot of IT project for **Huon Contractors Pty Limited**, Canberra for the management of its construction project. You have been hired to develop an automatic system for the billing of the employee. Please provide right efforts for the optimal implementation of the following assignments.

Database Schema for a Employee-pay scenario

employee(emp_id, emp_name, dept_id, type_of_work, hourly_rate)

dept(dept_id, dept_name, dept_location)

address(emp_id, street_no, street_name, city, zip_code)

project(project_id, project_name, project_location)

ft_pt_work(project_id, emp_id, dept_id, num_of_hours, works_date)

salary(emp_id, basic, net_salary, salary_date)

Remarks:

[Design appropriate primary and foreign key]

type_of_work: defines the type of employment (e.g., full time/part time, input should be 'F/P')

dept_name: could be Engineering, Foreman and Labor;

net_salary: is a derive attribute and calculated as **basic + allowance (i.e., 45 % of basic) –**

deduction (i.e., 9% of basic as super annuation + 15% tax of the basic)

For the full time employee the basic is a standard rate and not less than 5000\$ (apply check constraints), but, for the part-time employee the basic is **hourly_rate* num_of_hours** and the hourly rates is between **25\$ to 60\$** (i.e., apply check constraints) for a particular project.

For the above schema, perform the following—

- List the names of all **Engineers** in **Googong Subdivision** project located at **Googong** city
- List the names of all **Labour** in **Googong Subdivision** project located at **Googong** city who work more than *20 hours* per week.
- Retrieve the names and addresses of all employees who work on at least one project located in **Burton Canberra** but whose department has no location in **Canberra**.
- Retrieve the names of employees who work on both the **Googong Subdivision** and **Burton Highway** project
- Create a view which lists out the emp_name, dept_name, type_of_work, basic, allowance, deduction, salary from the above relational databases.

Task to be completed

- For the above project write a PL/SQL program to increment the basic salary of each full time employee by 10% if the total salary including full and part-time employee given in last 30 days by the company does not exceed the amount 50000\$. Your input should have a way for verification where increment cannot be offered.

Creative tasks:

1. Redesign the database so that any changes to **hourly_rate** of a part time employee do not need to update all the entries for him/her.
2. Moderate the design of the data base if needed and rename your table according to the meanings.

Your report should contain the followings:

- Introduction to the problem.
- Problem statement.
- Designed database (i.e., Relational or Entity Relationship model)
- Submitted query including the create table/view at the Query processor.
- Results/output
- Conclusion

The report must be handwritten for the all the laboratory tasks and should not be copied by any means. Answer each question individually.