

CS 353 Spring 2024
Homework 3
Due: March 6, Wednesday till midnight

Q.1

- (a) **select** Employee.TCK-no, ename

 from Employee, Department

 where Employee.dept-no = Department.dept-no

 and Department.city = 'Ankara'

 and dbudget > 10000000;
- (b) **select** Project.proj-no, pname

 from Project, Employee, Department

 where leader-TCK = Employee.TCK-no

 and Employee.dept-no = Department.dept-no

 and nationality = 'Turkish'

 and city = 'Ankara';
- (c) **select** Project.proj-no, pname

 from Project

 where Project.proj-no **not in** (

 select WorksOn.proj-no

 from WorksOn, Employee, Department

 where WorksOn.TCK-no = Employee.TCK-no

 and Employee.dept-no = Department.dept-no

 and Department.city = 'Ankara'

);

- (d) **select** Employee.TCK-no, ename
from Employee, WorksOn, Project
where Employee.TCK-no = WorksOn.TCK-no
and WorksOn.proj-no = Project.proj-no
and pbudget > 1000000
and leader-TCK **in** (
 select Employee.TCK-no
 from Employee
 where nationality = 'USA'
);
- (e) **select** Project.proj-no, pname, **avg** (salary) **as** avg_salary
from Project, Employee, WorksOn
where Project.proj-no = WorksOn.proj-no
and WorksOn.TCK-no = Employee.TCK-no
and pbudget > 1000000
and (2024 - Employee.birth-year) < 30
group by Project.proj-no, pname;
- (f) **select** Department.dept-no
from Department, Employee
where Department.dept-no = Employee.dept-no
and nationality = 'Turkish'
and (2024 - birth-year) < 30
group by Department.dept-no

having count (Employee.TCK-no) >= 50;

(g) **select** Project.proj-no, **max** (salary)

from Project, Employee, WorksOn

where Project.proj-no = WorksOn.proj-no

and WorksOn.TCK-no = Employee.TCK-no

and leader-TCK **in** (

select Employee.TCK-no

from Employee

where nationality = 'Turkish'

)

group by Project.proj-no

having count (**distinct** Employee.TCK-no) >= 20;

(h) **select** Department.dept-no

from Department, Employee

where Department.dept-no = Employee.dept-no

group by Department.dept-no

having dbudget >= 2 * **sum** (salary);

(i) **select** Employee.TCK-no, ename

from Employee, WorksOn

where Employee.TCK-no = WorksOn.TCK-no

group by Employee.TCK-no, ename

having count (*) = (

select max (num_projects)

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from (

        select count (*) as num_projects

        from WorksOn

        group by WorksOn.TCK-no

    )

);

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(j) **with** EProjects (dept-no, TCK-no, ename, num_projects) **as**

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(select Employee.dept-no, Employee.TCK-no, Employee.ename, count (*)

from Employee, WorksOn

where Employee.TCK-no = WorksOn.TCK-no

group by Employee.dept-no, Employee.TCK-no, Employee.ename),

MaxProjectsDepartment (dept-no, maxnum_projects) as

(select dept-no, max (num_projects)

from EProjects

group by dept-no)

select EProjects.dept-no, EProjects.TCK-no, EProjects.ename

from EProjects, MaxProjectsDepartment

where EProjects.dept-no = MaxProjectsDepartment.dept-no and EProjects.num_projects
= MaxProjectsDepartment.maxnum_projects;

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Q.2

(a) Finds the average grade of students from the “CS” department for courses in the “MATH” department. It lists the student ID, name, and average grade for these courses, grouping the results by student ID and name.

(b) Finds students from the “EE” department who are enrolled in more than 5 courses taught by instructors from the “CS” department. It lists the student ID and name of these students, grouping the results by student ID and name.

(c) Finds students with a CGPA higher than 3.5 or enrolled in any course taught by instructors from the “CS” department. It lists the student ID and department for these students.

(d) Finds students who are enrolled in any “CS” course that starts with an 'T' followed by at least nine characters and is taught by instructors from the “EE” department. It lists the student ID and name of these students.