

Daffodil International University

**Department of Computer Science and Engineering**

**Faculty of Science & Information Technology**

**Final Exam Examination, summer 2021 @ DIU Blended Learning Center**

**Course Code: CSE333 (Day), Course Title: Software Engineering**

**Level: 3 Term: 3 Section: All**

**Instructor: ABC Modality: Open Book Exam**

**Date: Saturday 28 August, 2021 Time: 01:00pm-04:30pm**

**Two and half hours (3:30), Marks: 40**

1. Consider the following relational schema and write expression in SQL **OR** in Relational Algebra. [7.5, CO2]

**Employee(SSN, Fname, Lname, Gender, Address, Sex, Relationship, Salary, Designation, Super-SSN, Dno)**

**Department(Dname, Dnumber, Dlocation,Mgr-ssn, Mgr-start-date)**

**Project(Pname, Pnumber, Plocation,Budget, Dnum)**

**Works-on(Essn, Pno, Hours)**

1. Write SQL to increase the salary of employees by 2000 who is getting less then 70000tk.
2. Write SQL to find the total number of employee from distinct place in descending order.
3. Write SQL to rearrange Project table according to the descending order of Budget of the project.
4. Write SQL to display all the department number where Number of employee is less than 10.
5. Write SQL to display the project Number having largest hour.
6. **Write expression in SQL for each of the queries using sub query or joining** [12.5,CO2]
7. Write SQL to display the department’s name that gives the second highest salary on average.
8. Write SQL to display the first name, ssn and department name for all Female supervisor.
9. Write SQL to display the employee’s name that spent maximum hour in a project.
10. Write SQL to display the lowest paying supervisor’s all project details.
11. Write SQL to display the name of all employees and department name who work under Arman Khan and ProductX project.
12. Suppose, you want to withdraw 5000tk money from your DBBL account. You go to DBBL bank booth and enter your card, password and amount of money for withdrawing. After some moment you can see a message “Withdraw successfully done” but you do not get money. You shock and check the account details. In account details, it shown 5000tk is debited from your account few moments ago. You do not understand anything. You go to DBBL bank branch to solve the problem. [2+2, CO3]
13. What happened in above case in DBMS aspect? In which state system failure occurs?
14. What is the way to prevent these types of unwanted situation? Explain with example.
15. Normalize the following table up to Third Normal Form. Be certain to indicate necessary constraints.

[State any assumptions you make about the data shown in this table] [8,CO4]

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Studio | Director | Movies | Budget | Release year | Release date | StudioCity | CityTemp |
| Walt Disney | [Mark Andrews](https://en.wikipedia.org/wiki/Mark_Andrews_(filmmaker)) | Brave | 18.5 Cr. | 2012 | 10-06-2012 | California | 18 |
| Warner Bros | Chris Joseph Columbus | Harry Potter | 120 Cr. | 2001 | 04-11-2001 | London | 13 |
| DCEU | Zack Snyder | Batman Vs superman | 70 Cr | 2016 | 19-03-2016 | Gotham | 20 |
| Suicide Quad | 80 Cr. | 2021 | 28-07-2021 |
| Marvel | Kevin Feige | The Avengers | 100 Cr. | 2012 | 03-08-2012 | New York | 15 |
| Captain America | 150 Cr. | 2011 | 19-07-2011 |

Candidate key {Studio, Movies}

1. Perform normalization for following table (1NF,2NF ,3NF) [8,CO4]

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ID | Reg Num | Total marks | Dept | Country | Zip code | City | Mobile | Advisor  Id | Name | Rank | Salary |
| 1 | 1201 | 600 | CSE | bd | 12 | Mirpor Cantt | 012254 | 71001 | Mr. A | Lecturer | 50000 |
| 2 | 1202 | 890 | GED | india | 45 | Dhulipara | 134565  487576 | 71002 | Mr. B | Assistant | 65000 |
| 3 | 1203 | 455 | CSE | usa | 34 | Texax | 340858 | 71003 | Mr. C | Associate | 60000 |
| 4 | 1204 | 566 | PHY | pakistan | 46 | Agrabad | 345666  847566 | 71004 | Mr. D | Assistant | 65000 |
| 5 | 1205 | 900 | PHY | canada | 38 | Alberta | 923820 | 71501 | Mr. E | Lecturer | 50000 |
| 6 | 1206 | 100 | ACC | Somalia | 87 | Gold Coast | 012254 | 71006 | Mr. F | Assistant | 65000 |

**Good Luck ☺**