

ALLAMA IQBAL OPEN UNIVERSITY, ISLAMABAD
(Department of Computer Science)

WARNING

1. **PLAGIARISM OR HIRING OF GHOST WRITER(S) FOR SOLVING THE ASSIGNMENT(S) WILL DEBAR THE STUDENT FROM AWARD OF DEGREE/CERTIFICATE, IF FOUND AT ANY STAGE.**
2. **SUBMITTING ASSIGNMENTS BORROWED OR STOLEN FROM OTHER(S) AS ONE'S OWN WILL BE PENALIZED AS DEFINED IN "AIOU PLAGIARISM POLICY".**

Course: Database-II (3467)
Level: BS (CS)

Semester: Autumn, 2013
Total Marks: 100

ASSIGNMENT No. 1

Note: All questions carry equal marks.

- Q. 1 a) How are relationships between tables expressed in relational database?
b) List 10 potential benefits of the database approach over conventional file system.
- Q. 2 a) Write a comparison between the enterprise data model, conceptual data model and a physical data model.
b) Is it possible that during the physical database design and creation step of database development you might want to return to the logical database design activity? Why or why not? If it is possible, give an example of what might arise during physical database design and creation that would cause you to want to reconsider the conceptual and external database designs from prior steps.
- Q. 3 Suppose you are designing database of students result management system for BS (CS). Develop sample tables and apply normalization on it and also describe that to which level of normalization is applied.
- Q. 4 Describes in detail layers of database administration with the help of examples.
- Q. 5 Explain database administration functions and responsibilities in detail with the help of examples.

ASSIGNMENT No. 2

Total Marks: 100

Note: All questions carry equal marks.

- Q. 1 What is the database integrity? Discuss the important integrity rules.
- Q. 2 Discuss database security in detail with the help of examples.
- Q. 3 Describe important reasons of database failure. Also explain database recovery methods.
- Q. 4 Suppose you are a database administrator of an organization how can you deal with concurrency control issues of that organization? State your answer in the context of sample case study.
- Q. 5 Define distributed databases with the help of two examples. Also write the advantages and disadvantages of distributed databases.
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3467 Database-II

Credit Hours: 3 (3, 0)

Recommended Book:

Modern Database Management 4th Edition by Jeffrey Hoffer

Course Outlines:

Unit No. 1 Overview of Database

Modeling Techniques, Data Models, Relational Database Management System, Relation and Its Properties, Relational Algebra

Unit No. 2 Higher Normal Forms

Overview of Simple Normal Forms, Higher Normal Forms, Boyce-Codd Normal Form, 4th Normal Form, 5th Normal Form

Unit No. 3 Database Administration

Introduction, Layers of Database Administration, DBA Functions and Responsibilities

Unit No. 4 Database Integrity

Introduction, Integrity Rules (Entity Integrity, Referential Integrity (Insertion Rule, Deletion rule (Restrict, Nullify, Cascade))), Ranges of Values, Not Null, Selection Based Entry (Radio Buttons, Check Boxes, Lov)

Unit No. 5 Database Security

Introduction, Physical Security (Locks, Logbooks, Staff Categorization), Database Security (View, Authorization Table (Subject, Object, Privileges), User Defined procedures, Encryption)

Unit No. 6 Database Recovery

Introduction, Reasons of Database Failure, Database Recovery Facilities, Backup, Logs (Transaction Log, Database Change Log), Database Recovery Methods (Restore, Roll Forward, Roll Backward), Transaction Processing

Unit No. 7 Database Concurrency

Introduction, Problem of Lost Updating, concurrency control Methods (Optimistic Approach, Pessimistic Approach), Managing the Deadlock, Transaction Integrity

Unit No. 8 Distributed Databases

Introduction, Types of Distributed Databases, Advantages and Disadvantages of Distributed Databases

Unit No. 9 Object Oriented Databases

Introduction to Object Oriented Paradigm, Differences in Object Model and Relational Model, Object Oriented Analysis and Design, Costs and Benefits of Object Databases

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