REPORT

Project Report on University Database Management

1. Introduction

Database management systems (DBMS) are essential for efficiently storing, retrieving, and managing data within universities. This project aims to develop a robust DBMS tailored to manage a university's diverse data needs, including student records, faculty information, courses, and administrative functions.

2. Objectives

Efficiency:

Enhance the speed and reliability of data retrieval.

Integrity:

Ensure data consistency and accuracy.

Security:

Protect sensitive data from unauthorized access.

Scalability:

Accommodate growing data volumes as the university expands.

User-Friendliness:

Create an intuitive interface for users with varying technical skills.

3. Methodology

Requirement Analysis:

Collaborate with stakeholders to gather and document system requirements.

Database Design:

Develop an Entity-Relationship (ER) model to represent the data structure.

Implementation:

Use SQL and other database management tools to create the database.

Testing:

_Conduct rigorous testing to identify and fix any issues.

Deployment:

Roll out the system and provide training to end-users.

4. System Design

4.1 ER Model

Entities:

Students, Faculty, Courses, Departments, Administrative Staff.

Relationships:

Enrollment, Teaching Assignments, Department Membership.

4.2 Schema Design

Student Table:

Student_ID, Name, DOB, Address, Department_ID.

Faculty Table:

Faculty_ID, Name, Department_ID, Course_ID.

Course Table:

Course_ID, Name, Credits, Department_ID.

Department Table:

Department_ID, Name.

Enrollment Table:

Enrollment_ID, Student_ID, Course_ID, Grade.

5. Implementation

Tools Used:

MySQL, PHP, JavaScript.

Data Insertion:

Populate the database with sample data for testing purposes.

Query Examples:

```
 SELECT * FROM Students
WHERE Department_ID = 'CSE';
  INSERT INTO Courses (Course_ID,
Name, Credits, Department_ID)
VALUES ('CS101', 'Intro to Computer
Science', 4, 'CSE');
```

6. Testing

Unit Testing:

Test individual components for functionality.

Integration Testing:

Ensure different parts of the system work seamlessly together.

User Acceptance Testing (UAT):

Validate the system with end-users to ensure it meets their needs.

7. Conclusion

The University Database Management System provides a comprehensive solution for managing university data, enhancing efficiency, data integrity, and security. Continued feedback and updates will ensure the system evolves to meet changing requirements