Software Requirement Specification for "Student Result Management System"

1. Introduction

This document aims at defining the overall software requirements for Student Result Management System. The final product will be having only features or functionality mentioned in this document.

1.1 Purpose

1.2 Scope

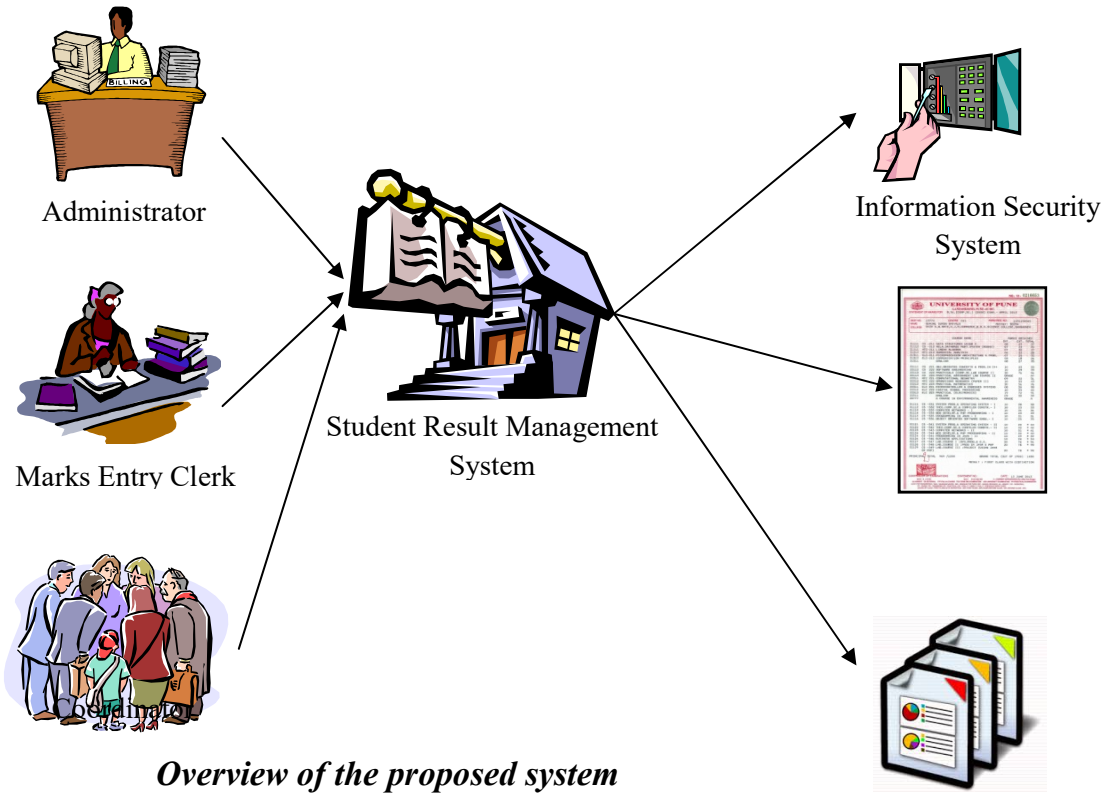
1.3 Definitions, Acronyms and Abbreviations

1.4 References

2. General / Overall Description

2.1 Product Perspective

The application will be windows based self contained and independent software product



Overview of the proposed system

2.2 Product Functionality

A summary of the major functions that the software will perform:

1) A login facility for enabling only authorized access to the system.
2) User will be able to add/modify/delete information about different students data enrolled for the course in different year.
3) User will be able to add/modify/delete information about different subjects that are offered in particular semester. The semester wise list of subjects along with their credit points and type will be displayed.
4) User will be able to add/modify/delete information about elective subjects opted by different students in different semester.
5) User will be able to add/modify/delete information regarding marks obtained by different students in different semester.
6) User will also be able to print mark sheets of students
7) User will be able to generate printable reports.
8) User will be able to reset the system leading to deletion of all existing information from the backend database.
9) User will be able to create/modify/delete new/existing user accounts.

2.3 User Characteristics

The different users of the system are Administrator, Marks Entry Clerk, and Coordinator.

2.4 Design and Implementation Constraints

1) Since the DBMS used in MS Access 2000, which is not a very powerful DBMS. It will not be able to store a very huge number of records.
2) Due to very limited features of DBMS being used, database auditing will not be provided

2.5 Assumption and Dependencies

1) The number of subjects to be taken by the students in each semester does not change.
2) The subject types do not change
3) The number of semester in MCA program does not change.

3. Specific Requirements

3.1 External Interface Requirements

3.1.1 User Interfaces

Login Screen: various fields available on this screen will be

1) User id
2) Password
3) Role: Admin/Clerk/Coordinator

Subject Information Parameter Screen: This screen will be accessible only to the user with admin role. The various fields available on this screen will be

1) Subject Code
2) Subject Name
3) Category / Type
4) Credits

Student Information Screen: various fields available on this screen will be

1) Student Enrollment Number
2) Student Name
3) Batch Year

Student Subject Choice Screen: It will allow user to add/modify/delete student choices for elective subjects of the semester and batch year selected in student subject choice screen. The screen will display list of available choices for elective I & elective II for the selected semester. The screen will also display the list of students enrolled during the selected batch year and currently studying in the selected semester.

Marks Entry Screen: various fields available on this screen will be

1) Student Enrollment Number
2) Student Name
3) Subject Name
4) Internal Marks
5) External Marks
6) Total Marks

Mark Sheet Screen: It will allow user to enter the enrollment number and the semester number of the student for whom the user want to view/print the mark sheet.

Student List Report Screen: It will allow the user to enter the batch year for which the user wants to view/print the student list report.

Rank wise List Report Screen: It will allow the user to enter the batch year and the semester number for which the user wants to view/print the Rank wise list report.

Student Subject Choices List Report Screen: It will allow the user to enter the batch year and the semester number for which the user wants to view/print the Student's choices list report.

3.1.2 Hardware Interfaces

1) Support for printer i.e. appropriate drivers are installed
2) Screen resolution of at least 800*600 required for proper and complete viewing of screens.

3.1.3 Software Interfaces

Any window based operating system
MS Access 2000 as the DBMS
Crystal Report 8
Visual Basic 6

3.1.4 Communication Interfaces

None

3.2 Functional Requirements

1) Subject Information Management

The system will maintain information about various subjects being offered during different semesters of the course. The following information would be maintained for each subject. Subject code, Subject Name, Subject Type (Core / Elective / Lab1 / Lab2 / Mini Project) Semester, Credits.

2) Student Information Management

System will maintain information about various students enrolled in the MCA course in different years. The following information would be maintained for each student:
Student Enrollment No., Student Name, Year of Enrollment. The system will allow creation/modification/deletion of new/existing students and also have the ability to list all the students enrolled in a particular year.

3) **Student's Subject Choice Information Management**
The system will maintain information about choice of different Elective subjects opted by various students of different enrollment years in different semesters. The following information would be maintained:
Student enrollment no, Semester, Student's choices for a particular semester.

4) **Marks Information Management**
The system will maintain information about marks obtained by various students of different enrollment years in different semesters. The following information would be maintained:
Student enrollment no, semester, subject code, internal marks, external marks, total marks and credits.
The system will also have creation/modification/deletion of marks information.

5) **Mark sheet Generation**
The system will generate mark-sheet for every student in different semesters.

6) **Report Generation**
   1) Student List Reports

For each year a report will be generated containing the list of students enrolled in that batch year.

   2) Student Subject Choice List Report
      For each batch year a report will be generated containing the list of students and their choices for Elective subject in the selected semester.
   3) Semester-wise mark lists
   4) Rank-wise List Report

7) **User Account Management**
The system will maintain information about various users who will be able to access the system. The following information would be maintained.
User Name, User ID, Password and Role.

3.3 Use Cases

The various use cases will be

1) **Add/Update/Delete Student Information**
2) **Add/Update/Delete Subject Information**
3) **Add/Update/Delete Student Subject's choice Information**
4) **Generate Mark Sheet**
5) **Create/Delete User accounts**

3.4 Classes / Objects :

The various classes will be

1) Student
2) Subject
3) User

4. Non-Functional Requirements

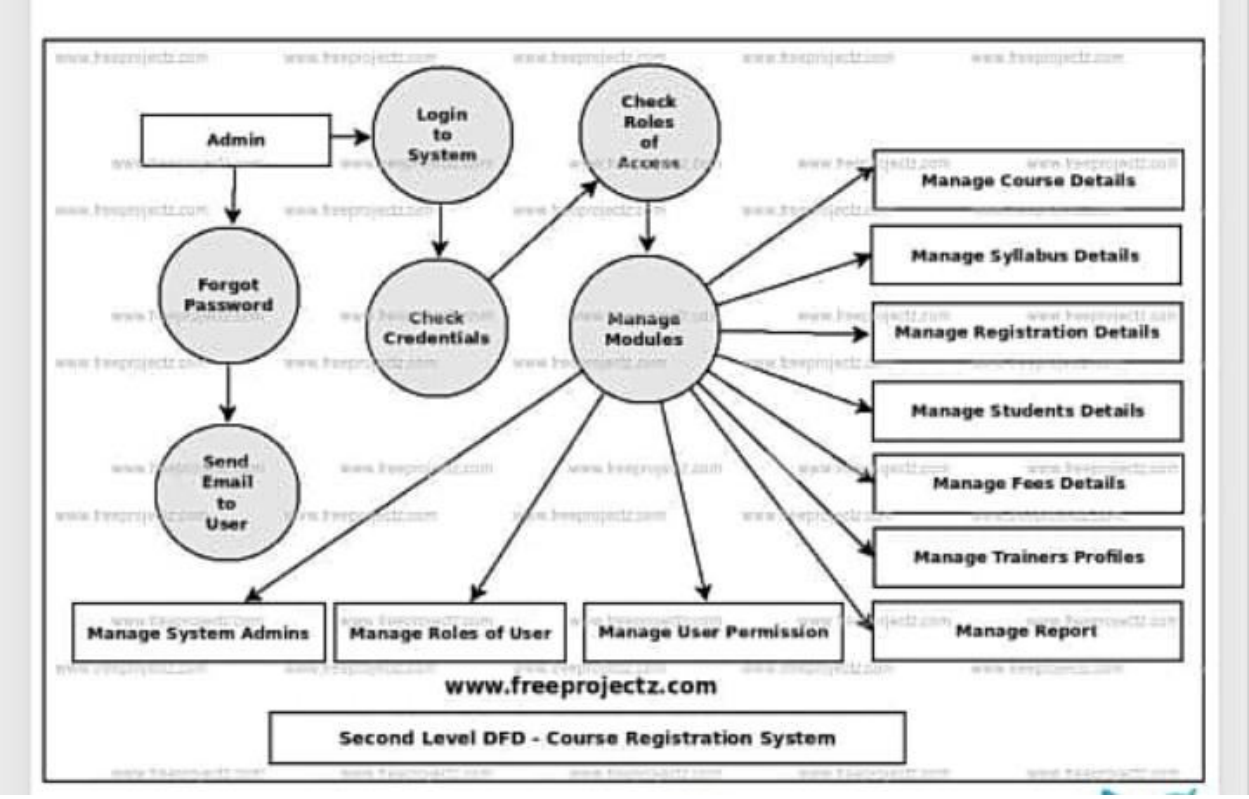
1) **Security**
2) **Maintainability**
3) **Portability**

5. Other Requirements

None

6. Change Management Process

Customer has to visit personally in the organization if any changes needed in project scope and requirements.



2.A)Draw E-R DIAGRAM FOR Students Marks Analyzing System.

This ER (Entity Relationship) Diagram represents the model of Result Management System Entity. The entity-re lationship diagram of Result Management System shows all the visual instrument of database tables and the rela tions between Class, Exam, Student, Teacher etc. It used structure data and to define the relationships between structured data groups of Result Management System functionalities. The main entities of the Result Manage ment System are Student, Class, Subject, Exam, Result and Teacher.

Result Management System entities and their attributes:

• Student Entity: Attributes of Student are student_id, student college_id, student_name, student_mobile, student email, student_username, student_password, student_address

• Class Entity: Attributes of Class are class_id, class_student_id, class_name, class_room, class_type, class_description

• Subject Entity : Attributes of Subject are subject_id, subject_course_id, subject_student_id, subject_name, subject type, subject_description

• Exam Entity: Attributes of Exam are exam_id, exam_student_id, exam_roll_number, exam_date exam_name, exam_type, exam_description • Result Entity: Attributes of Result are result_id,

result_student_id, result_name, result_description • Teacher Entity: Attributes of Teacher are teacher_id, teacher college_id, teacher_name, teacher_mobile, teacher_email, teacher_username, teacher_password, teacher_address

Description of Result Management System Database:

• The details of Student is store into the Student tables

respective with all tables • Each entity (Teacher, Subject, Result, Class, Student)

contains primary key and unique keys.

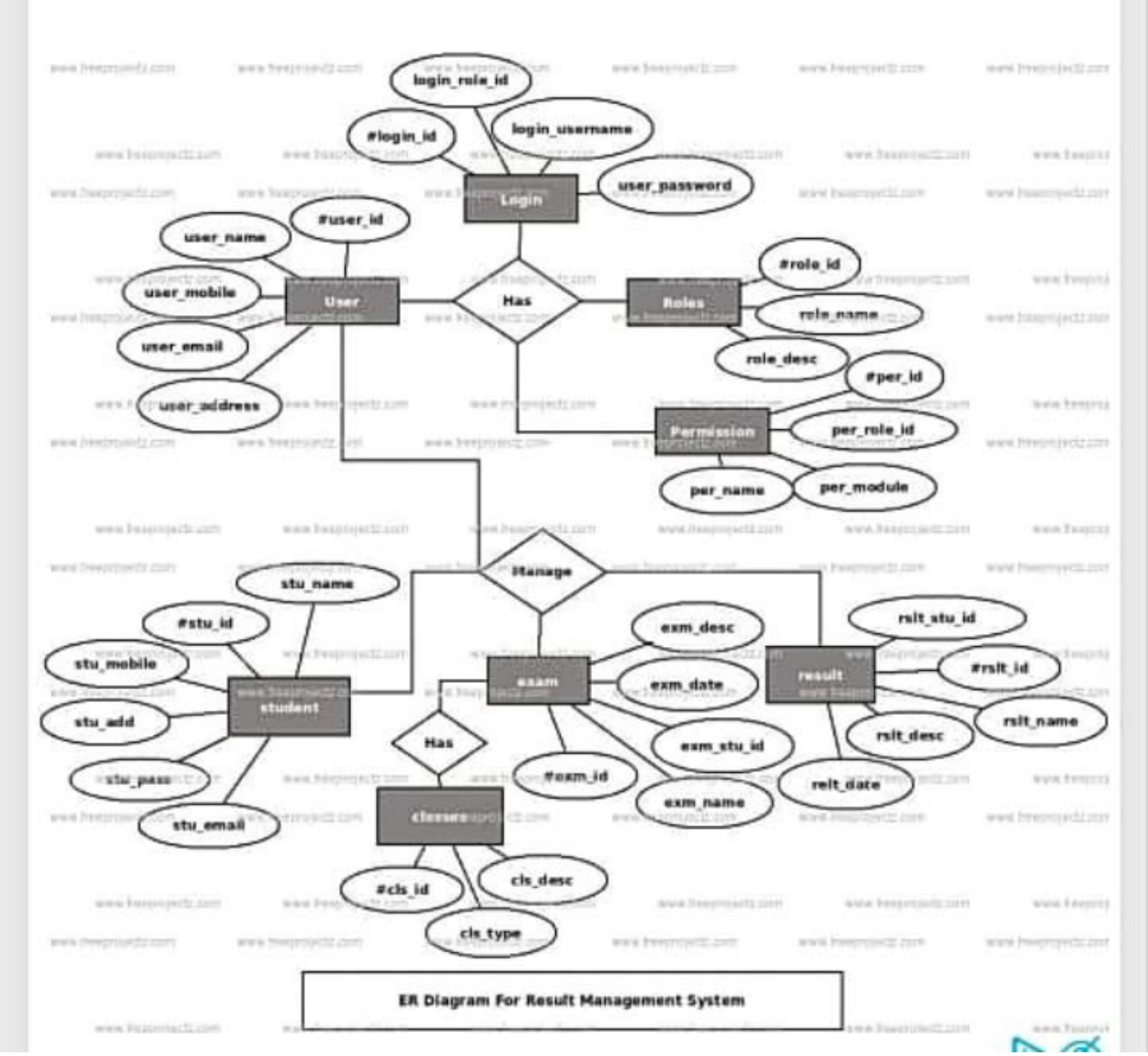
• The entity Subject, Result has binded with Student, Class entities with foreign key

• There is one-to-one and one-to-many relationships

available between Result, Exam, Teacher, Student • All the entities Student, Result, Subject, Teacher are

normalized and reduce duplicacy of records

• We have implemented indexing on each tables of Result Management System tables for fast query execution.



2.B) Draw DFD FOR Students Marks Analyzing System.

Result Management System Data flow diagram is often used as a preliminary step to create an overview of the Result Management without going into great detail, which can later be elaborated.it normally consists of overall ap plication dataflow and processes of the Result Manage ment process. It contains all of the userflow and their en tities such all the flow of Student, Exam, Class, Subject, Result, Teacher, Semester. All of the below diagrams has been used for the visualization of data processing and structured design of the Result Management process and working flow.

Zero Level Data Flow Diagram(0 Level DFD) Of Result Management System :

This is the Zero Level DFD of Result Management System, where we have eloborated the high level process of Result Management. It's a basic overview of the whole Result Management System or process being analyzed or modeled. It's designed to be an at-a-glance view of Result, Teacher and Semester showing the system as a single high-level process, with its relationship to external entities of Student,Exam and Class. It should be easily understood by a wide audience, including Student,

Class and Result In zero leve DFD of Result Management System, we have described the high level flow of the Result Management system.

High Level Entities and proccess flow of Result Management System:

• Managing all the Student

• Managing all the Exam

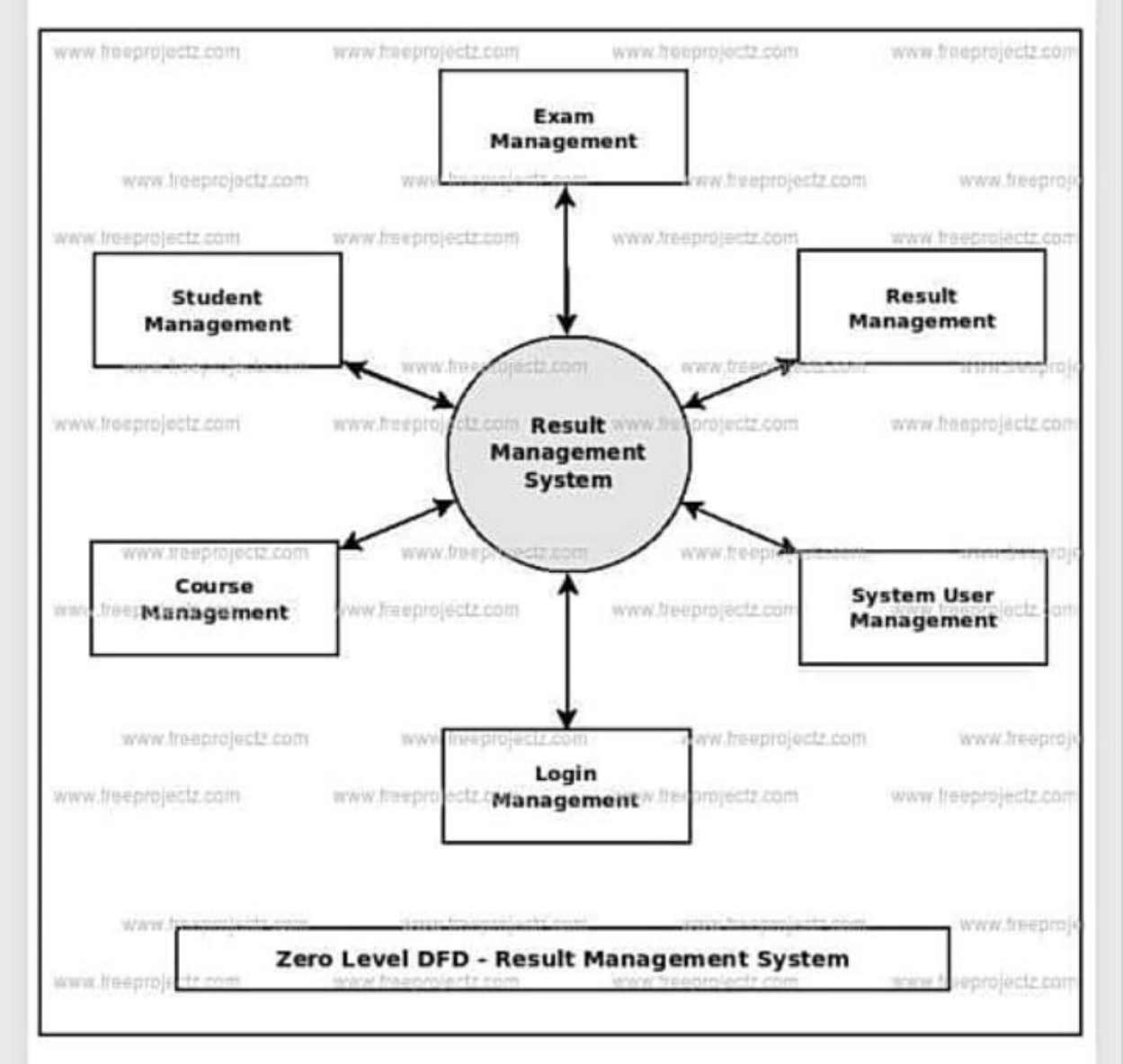
• Managing all the Class

.Managing all the Subject

. Managing all the Result

. Managing all the Teacher

Managing all the Semester



First Level Data Flow Diagram(1st Level DFD) Of Result Management System :

First Level DFD (1st Level) of Result Management System shows how the system is divided into sub-systems (processes), each of which deals with one or more of the data flows to or from an external agent, and which together provide all of the functionality of the Result Management System system as a whole. It also identifies internal data stores of Semester, Teacher, Result, Subject, Class that must be present in order for the Result Management system to do its job, and shows the flow of data between the various parts of Student, Class, Teacher, Semester, Result of the system. DFD Level 1 provides a more detailed breakout of pieces of the 1st level DFD. You will highlight the main functionalities of Result Management.

Main entities and output of First Level DFD (1st Level DFD):

• Processing Student records and generate report of all Student

• Processing Exam records and generate report of all

Exam

• Processing Class records and generate report of all Class

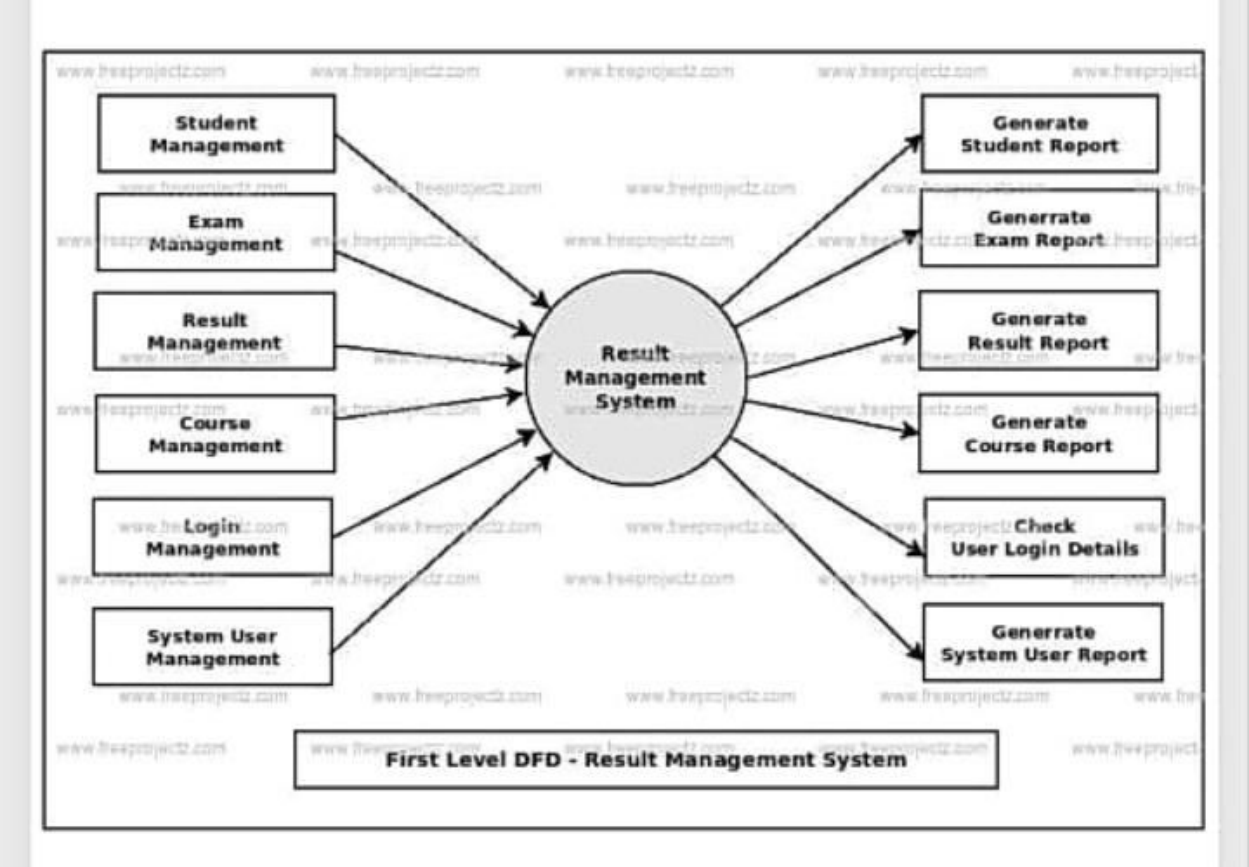
• Processing Subject records and generate report of all

Subject

• Processing Result records and generate report of all Result

• Processing Teacher records and generate report of all

• Processing Semester records and generate report of all Semester



Second Level Data Flow Diagram(2nd Level DFD) Of Result Management System:

DFD Level 2 then goes one step deeper into parts of Level 1 of Result Management. It may require more functionalities of Result Management to reach the necessary level of detail about the Result Management functioning. First Level DFD (1st Level) of Result Management System shows how the system is divided into sub-systems (processes). The 2nd Level DFD contains more details of Semester, Teacher, Result, Subject, Class, Exam, Student.

Low level functionalities of Result Management System

• Admin logins to the system and manage all the functionalities of Result Management System • Admin can add, edit, delete and view the records of

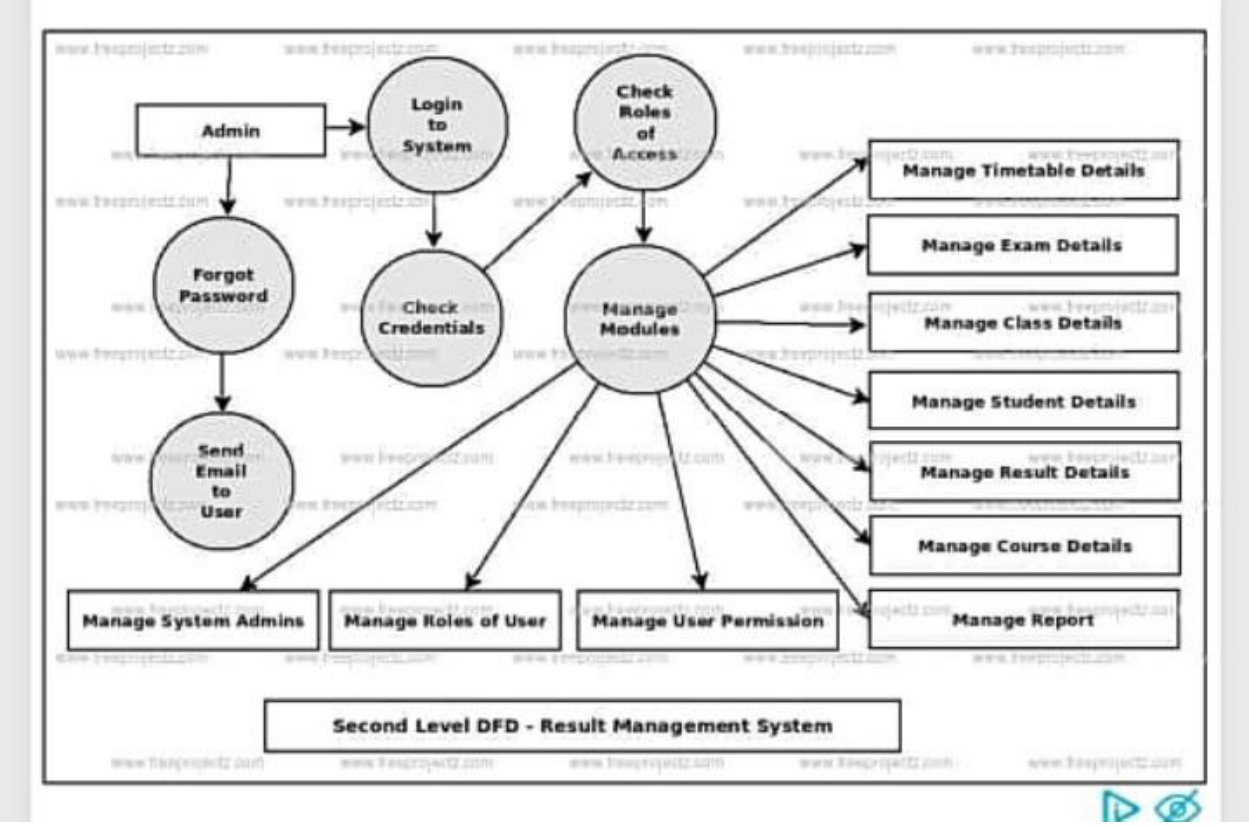
Student, Class, Result, Semester • Admin can manage all the details of Exam, Subject, Teacher

• Admin can also generate reports of Student, Exam, Class, Subject, Result, Teacher

• Admin can search the details of Exam, Result, Teacher • Admin can apply different level of filters on report of

Student, Subject, Result

• Admin can tracks the detailed information of Exam, Class, Subject,, Result



3.A) Draw E-R Diagram for OnlineTicket Reservation system.

This ER (Entity Relationship) Diagram represents the model of Ticket Reservation System Entity. The entity-rela tionship diagram of Ticket Reservation System shows all the visual instrument of database tables and the relations between Seats Availability, Stations, Trains, Passengers etc. It used structure data and to define the relationships between structured data groups of Ticket Reservation System functionalities. The main entities of the Ticket Re servation System are Trains, Seats Availability, Fare, Stations, Booking and Passengers.

Ticket Reservation System entities and their attributes:

• Trains Entity: Attributes of Trains are train_id, train_name, train_number, train_seat_number, train ticket, train_type, train_description