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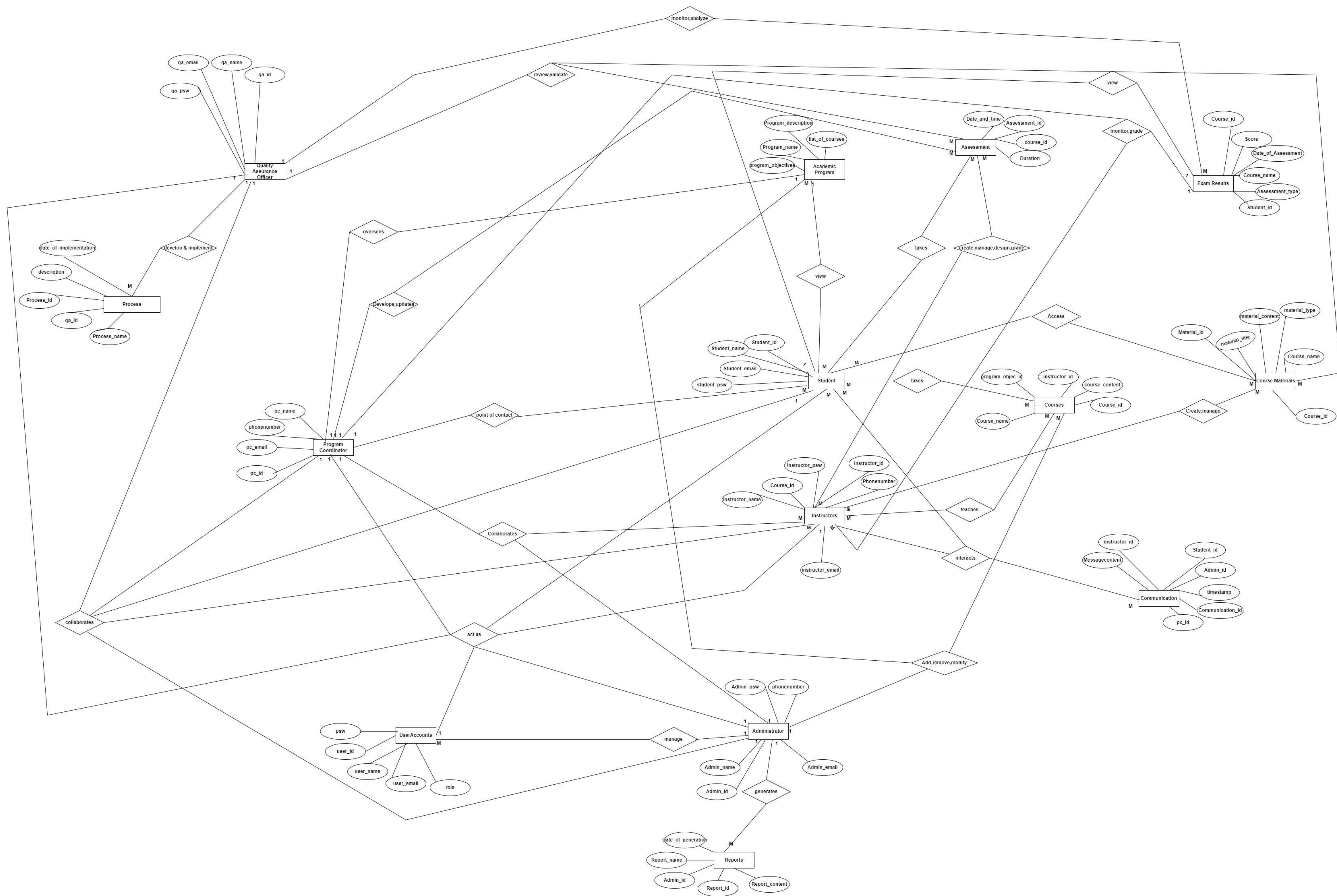
CSE 5335-005: WEB DATA MANAGEMENT

**PERFORMANCE OF MSC Academic Program (COMPUTER
SCIENCE)**

“GPA WIZARD”

By

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ERD EXPLANATION

The fourteen entities in the ER Diagram are Academic Program, Program coordinator, Administrator, Student, Instructor, Quality Assurance officer, User accounts, Process, Courses, Course materials, Assessment, Exam results, Communication, Reports.

The **Academic Program** entity has 4 attributes namely Program description, Program name, Program objectives, List of courses. In the following project, the Academic Program is MSc Computer Science.

- Academic Program entity has (1..1) relationship with Program Coordinator entity.
- Academic Program entity has (M..1) relationship with Administrator entity.
- Academic Program entity has (1..M) relationship with Student entity.
- Academic Program entity has (M..M) relationship with Courses entity.

The **Program coordinator** entity has 4 attributes namely Pc_name, Pc_id, Pc_email, Phonenummer. In the following project, the Program Coordinator is responsible for overseeing the Academic Program as a whole.

- Program coordinator entity has (1..1) relationship with Academic Program entity.
- Program coordinator entity has (1..M) relationship with Assessment entity.
- Program coordinator entity has (1..1) relationship with Exam Results entity.
- Program coordinator entity has (1..M) relationship with Instructors entity.
- Program coordinator entity has (1..M) relationship with Student entity.
- Program coordinator entity has (1..1) relationship with Administrator entity.
- Program coordinator entity has (1..1) relationship with User accounts entity.
- Program coordinator entity has (1..1) relationship with Quality Assurance Officer entity.
- Program coordinator entity has (1..M) relationship with Instructors entity.

The **Administrator** entity has 5 attributes namely Admin_name, Admin_id, Admin_email, Admin_psw, Phonenumbr. In the following project, the Administrator has the website control and management.

- Administrator entity has (1..M) relationship with Reports entity.
- Administrator entity has (1..1) relationship with Quality Assurance Officer entity.
- Administrator entity has (1..) relationship with Exam Results entity.
- Administrator entity has (1..M) relationship with Student entity.
- Administrator entity has (1..M) relationship with Instructors entity.
- Administrator entity has (1..1) relationship with Program Coordinator entity.
- Administrator entity has (1..1) relationship with Administrator entity.
- Administrator entity has (1..M) relationship with User accounts entity.
- Administrator entity has (1..M) relationship with Courses entity.
- Administrator entity has (1..M) relationship with Academic Program entity.

The **Student** entity has 4 attributes namely Student_name, Student_id, Student_email, Student_psw. In the following project, the Students are the targeted users of the website.

- Student entity has (1..1) relationship with Exam Results entity.
- Student entity has (M..1) relationship with Academic Program entity.
- Student entity has (M..N) relationship with Assessment entity.
- Student entity has (M..N) relationship with Course Materials entity.
- Student entity has (M..N) relationship with Course entity.
- Student entity has (M..N) relationship with Communication entity.
- Student entity has (M..N) relationship with Instructor entity.
- Student entity has (M..1) relationship with Program Coordinator entity.
- Student entity has (M..1) relationship with Administrator entity.
- Student entity has (M..1) relationship with Quality Assurance Officer entity.
- Student entity has (1..1) relationship with User Accounts entity.

The **Instructors** entity has 6 attributes namely Instructor_name, Instructor_id, Instructor_email, Instructor_psw, Course_id, Phonenumber. In the following project, the Instructors teach the courses available in the academic program.

- Instructors entity has (M..M) relationship with Assessment entity.
- Instructors entity has (M..M) relationship with Course Materials entity.
- Instructors entity has (M..M) relationship with Courses entity.
- Instructors entity has (M..M) relationship with Student entity.
- Instructors entity has (M..M) relationship with Communication entity.
- Instructors entity has (M..1) relationship with Exam Results entity.
- Instructors entity has (M..1) relationship with Program Coordinator entity.
- Instructors entity has (M..1) relationship with Administrator entity.
- Instructors entity has (1..1) relationship with User Accounts entity.

The **Quality Assurance officer** entity has 4 attributes namely QA_name, QA_id, QA_email, QA_psw. In the following project, the Quality Assurance Officer is responsible for ensuring the quality of the academic program and the assessments conducted within.

- Quality Assurance officer entity has (1..M) relationship with Exam Results entity.
- Quality Assurance officer entity has (1..M) relationship with Course Materials entity.
- Quality Assurance officer entity has (1..M) relationship with Assessment entity.
- Quality Assurance officer entity has (1..1) relationship with Program Coordinator entity.
- Quality Assurance officer entity has (1..1) relationship with Administrator entity.
- Quality Assurance officer entity has (1..M) relationship with Student entity.
- Quality Assurance officer entity has (1..M) relationship with Instructors entity.
- Quality Assurance officer entity has (1..M) relationship with Process entity.
- Quality Assurance officer entity has (1..1) relationship with User Accounts entity.

The **User accounts** entity has 5 attributes namely User_name, User_id, User_email, User_psw, Role. In the following project, the User Accounts is to implement account creation and authentication for students, instructors and administrators.

- User Accounts entity has (M..1) relationship with Administrator entity.
- User Accounts entity has (1..1) relationship with Instructor entity.
- User Accounts entity has (1..1) relationship with Program Coordinator entity.
- User Accounts entity has (1..1) relationship with Quality Assurance Officer entity.
- User Accounts entity has (1..M) relationship with Student entity.

The **Process** entity has 5 attributes namely Process_name, Process_id, QA_id, Description, Date_of_implementation. In the following project, the Process represents processes implemented.

- Process entity has (M..1) relationship with Quality Assurance Officer entity.

The **Courses** entity has 5 attributes namely Course_name, Course_id, Course_content, Instructor_id, Program_object_id. In the following project, the Courses present all the courses available within the academic program.

- Courses entity has (M..M) relationship with Student entity.
- Courses entity has (M..M) relationship with Academic Program entity.
- Courses entity has (M..1) relationship with Administrator entity.
- Courses entity has (M..M) relationship with Instructors entity.

The **Course Materials** entity has attributes Course_name, Course_id, Material_title, Material_id, Material_content, Material_type. In the following project, the Course Materials denote all the materials available to students for reference.

- Courses Materials entity has (M..1) relationship with Quality Assurance Officer entity.
- Courses Materials entity has (M..M) relationship with Assessment entity.

- Courses Materials entity has (M..M) relationship with Instructors entity.
- Courses Materials entity has (M..M) relationship with Student entity.

The **Assessment** entity has 4 attributes namely Assessment_id, Course_id, Duration, Date_and_time. In the following project, the Assessments are the exams to measure performance indicators.

- Assessment entity has (M..M) relationship with Instructors entity.
- Assessment entity has (M..M) relationship with Student entity.
- Assessment entity has (M..1) relationship with Program Coordinator entity.
- Assessment entity has (M..1) relationship with Quality Assurance Officer entity.
- Assessment entity has (M..M) relationship with Course Materials entity.

The **Exam Results** entity has 6 attributes namely Course_name, Course_id, Student_id, Score, Assessment_type, Date_of_assessment. In the following project, the Exam Results are the results of the assessments conducted and denote the performance of the student.

- Exam Results entity has (1..M) relationship with Instructors entity.
- Exam Results entity has (1..1) relationship with Program Coordinator entity.
- Exam Results entity has (1..1) relationship with Student entity.
- Exam Results entity has (M..1) relationship with Quality Assurance Officer entity.

The **Communication** entity has 7 attributes namely Admin_id, Instructor_id, Student_id, Communication_id, Pc_id, Messagecontent, Timestamp. In the following project, the Communication allows students, instructors and administrators to communicate via messages or other discussion forums.

- Communication entity has (M..M) relationship with Student entity.
- Communication entity has (M..M) relationship with Instructors entity.

The **Reports** entity has 5 attributes namely Admin_id, Report_name, Report_id, Report_content, Date_of_creation. In the following project, the Reports provide visualizations of the academic program performance.

- Reports entity has (M..1) relationship with Administrator entity.