

**School of Arts and Sciences**  
**Department of Computer Science/Information Technology**  
**CSCI513 Advanced Database Systems**

**Assignment One**

1. Display the ERD of a relational database composed of the following:
  - Minimum of four relations
  - 1 to many relationship
  - Many to many relationship
2. Write the below relational algebra operations on the above database (explain the purpose of every operation)
  - select operation with multiple conditions in one statement
  - 2 different statements of containing project operation + select operations
  - 2 join + select operation in one statement
  - 2 different statements of union operation
  - 2 different statements of intersection operation
  - minus + select operations in one statement
  - select + union + project operations in one statement
  - select + union + join +project operations in one statement
3. Write SQL queries containing the below:
  - Average , having, group by
  - Max , having , group by, where
  - Count , having , group by, order by