

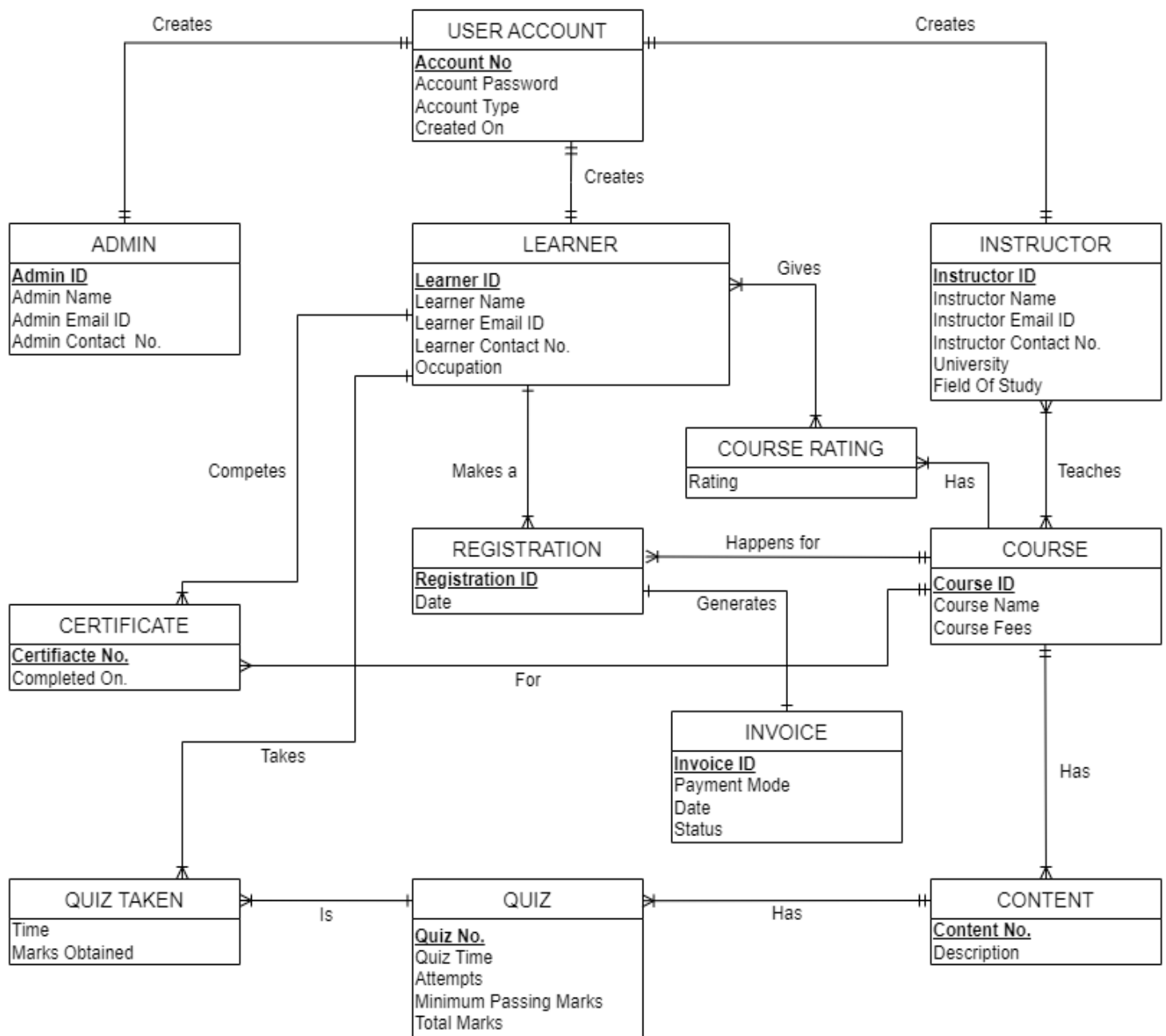
Database Management and Database Design

E-Learning Management System

Team 14

ER Diagram:

E Learning Management System



Entities: -

1. USER ACCOUNT
2. ADMIN
3. INSTRUCTOR
4. LEARNER
5. COURSE
6. CONTENT
7. QUIZ
8. QUIZ TAKEN
9. COURSE RATING
10. REGISTRATION
11. INVOICE
12. CERTIFICATE

Relationship and key business problems addressed: -

- ADMIN *Creates* USER ACCOUNT.
- INSTRUCTOR *Creates* USER ACCOUNT.
- LEARNER *Creates* USER ACCOUNT.
- INSTRUCTOR *Teaches* COURSE, and COURSE is taught by INSTRUCTOR. The cardinality is mandatory many to many because we currently not allow INSTRUCTOR and COURSE to exist independently without each other.
- COURSE *Has* CONTENT, and CONTENT is related to COURSE. An instance of CONTENT must belong to a certain instance of COURSE, while a course can have multiple (at least one) contents.
- LEARNER *Makes a* REGISTRATION, and REGISTRATION *Happens for* a COURSE. REGISTRATION is an associative entity connecting LEARNER and COURSE, but with its own identifier for better tracking of each register, and clearer display of subordinate relationship in INVOICE entity instances.
- REGISTRATION *Generates* INVOICE, and INVOICE is generated for a REGISTRATION.
- LEARNER *Gives* COURSE RATING, and COURSE *Has* COURSE RATING. COURSE RATING is an associative entity that relates to COURSE and LEARNER.
- LEARNER *Completes* CERTIFICATE, and there is CERTIFICATE *For* a COURSE. An instance of LEARNER will get a certificate after finishing a certain course as a symbol for completion.
- CONTENT *Has* QUIZ, and there is a QUIZ for a CONTENT. A quiz should be guaranteed in order to measure a learner's mastery of the corresponding content.
- LEARNER *Takes a* QUIZ TAKEN, and QUIZ TAKEN *is for* QUIZ. QUIZ TAKEN is an associative entity connecting QUIZ and LEARNER that records data generated by the interaction between LEARNER and QUIZ.