National College of Ireland

Higher Diploma in Science in Computing
HDAIML_SEP, HDAIML_SEPOL, HDBC_SEPOL, HDCSDEV_INT, HDSDEV_SEP
Semester I
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Introduction to Databases

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This TABA will cover the following learning outcomes
- LO1 Analyse and evaluate current and future trends in database technologies.
- LO2 Construct and evaluate data models based on analysis of data requirements.
- LO3 Comprehend and describe the relational database model.
- LO4 Design, implement and evaluate a relational database system with an appropriate database package.
- LO5 Formulate and assess advanced SQL queries and commands

Submission: Two links are available on Moodle for the submission of TABA. Link 1 is mandatory to upload TABA report.
Link 1 (Mandatory): Upload Single file (MS Word/ pdf) report submission including SQL code, illustrations, images, snaps or handwritten work (Turnitin link). Please, use the format below for the filename.

[LastName]_[FirstName]_[Program]_IDB_TABA

Link 2: Upload zip folder that may contain any supporting material (SQL code files or any images or snaps, for the justification of your answers in the submitted report at link 1)

[LastName]_[FirstName]_[Program]_IDB_TABA_SUP.zip

Note: This is an individual personal assignment, co-operation or collaboration among students is strictly not allowed and may result in disqualification. Students may be asked to outline/explain in person the reason for any approach taken or solution provided.

Answer all five questions

1.

The ER diagram below model the football league games and contains three entities and three relationship type.
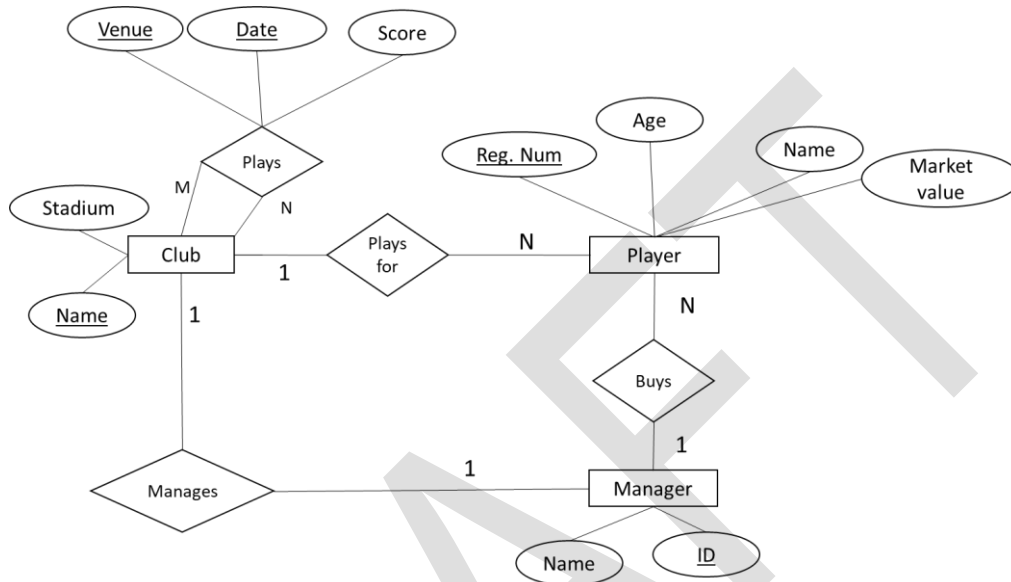

Figure 1: ER diagram for football league

Transform the conceptual design (ER diagram) into relational model by converting the entities and relationships into their appropriate tables. Check if your tables are normalized using 1st, 2nd, and 3rd normal form.

(20 Marks)

2.
  i.   In MySQL workbench, create database called premium league, create tables specified above using DDL commands. Choose the appropriate datatype, primary and foreign keys for the attributes. Provide detailed assumptions for any of your design decisions.

(8 marks)

  ii.   Generate some data to populate your tables.

(8 marks)

  iii. Write an SQL query that returns the top 10 players in terms of market value and the clubs that they play for.

(4   marks)

3.

    i.   Discuss the use of database role and privilege to secure a database system.

(7 marks)

    ii.   Discuss the available grant options and how they enable the database administrator to control access. Using the database created question 1 and 2 provide examples of grant options.

(7 marks)

    iii.   Discuss the role of views in controlling database access.

(6 marks)