REII414 past papers comaprison

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https://github.com/p0te/Exam1_2017/REII414

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June 18, 2017

1 2015

- 6 questions:
  - 1:sql Theory
  - 2:entity and referential integrity
  - 3: ERD diagram
  - 4: Dependecies, noprmailzation
  - 5: difficult qrys (joins, sums etc)
  - 6: essay: final year project

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- 5 questions:
  - 1: sql Theory
  - 2: entity and referential integrity
  - 3: Dependencies, normalization
  - 4: Difficult queries,(joins, sums etc)
  - 5: essay: game

3 Sql Theory(See also, flash cards)

- Data vs information
- Right vs left joins
- ERD principles(Arrow types, redundant relationship)
- Derived attribute

- attributes of a PK
- triggers
- SQL injection

4 Entity and referential integrity

Data Integrity In a relational database, refers to a condition in which the data in the database is in compliance with all entity and referential integrity constraints

Entity Integrity The property of a relational table that guarantees that each entity has a unique value in a primary key and that there are no null values in the primary key.

Referential Integrity A condition by which a dependent tables foreign key must have either a null entry or a matching entry in the related table

5 Dependencies, Normalization

5.1 Dependencies

Functional Dependency Attribute A determines attribute B (that is, B is functionally dependent on A) if all of the rows in the table that agree in value for attribute A also agree in value for attribute B

Partial Dependency A dependency that exists when the determinant is only part of the primary key [if (A,B) $\rightarrow$ (C,D) and B $\rightarrow$ C Where (A,B) is the PK]

Transitive Dependency Dependencies such that X $\rightarrow$ Y and Y $\rightarrow$ Z form a transitive dependency.In general, transitive dependencies are dependencies between nonprimary attributes

5.2 Normalization

1NF Table format, no repeating groups, and PK identified

2NF 1NF and no partial dependencies

3NF 2NF and no transitive dependencies

BCNF Every determinant is a candidate key (special case of 3NF)

4NF 3NF and no independent multivalued depen- dencies

6 Difficult queries(some shown, NOT ALL)

SELECT SELECT <fields> FROM<tables> WHERE¡conditions¿

UPDATE UPDATE<table> SET <field = new>WHERE <condition>

CREATE CREATE <table_name>(<col1> <datatype> , <col2> <datatype>)

7 Essay question

- Database Design
  ERD
- Web programming
  UI
  data-interfacing
  security