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Faculty of Engineering, Built Environment and Information Technology

Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie / Lefapha la Boetšenere, Tikologo ya Kago le Theknolotši ya Tshedimošo

Technical Data Modelling

Lecture 14
August 2022

Announcements

- Semester Test - 23 August
- Assignment – project guide, case study, requirements list and mark sheet
- Tutorial (pick up at IT Helpdesk)
- Practical

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Content

- Technical ERD
  - Part 1: Referential Integrity
  - Part 2: Specify Data Types

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Referential Integrity

- Page 535 – 537 in Whitten and Bentley textbook
- **Key integrity** – every table should have a primary key (might be concatenated)
    - The PK must be unique to a record
    - In a concatenated key the combination of keys must be unique
    - The PK of a record may never be NULL (that would defeat the purpose of the PK – to identify unique record)
- **Domain integrity** – no field takes on a value outside the range of legal values. For example, a grade cannot have a negative value.
- **Relationships between tables** is established via **foreign keys.**
- **Referential integrity** error indicates that a foreign-key value in one table has no matching primary key value in the related table
    - An invoice table has the customer_id as a foreign key. If there is no customer table then you have compromised the referential integrity both the customer table and the invoice table.

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Referential Integrity

- Referential integrity is specified through deletion rules:
  - ***No restriction*** – any record can be deleted without regard to records in any other tables
  - ***Delete cascade (D:C)*** – A deletion of a record in the table must be automatically followed by the deletion of matching records in a related table.
  - ***Delete restrict (D:R)*** - A deletion of a record in the table must be disallowed until any matching records are delete from a table.
  - ***Delete Set Null (D:SN)*** – A deletion of a record in the table must be automatically followed by setting any matching keys in a related table to the value NULL.
    - *Usually only used if you want to keep records for historical reasons. By setting the FK to NULL you acknowledge that there is no corresponding master record.*

  Delete None – Don't delete

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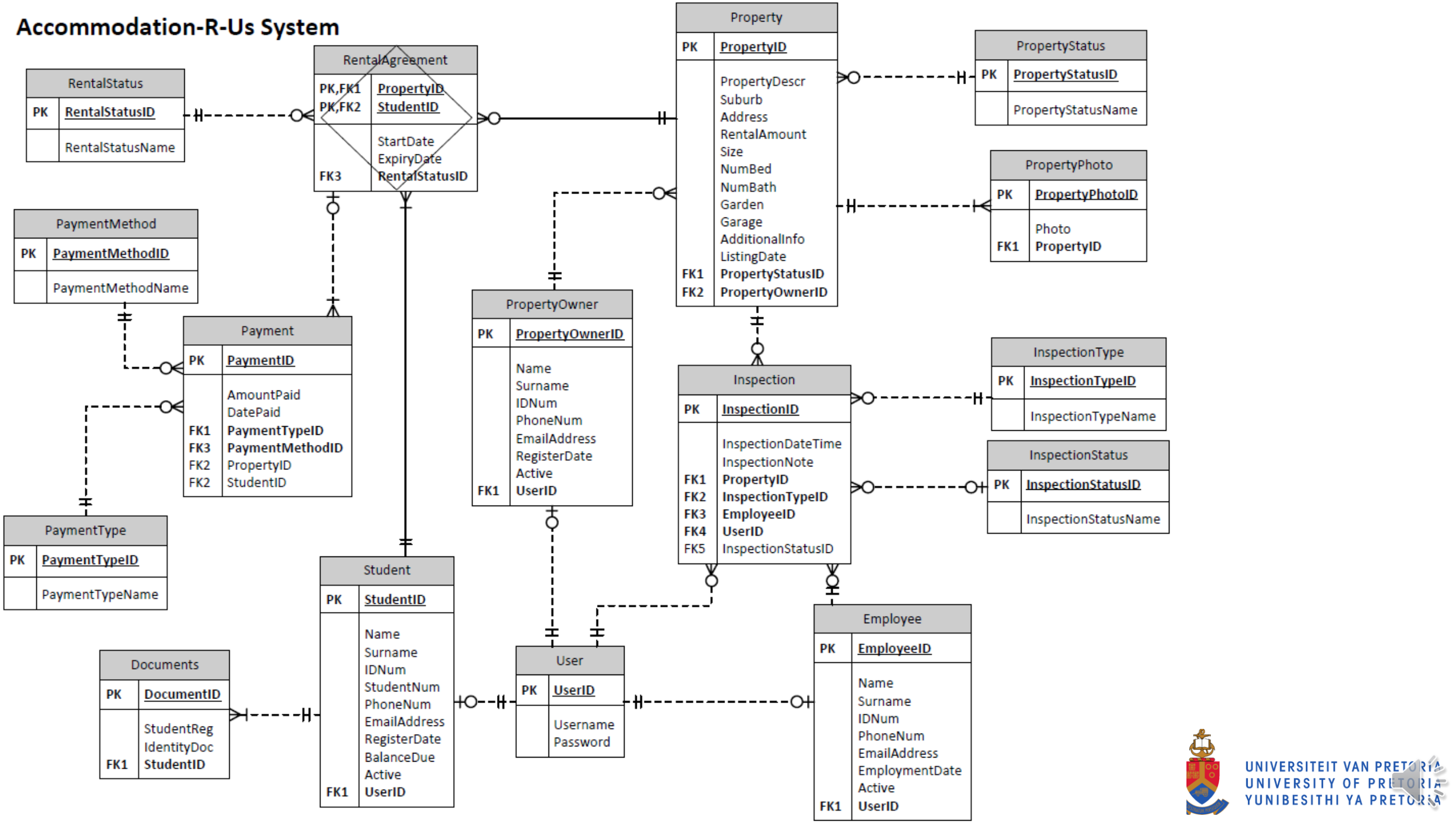
Accommodation-R-Us System



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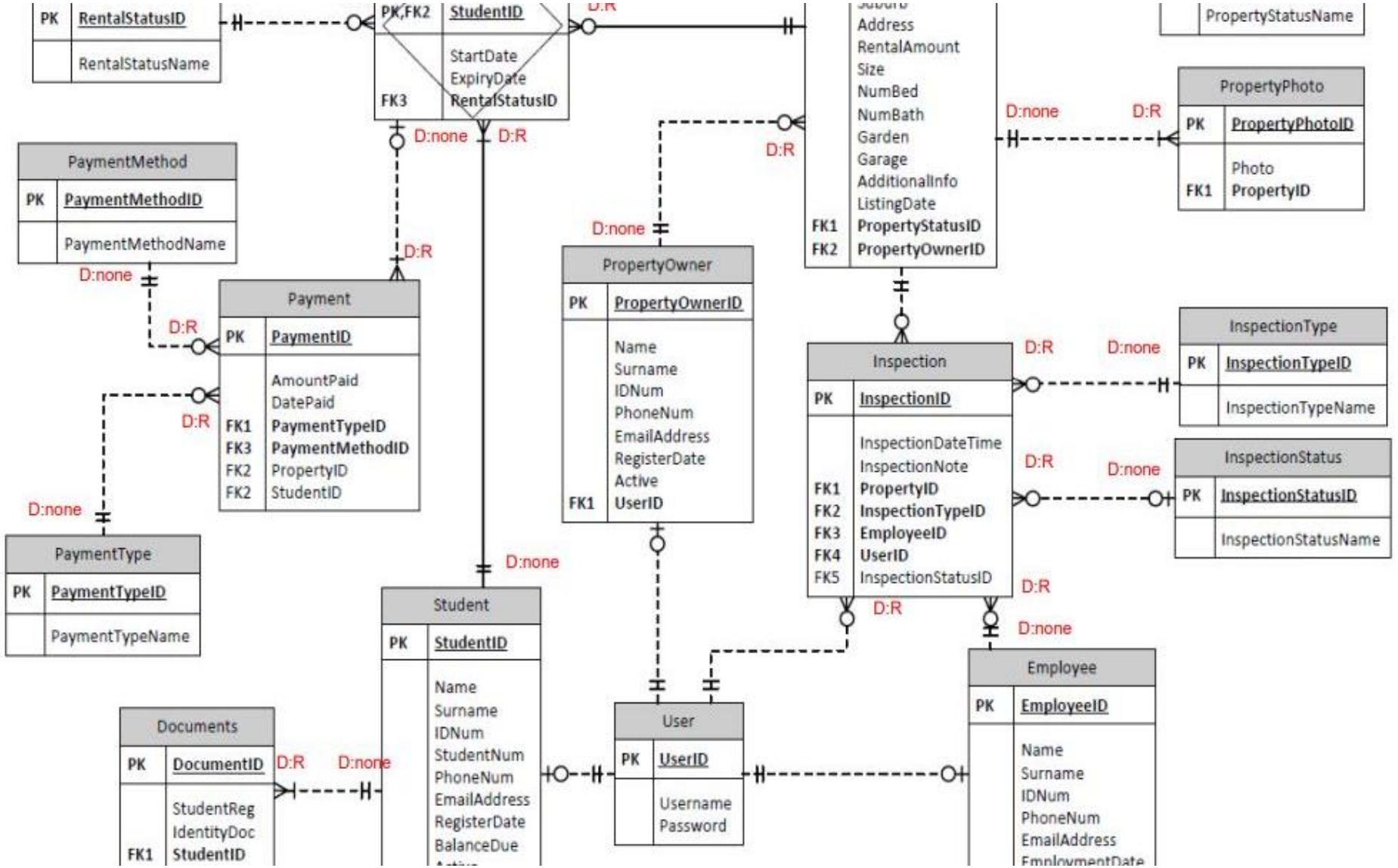

ARU ERD with referential integrity

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Part 2: Specify Data Types

Integer

Char

Boolean

Date/Time

Double (currency)

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