Project Phase 3

Team: Welcome_to_IIIT

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EER model to Relational model mapping

- The *User* entity type was split into three tables, and thus the attribute *User Type* was redundant. It was, therefore, removed.
- The *Question* entity type did not have any partial key. An attribute *Question ID* was added.
- The weak entity type *Prcotoring Data* is now treated as an attribute to the relationship *Examination*.
- When mapping the multivalued attribute *Question Image*, the attribute *Link* is sufficient to determine *Question ID* and *Test ID*. Hence, it was chosen to be the key in this new table.

The mapping from EER to the relational model is shown in Figure 1.

Functional Dependencies

The functional dependencies were identified, and are shown in Figure 2.

Conversion to 1NF

No table has non-atomic attributes. Hence, the model is in 1NF.

Conversion to 2NF

No table has a partial dependency. Hence, the model is in 2NF.

Conversion to 3NF

No table has a dependency where a non-prime attribute is a determinant. Hence, the model is in 3NF.

Note: In the table *Examination*, *Link to Audio* and *Link to Video* are prime attributes. Hence, they do not break 3NF.

Conversion to BCNF

No table has a dependency where a non-prime attribute is a determinant. Hence, the model is in BCNF.

Final Relational Model

There were no normalization changes made to the relational model, as it was already in BCNF.

The final relational model is, therefore, given by Figure 1.

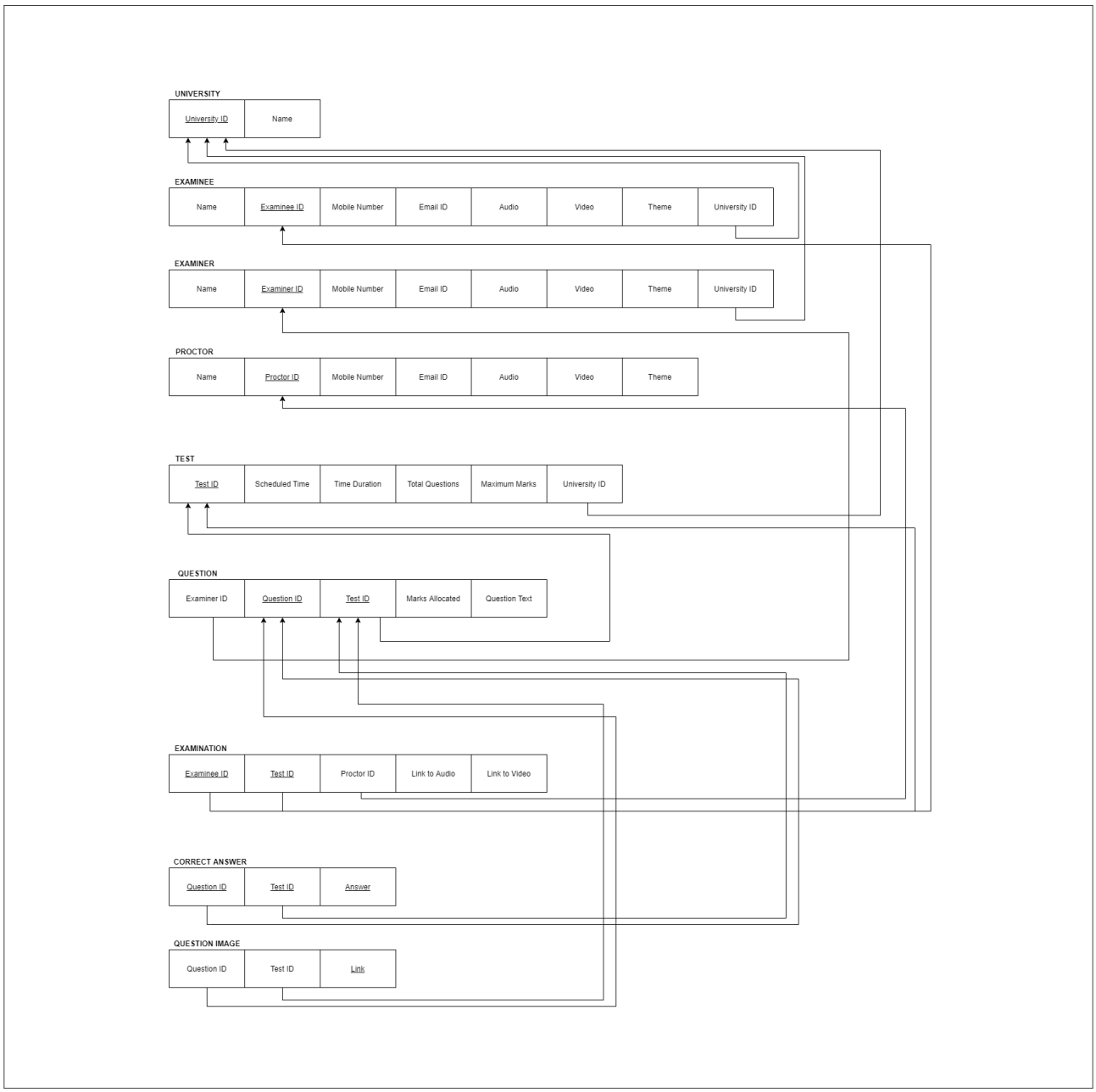

Figure 1: EER to Relational mapping

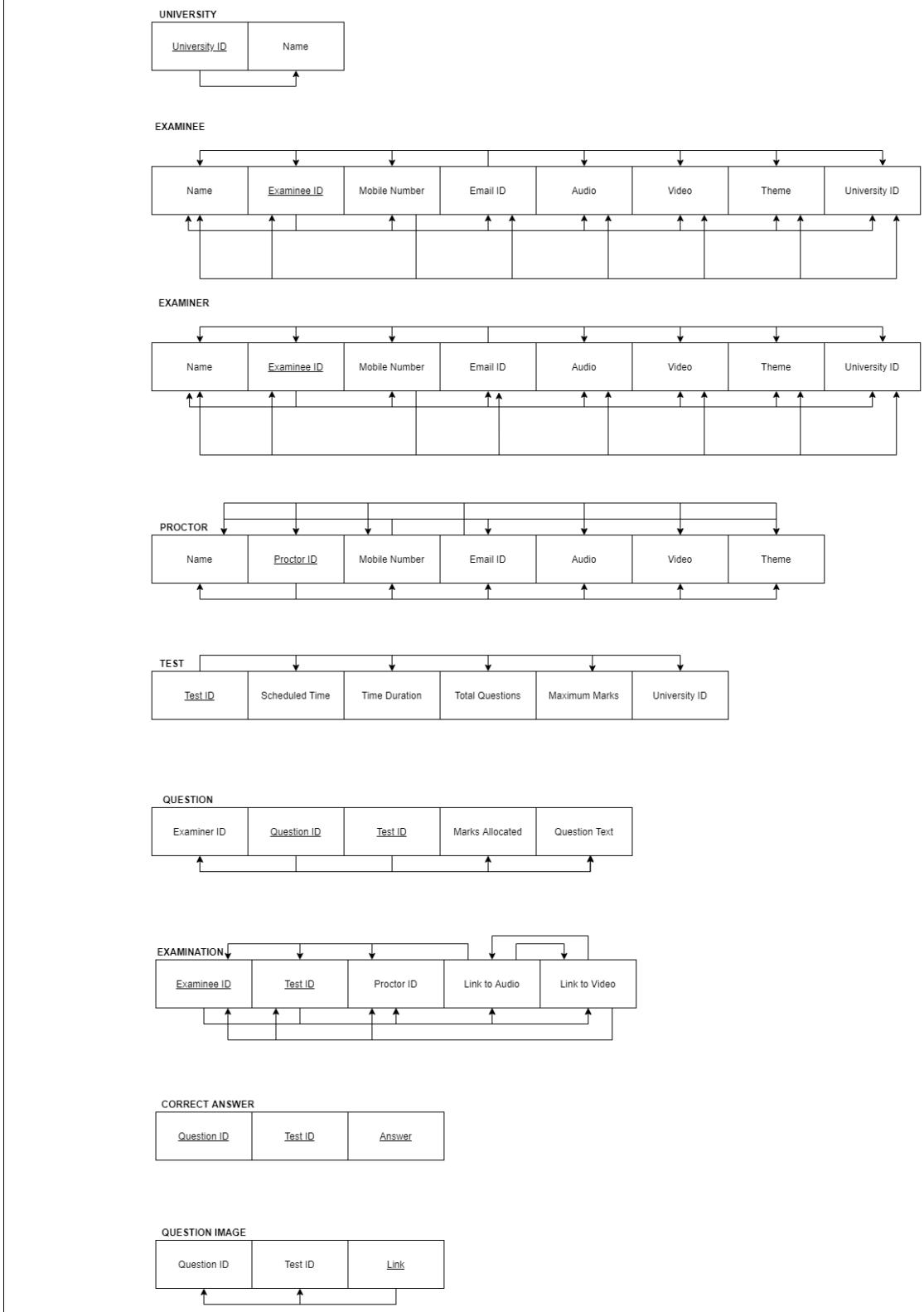

Figure 2: Functional Dependencies