IFB105 Database Management

Project - Part B

Task 6 Solution

Task 6 [4 marks]

Hint: Going through the examples of functional dependencies and normalization covered in the Week 6 Lecture will help you to work on this question.

Using the following table structure, identify all functional dependences and then decompose this table into a set of 3NF relations. Your answer should:

- List the functional dependences
- Contain the relational schema for the relations in 3NF.

CharId	CharName	ActorName	FigId	OwnerId	Pseudonym
Vader	Darth Vader	David Prowse	f14	Bill	Jabba the Hoot
Vader	Darth Vader	David Prowse	f22	Amy	Don't Blame Me
Yoda	Yoda	Frank Oz	f16	Lucy	Xena Warrior
Leia	Princess Leia	Carrie Fisher	f45	Bill	Jabba the Hoot
Leia	Princess Leia	Carrie Fisher	f99	Amy	Don't Blame Me

ANSWER:

Initial Minimal Functional Dependencies:

CharId -> CharName,
CharId -> ActorName,
CharName -> ActorName,
OwnerId -> Pseudonym
CharId, OwnerId -> FigId

1NF Conformance:

Above table is already in 1NF because every value in the table is atomic

2NF Conformance:

Representing the relational schema:

Character_Actor_Table: {CharId, CharName, ActorName}

- Where {CharId -> CharName,
CharId -> ActorName,
CharName -> ActorName}

Owner_Table: {OwnerId, Pseudonym}
- Where {OwnerId -> Pseudonym}

Character_Owner_Figure_Table: {CharId, OwnerId, FigId}
- Where {CharId, OwnerId -> FigId}

3NF Conformance:

Removing the transitive dependency in the Character_Actor Table and Representing the new relational schema:

Character_Table: {CharId, CharName}

- Where {CharId -> CharName}

Character_Actor_Table: {CharName, ActorName}
- Where {CharName -> ActorName}

Owner_Table: {OwnerId, Pseudonym}
- Where {OwnerId -> Pseudonym}

Character_Owner_Figure_Table: {CharId, OwnerId, FigId}
- Where {CharId, OwnerId -> FigId}