

COMP 3005 Assignment Four

1.1) Functional Dependencies:

MovieTitle, Director -> Producter
ActorName -> phone, address, agentName
SPTitle, Author -> Temp
SPTitle, Author, SceneNo -> StoryLocation, FilmLocation
ActorName, SceneNo, TakeNo -> date, time

1.2) Minimal Cover:

MovieTitle, Director -> Producer
ActorName -> Phone
ActorName -> Address
ActorName -> AgentName
SPTitle, Author -> Time
SPTitle, Author, SceneNo -> StoryLocation
SPTitle, Author, SceneNo -> FilmLocation
ActorName, SceneNo, TakeNo -> Date
ActorName, SceneNo, TakeNo -> Time

1.3) 3NF table (Dependency Preserving):

[Director, MovieTitle | Producer]
Director, MovieTitle -> Producer

[ActorName | AgentName, Address, Phone]
ActorName -> AgentName, Address, Phone

[Author, SPTitle | Temp]
Author, SPTitle -> Temp

[SPTitle, Author, SceneNo | StoryLocation, FilmLocation]
Author, SPTitle, SceneNo -> FilmLocation, StoryLocation

[ActorName, SceneNo, TakeNo | Time, Date]
ActorName, SceneNo, TakeNo -> Time, Date

2.1) Functional Dependencies:

code -> bookcodesTitle, publisher, date
songID -> songsTitle, composer
userID -> password, name, emailAddress
userID, code -> pdfFileName, pageOffset
songID, code -> length, page

2.2) Minimum Cover:

code -> bookcodesTitle
code -> publisher
code -> date
songID -> songsTitle

songID -> composer
userID -> password
userID -> name
userID -> emailAddress
userID, code -> pdfFileName
userID, code -> pageOffset
songID, code -> length
songID, code -> page

2.3) 3NF table (Dependency Preserving):

[code | bookcodesTitle, publisher, date]
code -> bookcodesTitle, publisher, date

[songID | songsTitle, composer]
songID -> songsTitle, composer

[userID | password, name, emailAddress]
userID -> password, name, emailAddress

[userID, code | pdfFileName, pageOffset]
userID, code -> pdfFileName, pageOffset

[songID, code | length, page]
songID, code -> length, page

3.1) Functional Dependencies:

stdnum -> name, strnum, street, area_code, office_code, postcode, email, station_code
email -> stdnum
postcode -> city
area_code, office_code -> city
course_num -> department_name
period, room_num, term -> course_section
room_num -> building
stdnum, course_num, course_section -> grade

3.2) Minimum Cover:

stdnum -> name
stdnum -> strname
stdnum -> street
stdnum -> post_code
stdnum -> area_code
stdnum -> office_code
stdnum -> station_code
stdnum -> email
stdnum -> city
area_code, office_code -> city
course_num -> department_name
room_num -> building

stdnum, course_num, course_section -> grade
email -> stdnum

3.3) 3NF table (Dependency Preserving):

[stdnum | area_code, post_code, office_code, station_code, street, strnum, name]
stdnum -> area_code, post_code, office_code, station_code, street, strnum, name

[postcode | city]
postcode -> city

[areacode | city]
areacode -> city

[course_num | department_name]
course_num -> department_name

[period, room_num, term | course_section]
period, room_num, term -> course_section

[room_num | building]
room_num -> building

[course_num, course_section, stdnum | grade]
course_num, course_section, stdnum -> grade

[email | stdnum]
email -> stdnum

4.1) Attribute Table and Comments:

attribute	comment
Person_Name	This lists the full name of a person involved with creating an art piece, or who is involved with an artistic group of interest.
Person Number	This is an ID number to represent the person in the database. It is used along with the name to make a primary key.
Birth Date	This is the birth date of the person
Death Date	This is the death date of the person
Person_Status	This is the current activity status of the person (i.e., in production, retired, etc.)
Method Used	Used to describe how a person made an art piece
Date_Make	Date that a person made an art piece or finished their contribution to the art piece
Role_Make	This is the role that the person played in the creation of the art piece

Art_ID	This is the ID number of the art piece in the database, it is used as the primary key for the art pieces.
Description	This is a string of text to represent a basic description of the art piece
Art_Status	This represents the status of the art piece (i.e., in production, on display, destroyed, lost, etc.)
Art_Name	This is the name of the art piece (i.e., the name of a book)
Type	This is the type of art medium that the art piece is a part of (like books, movies, paintings, etc.)
Completion Date	This is the date upon which the art piece was completed
Date_Produced	This is the date that a group of interest completed an art piece or finished their role in the art pieces production
Role_Produced	This is the role that a group of interest played in the production of an art piece
Group_Status	This is the status for a group of interest (i.e., working on project, disbanded, etc.)
Closed	This is the date that the group of interest disbanded, set to NULL if group is still functional.
Founded	This is the date that the group of interest was founded
Group_ID	This is an ID value used as the primary key for the groups of interest data table
Role_Work_With	This describes the role that a person played with the specified group of interest

4.2) Assumptions and Constraints:

Assumptions:

- We assume that groups of interest do not contain subgroups, but multiple groups can share the same members.
- We assume we can attribute a creator to a piece of art, natural pieces of 'art' like waterfalls cannot be assigned a creator.

Constraints:

- We assume we know who made a piece of art. In the event we don't know the person and group who made an art piece, we hypothetically could assign the piece to a person named unknown.
- We assume we know who did what in the creation of an art piece.
- We assume that art pieces are categorizable as individual entities

4.3) Functional Dependencies:

Person_Number, Person_Name -> Birth_Date, Death_Date, Person_Status

Art_ID -> Description, Art_Status, Art_Name, Type, Completion_Date
 Group_ID -> Founded, Closed, Group_Status
 Person_Name, Person_Number, Art_ID -> Method_Used, Date_Make, Role_Make
 Art_ID, Group_ID -> Date_Produced, Role_Produced
 Group_ID, Person_Number, Person_Name -> Role_Work_With

4.4) Minimal Cover:

Person_Number, Person_Name -> Birth_Date
 Person_Number, Person_Name -> Death_Date
 Person_Number, Person_Name -> Person_Status
 Art_ID -> Description
 Art_ID -> Art_Status
 Art_ID -> Art_Name
 Art_ID -> Type
 Art_ID -> Completion_Date
 Group_ID -> Founded
 Group_ID -> Closed
 Group_ID -> Group_Status
 Person_Number, Person_Name, Art_ID -> Method_Used
 Person_Number, Person_Name, Art_ID -> Date_Make
 Person_Number, Person_Name, Art_ID -> Role_Make
 Art_ID, Group_ID -> Date_Produced
 Art_ID, Group_ID -> Role_Produced
 Group ID, Person_Number, Person_Name -> Role_Work_With

4.5) 3NF table (Dependency Preserving):

[Person_Name, Person_Number | Person_Status, Death_Date, Birth_Date]
 Person_Name, Person_Number -> Person_Status, Death_Date, Birth_Date

[Art_ID | Completion_Date, Type, Art_Name, Art_Status, Description]
 Art_ID -> Completion_Date, Type, Art_Name, Art_Status, Description

[Group_ID | Group_Status, Closed, Founded]
 Group_ID -> Group_Status, Closed, Founded

[Art_ID, Person_Name, Person_Number | Role_Make, Date_Make, Method_Used]
 Art_ID, Person_Name, Person_Number -> Role_Make, Date_Make, Method_Used

[Art_ID, Group_ID | Role_Produced, Date_Produced]
 Art_ID, Group_ID -> Role_Produced, Date_Produced

[Group_ID, Person_Name, Person_Number | Role_Work_With]
 Group_ID, Person_Name, Person_Number -> Role_Work_With