

**Department of Computer Engineering**

**CSE5041 Database Design & Development  
Project Report**

IMDB like Movie Rating System

**Due Date:** 26/12/2022

|  |  |  |
| --- | --- | --- |
|  | **ID** | **Name & Surname** |
| **1st Student :** | **1800002414** | **Gizem TURAN** |
| **2nd Student :** | **1900002080** | **Utku YAZICI** |

**TABLE OF CONTENTS**

[**1 INTRODUCTION** 4](#_Toc352925434)

[1.1 PROJECT DESCRIPTION 4](#_Toc352925435)

[**2 ENTITY RELATIONAL MODEL** 5](#_Toc352925436)

[2.1 ENHANCED ER DIAGRAM 5](#_Toc352925437)

[2.2 RELATIONAL SCHEMA & MAPPING 6](#_Toc352925438)

[**3 NORMALIZATION** 7](#_Toc352925439)

[3.1 FUNCTIONAL DEPENDENCIES 7](#_Toc352925440)

[3.2 UNNORMALISED FORM 7](#_Toc352925441)

[3.3 FIRST NORMAL FORM 7](#_Toc352925442)

[3.4 SECOND NORMAL FORM 7](#_Toc352925443)

[3.5 THIRD NORMAL FORM 7](#_Toc352925444)

**LIST OF FIGURES**

[Figure 1: EER diagram of the Social Network Database ............................... 5](#_ENHANCED_ER_DIAGRAM)

[Figure 2: Relational schema of the Social Network Database with arrows indicating referential integrity....................................................................................................... 6](#_RELATIONAL_SCHEMA_&)

# INTRODUCTION

## PROJECT DESCRIPTION

**The IMDB database stores the information about the users of the platform, the awards, the images and galleries, the details about the movie, the movie’s categories and the people associated with making of the movies such as actors and directors. The necessary relationships are stored at different tables. Each movie has the id, name, rating, language, runtime, release date, popularity, and budget information. The people who work on the movies are split into 3 different sub tables such as stars, directors and writers. The platform’s users have the id, name, surname, password and roleId informations stored at a table which has relations with tables such as reviews and ratings on movies. These tables have the comment and rating informations mapped to each users accordingly.**

# ENTITY RELATIONAL MODEL

## ENHANCED ER DIAGRAM

Diagram, schematic

Description automatically generated

**Figure 1:** EER diagram of the Social Network Database

## RELATIONAL SCHEMA & MAPPING

**Figure 2:** Relational schema of the Social Network Database with arrows indicating referential integrity

A picture containing graphical user interface

Description automatically generated

# NORMALIZATION

## FUNCTIONAL DEPENDENCIES

Movie Table

F ={FD1:ID → Name, Rating, Language, Runtime, ReleaseDate, Popularity,

Budget

User Table

FD2: ID → ID, Name , Surname, Password, RoleID

Person Table

FD3: ID → ID, Name , Surname

Producer Table

FD4: ID → ID, Name

Award Table

FD5: ID → ID, Type, OrganizationID

Role Table

FD6: ID → ID, Type

WatchList Table

FD7: ID → ID , UserID

Organization Table

FD8: ID → ID , Name

Category Table

FD9: ID → ID , Name

Permission Table

FD10: ID → ID , Per\_name

Director Table

FD11: ID → ID , PersonID

Writer Table

FD12: ID → ID , PersonID

Star Table

FD13: ID → ID , PersonID

Gallery Table

FD14: ID → ID , MovieID

GalleryPhoto Table

FD15: ID → ID , GalleryID

## UNNORMALISED FORM

Movie Table

Table

Description automatically generated

## FIRST NORMAL FORM

Movie Table

Table

Description automatically generated

Primary Key : ID

The table is already at UF1 because we don’t have any attribute that has many values.

## SECOND NORMAL FORM

Movie Table

Table

Description automatically generated

Primary Key : ID

The table is already at UF2 because we don’t have any attribute that has many values.

## THIRD NORMAL FORM

Movie Table

Table

Description automatically generated

Primary Key : ID

The table is already at UF3 because we don’t have any attribute that has many values.

**THE NORMALIZATIONS OF THE OTHER TABLES**

**User Table**

**UNF:**

User{ID, Name, Surname, Password, RoleID Primary Key: ID

**1NF:**

User{ID, Name, Surname, Password, RoleID Primary Key: ID

\*Already at 1NF

**2NF:**

User{ID, Name, Surname, Password, RoleID Primary Key: ID

\*Already at 2NF, Each non key field is directly correlated with the primary key. So this is NF2 There aren’t any transit functional dependencies, so this is also NF3

**3NF:**

User{ID, Name, Surname, Password, RoleID Primary Key: ID

\*Already at 3NF

**Person Table**

**UNF:**

Person{ PersonID, Name, Surname} Primary Key: ID

**1NF:**

Person{ PersonID, Name, Surname} Primary Key: ID

\*Already at NF1

**2NF:**

Person{ PersonID, Name, Surname} Primary Key: ID

\*Already at NF2

**3NF:**

Person{ PersonID, Name, Surname} Primary Key: ID

\*Alread at NF3 because there aren’t any transit functional dependencies

**Producer Table**

**UNF:**

Producer{ID, Name,}

Primary Key: ID

**1NF:**

Producer{ID, Name,}

Primary Key: ID

\*Already at 1NF

**2NF:**

Producer{ID, Name,}

Primary Key: ID

\*Already at 2NF

**3NF**

Producer{ID, Name,}

Primary Key: ID

\*Already at 3NF, no transit function dependencies

**Award Table**

**UNF:**

Award{ID, Type, OrganizationID} Primary Key: ID

**1NF, 2NF and 3NF:**

Award{ID, Type, OrganizationID} Primary Key: ID

**Role Table**

**UNF:**

Role{ID, Type} Primary Key: ID

**1NF, 2NF and 3NF:**

Role{ID, Type} Primary Key: ID

**WatchList Table**

**UNF:**

WatchList{ID, UserID} Primary Key: ID

**1NF, 2NF and 3NF:**

WatchList{ID, UserID} Primary Key: ID

**Organization Table**

**UNF:**

Organization{ID, Name} Primary Key: ID

**1NF, 2NF and 3NF:**

Organization{ID, Name} Primary Key: ID

**Category Table**

**UNF:**

Category{ID, Name} Primary Key: ID

**1NF, 2NF and 3NF:**

Organization{ID, Name} Primary Key: ID

**Permission Table**

**UNF:**

Permission{ID, Per\_name} Primary Key: ID

**1NF, 2NF and 3NF:**

Permission{ID, Per\_name} Primary Key: ID

**Director Table**

**UNF:**

Director{ID, PersonID} Primary Key: ID

**1NF, 2NF and 3NF:**

Director{ID, PersonID} Primary Key: ID

**Writer Table**

**UNF:**

Writer{ID, PersonID} Primary Key: ID

**1NF, 2NF and 3NF:**

**Gallery Table**

**UNF:**

Gallery{ID, MovieID} Primary Key: ID

**1NF, 2NF and 3NF:**

Gallery{ID, MovieID} Primary Key: ID

**Star Table**

**UNF:**

Star{ID, PersonID} Primary Key: ID

**1NF, 2NF and 3NF:**

Star{ID, PersonID} Primary Key: ID

**Gallery\_Photo Table**

**UNF:**

Gallery\_Photo{ID, GalleryID} Primary Key: ID

**1NF, 2NF and 3NF:**

Gallery\_Photo{ID, GalleryID} Primary Key: ID