**CSY1026 Topic 5 Activity| ERM: relationships**

# Activity Objectives

Table specifications are drawn from the entity relationship diagram, which forms the map for the database. Table specs should include attributes, domains, keys and integrity.

The Aim of this topic activity is to:

1. Define ERM and table specs with keys, attributes, domains and integrity

# Topic Activity

Read through the information below and complete the topic requirements.

# Simplified Game Scenario

‘Mikey Mouse Castle of Illusions’ is a traditional computer game developed in the 1990 and reinvented in the 2013 as an app ‘Castle of Illusion’ staring Mickey Mouse. The game follows Mickey (Mouse) on a quest to save Minnie (Mouse) from the evil witch Mizrabel, who wants to steal Minnie’s youth. Mickey searches through a magnificent castle for Minnie and encounters many fantastic challenges. The game allows a number of individuals to enjoy the game, though they do not play together. Each player enters their name and age in to the system.

The castle has a number of different levels represented by different rooms in the castle. Each level has a room number, name eg frightful forest and terrifying toys as well as a description and other mechanics are stored eg skills. The levels in the game have several stages, these are points in the level where the game creates a save point. Stages are always linked to a level and all levels have many new and intriguing stages. Stages have a number eg 1, 2,3 ect, a name and a % completion of the related level for example 10% 30%. The levels also have a different background description at each stage.

A player is expected to continue through stage after stage to progress. Players can return to old save stages or continue through to the new stage. At each stage of the game there could be many players saved at that point (though not playing concurrently.) Each player should be able to return to their own stage in their game.

The simplified game structure can be modelled as traditional entity and relationships. Run Mickey Run!

# Topic Requirements

* Draw an entity-relationship diagram for the scenario above.
* Include cardinality (degree of association) and optionality for all relationships.
* All m:n relationships should be decomposed
* All 1:1 relationships should be resolved

* From your entity-relationship diagram draw up a set of skeleton tables
* See example table specification below
* assign all attributes you have identified
* Clearly indicate the chosen primary key for each table
* Post all foreign keys

# Example Table Specification

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Datatype** | **Constraint** | **Default** |
| Persons | | | |
| person\_id | NUMBER | PK |  |
| name | VARCHAR | UPPER |  |
| gender | CHAR |  | M |
| date\_registered | DATE | DD/MMM/YYYY | sysdate |
| Date\_of\_birth | DATE | DD/MMM/YYYY |  |
| \*L\_id | NUMBER | FK |  |
| levels | | | |
| L\_id | NUMBER | PK |  |
| L\_name | VARCHAR | UPPER |  |
|  |  |  |  |
|  |  |  |  |
| stages | | | |
| Stage\_number | NUMBER | PK |  |
| Stage\_name | VARCHAR | UPPER |  |
| %completed | VARCHAR | NOT\_NULL | M |
|  |  |  | sysdate |
| Level\_stage | | | |
| Level\_stage | VARCHAR | PK |  |
| \*L\_id | NUMBER | FK |  |
| \*Stage\_number | NUMBER | FK |  |
|  |  |  | sysdate |

Person

Levels\_stages

Levels

Stages

Stages

Levels

levels

player

Level

Stages

# Good Practice

* All entities have rounded boxes
* All entity names are singular
* All table names should be plural eg students
* All attributes should be simple, single and static values

ie all data should be should be broken down to component parts

eg name should be firstname, surname

* All table and attribute names are user defined words. User defined words should be all lower case eg firstname, surname, email, town, postcode
* Datatypes are reserved words. All reserved words should be UPPER CASE eg NUMBER, CHAR, VARCHAR2, DATE
* VARCHAR2 is the new(er) version of VARCHAR and should be used in place of VARCHAR

VARCHAR can store up to 2000 bytes of characters

VARCHAR2 can store up to 4000

Datatype declared as VARCHAR it will occupy space for NULL values

VARCHAR2 datatype does not occupy any space for NULL values

* Primary key columns are identified by underlines (\_)
* Foreign key columns are identified by asterisks (\*)
* Should include a key for your keys

\_ = primary keys

\* = foreign keys

# topic Review

This activity identified entity relationship model components of entities and relationships with related tables; attributes, domains and considered the definition of keys and integrity.