



ENTITIES & RELATIONSHIPS

- **Entities** : Lesson, LearningUnit, LearningAsset, SlideDeck, Author, Memo, Video, AuthorEmail, Attachments
- **Relationships** : LessonLearningAsset, LearningUnitAsset
- **Notes:**
 - a. It is not possible to depict the exact cardinalities, and higher-order relations using ERD with IE/Crow's Feet Notation.
 - b. The many-to-many relationship with "**Lesson**" and "**LearningUnit**" has been split up into two one-to-many relationships and depicted and implemented with the help of linking table, "**LearningUnitLesson**", which uses two foreign keys combined as a composite primary key, **unitID** from "**LearningUnit**" and "**LessonID** from Lesson". Apart from this the Lesson “has-a” learning unit relationship (Aggregation) has been partially shown with the ‘0 to many crow’s feet notation.
 - c. The many-to-many relationship between “**LearningUnit**” and “**Lesson**” has been decomposed into two one-to-many relationships with total participation.
 - d. The generalization relationship between parent entity “**LearningAsset**” and child entities “**Video**” and “**SlideDeck**” has been depicted by the use of primary key attribute **AssetID** of LearningAsset as both Foreign Key and Primary Key in the child entities.

RELATIONAL SCHEMA:

```
Lesson{LessonID, timeToComplete, title}
LearningAsset{lessonID, assetID}
LessonLearningAsset{lessonID, assetID}
LearningUnit{unitID, timeToCover, title, overview}
LearningUnitLesson{unitID, lessonID}
Author{authorID, firstName, lastName, email}
AuthorEmail{emailID, authorID}
SlideDeck{slideID, url, filetype}
Video{videoID, url, runTime, type, platform}
Memo{memoID, contents, lessonID}
Attachment{url, memoID}
```