

EER to Relational Model Mapping write up:

Step1: Mapping of Regular entities: PLAYER, CHARACTER, LOCATION, CREATURE, QUEST

Regular entity PLAYER mapped as PLAYER relation. All simple attributes are included. Attribute "Player_ID" is selected as a primary key.

Regular entity CHARACTER mapped as CHARACTER relation. All simple attributes are included. Attribute "Character_ID" is chosen as a primary key.

Regular entity LOACTION mapped as LOCATION relation. All simple attributes are included. Attribute "Area" is chosen as a primary key.

Regular entity QUEST mapped as QUEST relation. All simple attributes are included. Attribute "Quest_Name" is chosen as a primary key.

Regular entity CREATURE mapped as CREATURE relation. All simple attributes are included. Attribute "Name/Type" is selected as a primary key.

Step 2: Mapping of weak entities: INVENTORY

Weak entity INVENTORY mapped as INVENTORY relation. All simple attributes are included. Primary key "Character_ID" from CHARACTER relation is added as Foreign Key. The primary key is the combination of "Unique_Item_Name" and "Character_ID".

Step 3: Mapping of binary 1:1 relationship:

1:1 relationship between CHARACTER and LOCATION is mapped as a foreign key attribute "Area" in CHARACTER relation that references to "Area" primary key attribute in LOCATION relation.

1:1 relationship between LOCATION and CREATURE is mapped as a foreign key attribute "Area" in CREATURE relation that references to "Area" primary key attribute in LOCATION relation.

Step 4: Mapping of binary 1:N relationship:

1:N relationship between PLAYER and CHARACTER is mapped as a foreign key attribute "Player_ID" in CHARACTER relation ("N" side) that references "Player_ID" primary key attribute in PLAYER relation ("1" side)

Step 5: Mapping of binary M:N relationship: No relationship

Step 6: Mapping of multivalued attributes: ABILITY

Multivalued attribute is mapped as relation ABILITY corresponding to CHARACTER relation. All simple attributes are included. The primary key attribute “Character_ID” from CHARACTER relation is introduced as the foreign key attribute in ABILITY relation that references the primary key in CHARACTER relation. And again, the primary key in ABILITY relation is the combination of “Ability_Name” and “Character_ID”.

Step 7: Mapping of ternary relationship: ADVENTURE_PARTY

ADVENTURE_PARTY is a ternary relationship that has three entities participate in it which are CHARACTER, QUEST, LOCATION. Ternary relationship among three entities is mapped as relation ADVENTURE_PARTY where primary keys from those three participating entities are introduced as foreign keys in it. And all simple attributes of ADVENTURE_PARTY relationship (i.e. Party_Name, Party_Leader) are included too. The resulting primary key is the combination of “Character_ID”, “Quest_Name”, “Area”

Step 8: Mapping of specializations & generalizations:

Character Type specialization is mapped into relations WARRIOR, MAGE, ROGUE for three subclasses Warrior, Mage and Rogue respectively where the attributes for each of those relations are the combinations of the primary key “Character_ID” from the superclass relation CHARACTER and all the attributes of that corresponding subclass.