**Ch3-Extra**

**Extra Credit:** Chapter 3 Extra Credit (5 Points) Assignment - Due \_\_\_ \_\_ \_\_\_ Before Class

Apply the normalization process to the following relations. Show the following steps for each relation:

1. Show the candidate keys from the original relation.
2. Show the functional dependencies from the original relation.
3. Is any determinant not a candidate key? If so, show the following:
   1. The new normalized relations.
   2. The primary key in each new relation.
   3. The foreign keys in the new relations.
   4. The referential integrity constraints for the foreign keys.

**Relation 1:** Child in a traditional family with a mother and father.

* CHILD (LastName, MomName, MomSSN, DadName, DadSSN, ChildName, ChildSSN)
* Assumptions:
  + Families usually have more than one child.
  + Everyone in a family has the same last name.
  + Each person has a unique Social Security Number (SSN).

**Relation 2:** Relationships between parents and children in modern families.

* RELATIONSHIP (ParentSSN, ParentLastName, ParentFirstName, Relationship, ChildSSN,  
   ChildLastName, ChildFirstName)
* Assumptions:
  + Each parent may have different relationships with their different children.
  + The relationships can be biological, surrogate, adoptive, step, foster, or guardian.
  + Each child can have one or more parents, possibly three or more.
  + Each person has a unique Social Security Number (SSN).