Group 4: Logical Design Feedback

Overall, good work. Care should be taken on mapping the ER diagram, normalisation and a revision of your model. The following are some main comments.

Mapping the conceptual ER diagram into a relational schema

– A representation of the changes/results of the corresponding schemas after mapping one-to-many relationships as per page 3 and one-to-one relationships as per page 4 is required. At the end of all the mapping steps, a list of all the **final** relational schemas must be presented.

– Revise the design of *Supervise as* in your conceptual ER diagram.

– Some attributes are missing in the schema. For example, *ExtendedProposalAppDocID*, *VersionNumber*, *ProvesPaymentAppDocID2* are missing from the Application schema but these are attributes of the Application entity as show in the conceptual ER diagram.

– Revise the list of attributes in the Application schema. For example, there are some attributes, e.g. *LastToModifyStaff*, *flindersCampus*, *fullTime* listed in the schema as per page 4 but these do not appear in your conceptual ER diagram.

– Keep consistency in using attribute names in both the ER diagram and relational schema. For example, an inconsistency occurs in using *Address* in the Applicant entity type while *StreetAddress* is in the Applicant schema. Similarly, *DocumentStatus* in the ER diagram while *DocStatus* in the schema and lastly *DecisionType* in the ER diagram while *decType* in the Schema.

– Revise both the UniversityStaffMember_ResearchArea and UniversityStaffMember_ResearchArea2 schemas as per page 5. These 2 new schemas have all of the same attributes, perhaps only 1 new schema may be required.

Normalisation

– Review functional dependencies (FDs) for the Applicant, Degree and Document schema as per page 8-9. There are some transitive FDs in these schemas and thus they are not in 3NF.

– Missing an explanation for applying normalisation to the following schemas: Checklist, Supervise as, UniversityStaffMember_ResearchArea, UniversityStaffMember_ResearchArea2, Application_ResearchArea, UniversityStaffMember_Application.

– Review all lookup schemas. You should use normalisation to analyse relationships between attributes to derive these lookup schemas. The more schemas you spilt, the more joins will be needed.

– Many new attributes were added into the schema but these never appeared in the original conceptual ER diagram. You need to have all these attributes in the conceptual ER diagram and after mapping the ER diagram, you will get the relational schemas to contain all these attributes. Then use normalisation to analyse relationships between attributes. You cannot just add new attributes into the schema (e.g. Applicant and Application schemas) in the normalisation stage as per page 12. You do this to other schemas as well.

– There are many errors in the list of the normalised schemas as shown in page 12-13. Examples of these include:

1) Failing to include *DocID* attribute in the Publication schema as per page 13 and failing to identify this as a foreign key attribute.

2) No explanation of theories to support your new schema. For example, why create a new Visa Status schema, is Visa Status a multivalue attribute? or is there a transitive functional dependency on the Visa schema?

3) Inconsistency using attribute name. For example, *Country of Origin* in the conceptual ER diagram while *OriginContryISOCode* in the schema, *DocumentStatus* in the conceptual ER diagram while *DocStat* in the schema, *DegreeName* and *DegreeType* in the conceputual ER diagram but *Name* and *Type* in the Degree schema, etc.

4) The document schema is not in 3NF. This is the reason why you have a new DocumentType schema. You should reconsider all of your look up schemas and have a theory of normalisation to support why you split this into a new schema.

5) A list of alternate keys for the Applicant schema is incorrect.

6) Failing to include *ManagedByStaffID* in the Application schema and *AppDocID* in the Degree schema.

Validating schemas using user transactions

– As you focus mainly on lookup transactions, you should check to make sure it will answer all the transactions that the users may want to query e.g. *list all applications waiting for a supervisor agreement*.

– Additionally, you should provide a detailed illustration/explanation of how the pathway of the corresponding relational schemas is validated against user transactions rather than simply providing the label on the listed transactions on the ER diagram.

Review logical model

When revising your logical data model, you need to describe the refinements that you have discovered instead of simply stating as mentioned.