**Database Application(TDA):Part1-ProjectPlan&DatabaseDesign**

We do require you to use real world data and a dataset with atleast 100,000 entries. Good data is available from data.medicare.govandthenationalbureauoftransportationstatistics. You will have to write a program to insert the data into a relational database, so make sure you can get CSV ﬁles. Try to pick an application that is relatively substantial, but not too enormous. For example, when expressed in the entity-relationship model, you might want your design to have in the range of twelve or so entity sets, and a similar number of relationships. Please note that this is a ballpark ﬁgure only!

describe the general nature of the application incl. The proposed functionality of the application program, and the data that you plan to store in the database to support the application (it is OK to say you will generate random data). Your description should be brief and relatively informal. If there are any unique or particularly difﬁcult aspects of your proposed application, please point them out. Your description will be graded only on suitability and conciseness. You MUST provide a bulleted list of 4 questions that you want to ask about the data in your database. These questions must not be trivial to answer. The questions will help guide your database design. This document (i.e., project plan) will serve as your road map for the development of your TDA and give us an overview of what you are trying to do and how difﬁcult it is. Please note that it is ok to deviate from this plan as the semester progresses and you understand the details of your application better. Please submit an updated project plan with your deliverable whenever you make changes

A paper & pencil design of the underlying database using the E/R data model discussed in class. Speciﬁcally, your data design should support the needs of the application and should contain approximately 6-8entitytypes, each with their associated attributes(3-5). Your design must include at least one subclass and a weak entity set. In addition, you must specify approximately 4-6relationships among the entity types of your schema, at least one of which must be ternary. Finally, specify a set of constraints for the domains, entity types, and relationships. At a minimum, you must indicate key attributes for each entity. Feel free to include as many constraints as you need to support the application(and as you can model using E/R constructs). At this point, do not worry about how to enforce the constraints in the DBMS. Please use the E/R notation introduced in the lectures or the textbook OR slides.

Hand in your project plan as well as your E/R database design. You may use an E/R design tool if you have access to one. Otherwise, a paper & pencil design is perfectly ok.

**Deliverables Checklist ∙**

**A 1-2 page project plan. See the description of above for the required contents. An ER diagram. Either a digital drawing or an image of a hand drawn diagram is ﬁne. If a photo of a hand drawn diagram is used, be sure it has sufﬁcient lighting; you may need to use a ﬂashlight to ensure it is bright enough. Remember to specify constraints. If constraints are not speciﬁed, you will lose points. ∙ 4 interesting questions that a user of the database would like to ask. At least 3 of your questions must be sufﬁciently complex. To be sufﬁciently complex, a question must (at a minimum) require that the information representing 2-3 entities be examined in order to ﬁnd the solution.**