Database Systems
CMPT 308

Lab 9: Normalization 3 - 10 points

Goals	To further refine your facility with the art and science of normalization.
Scenario	Design and document with a fully annotated ER diagram a relational database for NASA using the following data. You may create primary keys for strong entities.

- **Engineers**: first name, last name, highest academic degree earned, age, favorite video game

- **Astronauts**: first name, last name, years flying, age, golf handicap, spouse name

- **Flight Control Operators**: first name, last name, chair preference, age, preferred drink, recommended hangover cure

- **Spacecraft**: name, tail number, weight in tons, fuel type, crew capacity

- **Crew**: who (which astronauts) flew on what spacecraft

- **Systems**: name, description, costUSD (a spacecraft has many systems)

- **Parts**: name, description, costUSD (a system has many parts)

- **Suppliers**: name, address, payment terms (suppliers supply parts for systems for spacecraft)

- **Catalog**: who supplies what parts

Deliverables	1. Identify and document all functional dependencies. 2. Draw a fully annotated E/R diagram using LucidChart that illustrates the Platonic ideal of beautiful and correct relational database design. 3. Convince me that your database is in 3NF (or even better, in Boyce-Codd Normal Form).
Hint	Use entity subtypes wherever possible.
Resources	• Chapters 3 and 4.1 and 4.6 in our text, especially 4.1.11 and 4.6 • Microsoft on Normalization - http://support.microsoft.com/kb/283878
Submitting	Print your work and bring it to class on the day it is due. (Feel free to push it to your GitHub repository as well.) Remember to include your name and date. Neatness counts. Since we will be discussing this lab in class on the due date, no late submissions will be accepted.