

Hannah Youssef

Dr. Alan Labouseur

Database Management

20 November 2017

### Lab 9 – Normalization 3

#### **1. NASA Functional Dependencies:**

Crew: peopleID, spacecraftID →

People: peopleID → firstName, lastName, age

FlightControlOperators: peopleID → chairPreference, preferredDrink, hangoverCure

Astronauts: peopleID → yearsFlying, golfHandicap, spouseName

Engineers: peopleID → highestDegree, favVideoGame

Spacecraft: spacecraftID → tailNum, weightTons, fuelType, crewCapacity

SpacecraftSystems: spacecraftID, systemID →

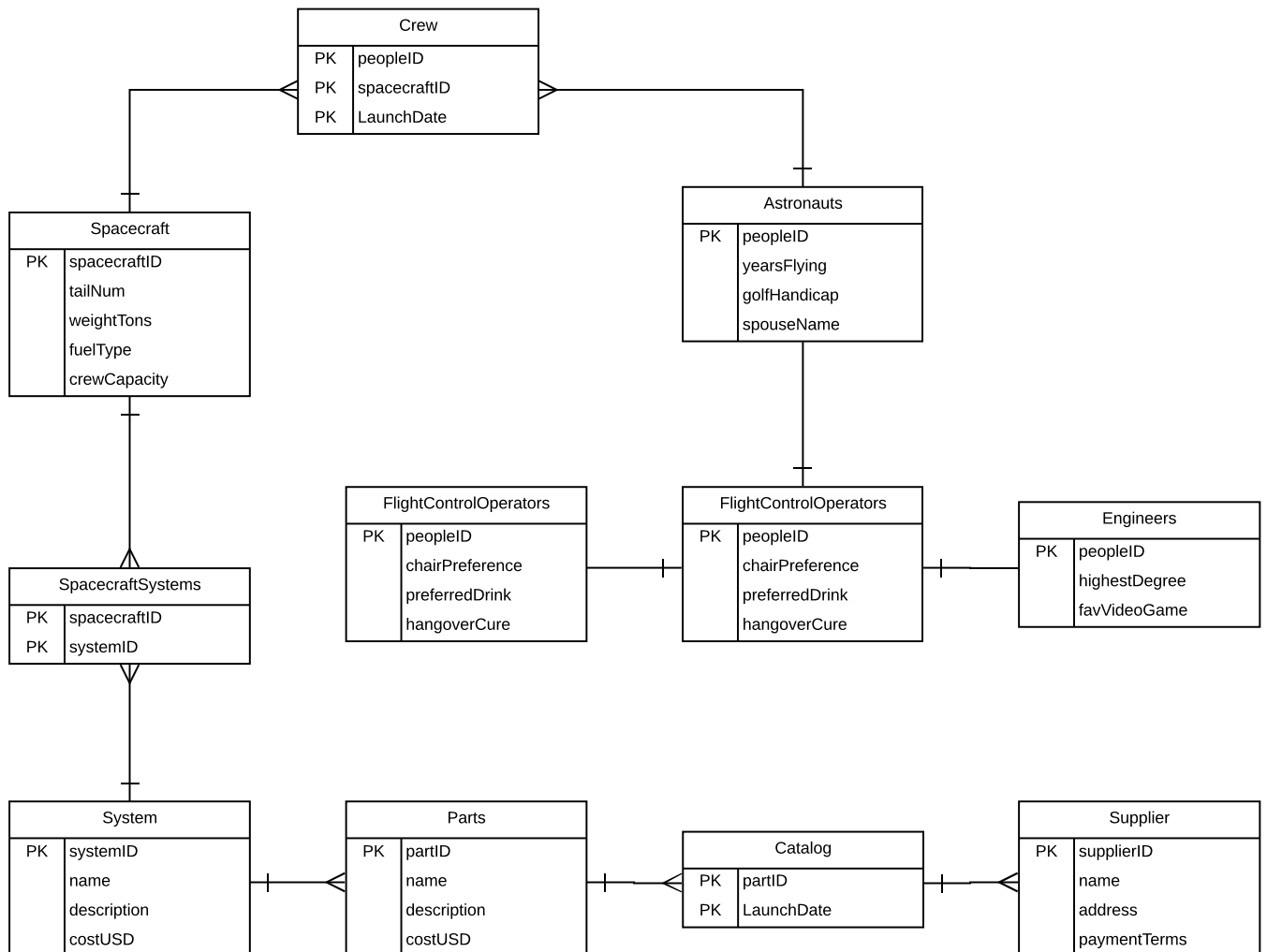
System: systemID → name, sescription, costUSD

Parts: partsID → name, description, costUSD

Catalog: partID, supplierID →

Supplier: supplierID → name, address, paymentTerms

## 2. ER Diagram



3. To prove that this database is 3NF, it must be in 1NF and 2NF. In this database, all the rows and columns are atomic, they cannot be broken down any further. The database is in 2NF because all the attributes in each table are determined by their primary key. For example, you cannot derive the spouse name of an astronaut without knowing the astronaut's primary key. This is in 3NF because there are no transitive dependencies. None of the rows in the tables depend on the other rows. There are also no other potential keys that could identify the values in the columns other than the primary key.