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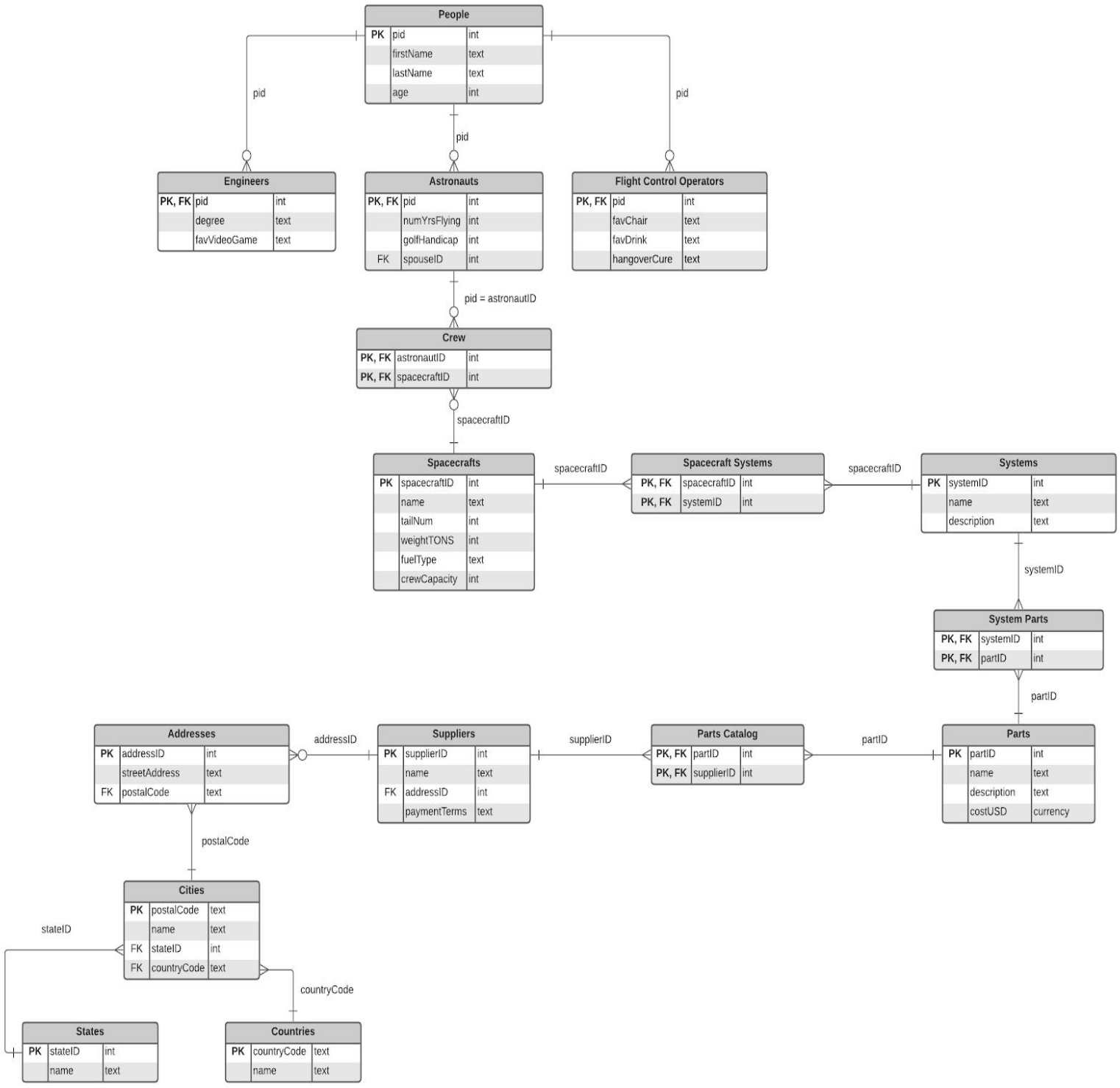
Lab 9



Functional Dependencies

People:	pid → firstName, lastName, age
Engineers:	pid → degree, favVideoGame
Astronauts:	pid → numYrsFlying, goldHandicap, spouseID
Flight Control Operators:	pid → favChair, favDrink, hangoverCure
Spacecraft:	spacecraftID → name, tailNum, weightTONS, fuelType, crewCapacity
Crew:	spacecraftID, astronautID → spacecraftID, astronautID
Systems:	systemID → name, description, costUSD
Spacecraft Systems:	spacecraftID, systemID → spacecraftID, systemID
Parts:	partID → name, description, costUSD
System Parts:	systemID, partID → systemID, partID
Parts Catalog:	partID, supplierID → partID, supplierID
Suppliers:	supplierID → name, addressID, paymentTerms
Addresses:	addressID → streetAddress, postalCode
Cities:	postalCode → name, stateID, countryCode
States:	stateID → name
Countries:	countryCode → name

This database meets the requirements for 3NF because it is in 2NF (in 1NF/ all values at intersection of all columns and rows are atomic and no partial dependencies) and there are no multiple key dependencies. This is to say that all non-primary fields are only dependent on the primary key. BCNF is also achieved because the database is in 3NF and for all functional dependencies at least one of the following conditions is met: the determinant is a super key and/or it is a trivial functional dependency.