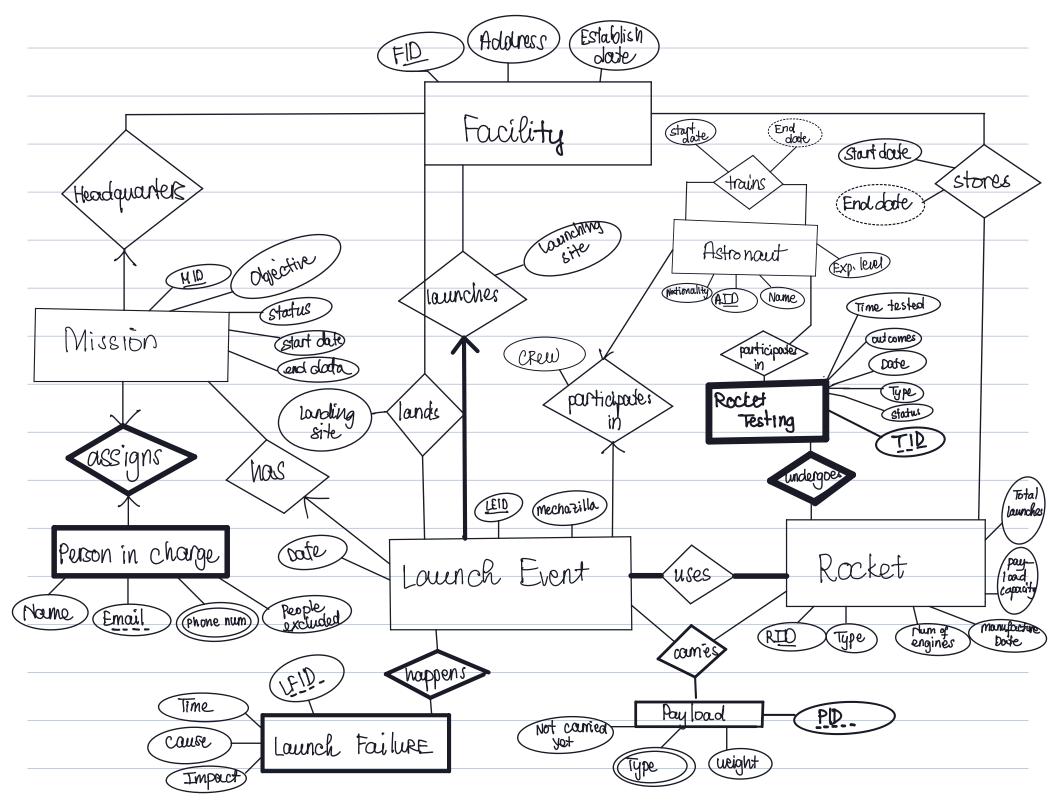Name: Nhat Chi Nguyen

Student ID: 149 21 82

Subject code: INFO20003

Subject name: Database Systems

Assignment 1

① Conceptual Model:

Entity-Relationship Diagram

Facility entity with attributes: FID, Address, Establish date

Headquarters relationship

Mission entity with attributes: MID, Objective, status, start date, end data

trains relationship with attributes: start date, End date

Astronaut entity with attributes: Nationality, AID, Name, Exp. level

stores relationship with attributes: start date, End date

launches relationship with attribute: Launching site

Rocket Testing entity with attributes: Time tested, outcomes, Date, Type, status, TID

participates in relationship (Astronaut)

lands relationship with attribute: Landing site

participates in relationship with attribute: crew

assigns relationship

has relationship

Person in charge entity with attributes: Name, Email, Phone num, People excluded

Launch Event entity with attributes: LEID, mechazilla, Date

undergoes relationship

Rocket entity with attributes: Total launches, Payload capacity, RID, Type, Num of engines, manufacture Date

uses relationship

happens relationship

Launch Failure entity with attributes: Time, cause, Impact, LFID

carries relationship

Payload entity with attributes: Not carried yet, Type, weight, PID

② Assumption

- Rocket Testing is a weak entity which can't be uniquely indentified without owner entity - Rocket and its PK - RID.
  Thus, Rocket Testing can only be only uniquely identified by the composite attribute of TID and RID.
  (Test ID) (Rocket ID)

- Similarly, Person in charge is a weak entity uniquely identified by the composite attribute of Email and MID
  (Mission ID)

- Similarly, Launch Failure is a weak entity uniquely identified by the composite attribute of LFID & LEID (launch Event ID)
  (launch Failure ID - surrogate attribute)

- If the rocket doesn't come back, landing site & Mechazilla

becomes NULL.

- If multiple failures occur at the same time, each will be recorded as a separate entry.

- If a rocket is stored and taken out in the same day, a new session will be recorded.

③ Physical Design