SpaceX Database Management System

Requirement Analysis

23, Nov 2020

Batch No - 09

Database Composition

Entities

1. Rocket
2. Payloads
3. Missions
4. Launch Pad
5. Drone Ships
6. Administrators

Relations

1. Launches **(Launch Pad - Launches - Rocket)**
2. Assigned **(Mission - Assigned to - Rocket)**
3. Delivers **(Payload - Delivered by - Rocket)**
4. First stage Recovery **(Rocket - First Stage Recovered by - Drone Ship)**

Attribute List

1. Rocket

- **Name** (varchar(10))
- **Type** (varchar(10)
- **Stages** (integer)
- **Rocket_id** (varchar(25), primary key)
- **Active** (Bool)
- **Country** (varchar (20))
- **Company** (varchar (20))
- **cost_per_launch** (integer)

2. Payloads

- **payload_id** (varchar(25), primary key)
- **Name** (varchar(20))
- **Type** (varchar(20))
- **Reuse** (bool)
- **Manufacturer** (varchar(20))
- **Mass** (**mass_kg**, **mass_lb**) (float)
- **Orbital status** (**reference System**, **orbit**, **regime**) (varchar(20))

3. Missions

- **launch_status** (bool)
- **launch_id** (varchar(25), primary key)
- **Name** (varchar(20))
- **Date** (datetime)
- **rocket_id** (varchar(25), foreign key)
- **Launchpad_id** (varchar(25), foreign key)
- **Payload_id** (varchar(25), foreign key)

4. Launch Pad

- **full_name** (varchar(40))
- **Status** (varchar (20))
- **launchpad_id** (varchar(24), primary key)
- **Coordinates** (**longitude**, **latitude**) (Float)
- **Location** (**region**, **TimeZone**, **locality**) (varchar(20)

5. Drone Ship

- **Home port** (varchar(30))
- **Activity** (bool)
- **Mass** (mass_kg, mass_lb) (Float)

- **Roles** (Varchar(20))
- **ship_id** (varchar(25), primary key)
- **Name** (varchar(30))
- **Type** (varchar(20))

6. Administrators

- **Name** (varchar(20))
- **User_id** (varchar(12), primary key)
- **Password** (varchar(20), Not Null)

Cardinalities

1. **Rockets** will have **one-to-one** cardinality/relationship with **Drone Ships**; i.e – only one rocket's first stage is recovered at one drone ship at a time

2. **Launch Pad** will have **one-to-one** cardinality/relationship with **Rockets**; i.e – only one rocket is launched from one launch pad at a time considering the launch belonging to one manufacturer/ company.

3. **Rockets** will have **one-to-many** cardinality/relationship with **payloads**; i.e – one rocket can carry and deliver multiple payloads at once

4. **Missions** will have **one-to-one** cardinality/relationship with **Rockets**; i.e – one rocket can be assigned with one mission date at once according to the orbital mechanics