

# Week 9 Assessment

Josh Wainwright  
UID:1079596

## 1 Parameters

- Generalisation Hierarchy Levels: 2
- M:N Relationships: 2
- Symetric Recursive Relationship: 1 : 1
- Multi-valued Attribute: 1

## 2 Astronomical Objects

This database describes the classification of a few astronomical objects, namely stars, planets and asteroids. Each of these objects has some aspects in common and so a generalisation hierarchy is used. Each type of object has a mass and an average distance that it lies from earth.

Stars are a type of object. In addition to the object attributes, they have a luminosity, as viewed from earth. They can also exist in a binary system where a star orbits at most one other star. Each star is made up of a number of elements; hydrogen, helium, etc; each of which has an atomic mass and number.

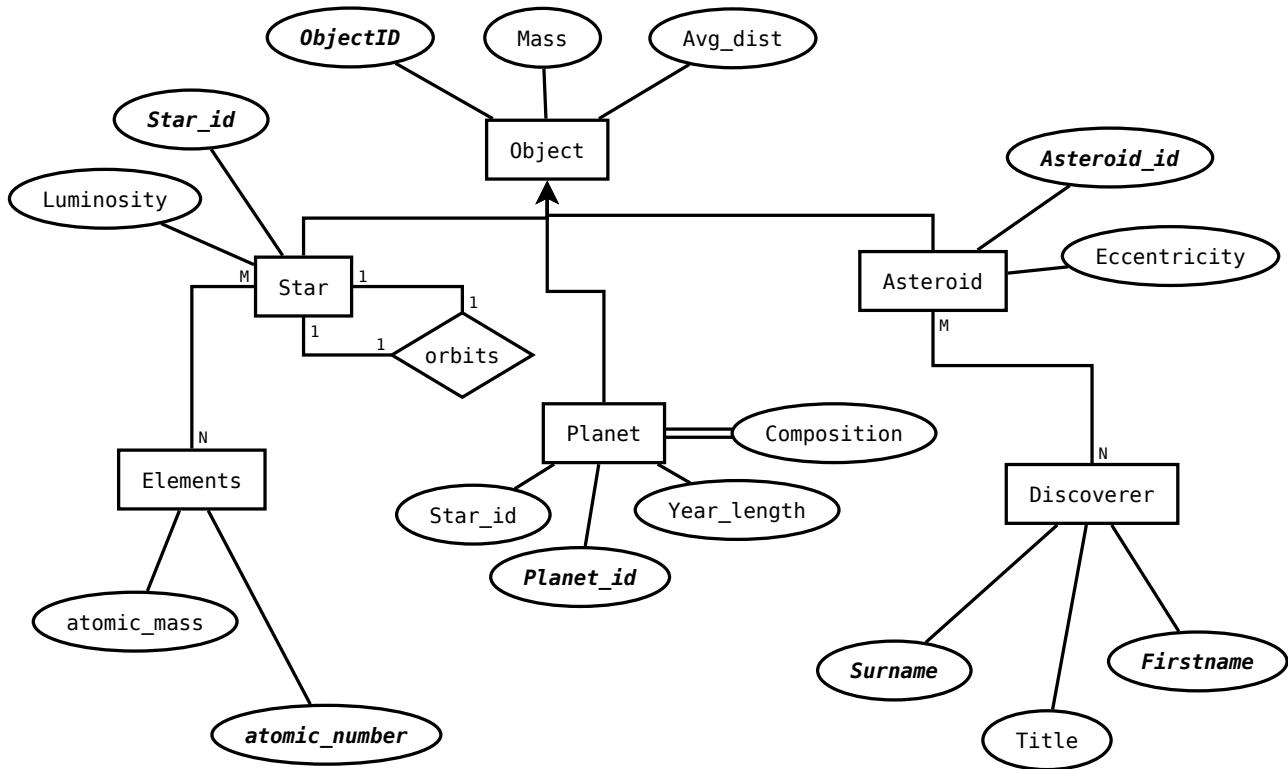
Planets exist in isolation, but contain information about their orbital duration, an optional star that they orbit (this must exist in the star table) and a list of constituents that they are made from.

Asteroids have an associated eccentricity of their orbit (how non-circular it is) as well as a number of discoverers who were responsible for finding and measuring it.

## 3 Business Rules

1. All stars, planets and asteroids are astronomical objects, called objects.
2. Stars can orbit zero or 1 other star.
3. Stars are composed of many elements and each element can appear in many stars.
4. Planets are composed of two or more elements.
5. Asteroids all have one or more discoverers. Each asteroid can have multiple discoverers, representing a group discovery, and each discoverer can have discovered many asteroids.

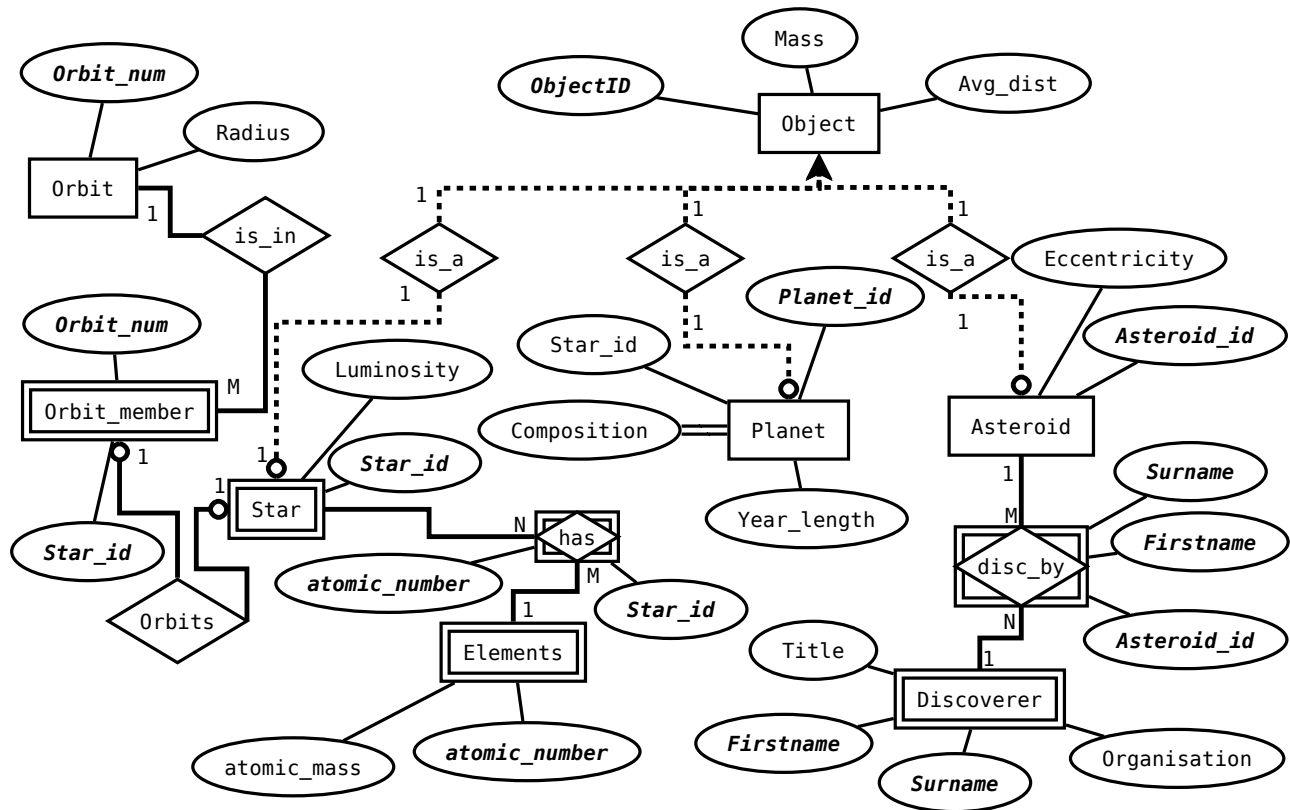
## 4 High Level ERD



### 4.1 Notes

- Chen Entity Relationship Diagram.
- The attributes making up the primary key is shown in bold.
- All generalisation hierarchies have exhaustive relationships.
- A subtype to supertype relationship is denoted with an arrow from subtype to supertype.
- Multi-valued attributes are shown with a double line.

## 5 Low Level ERD



### 5.1 Notes

- Chen Entity Relationship Diagram.
- Attributes making up the primary key are shown in bold.
- Recursive relationships have been broken down.
- Weak relationships are shown with a dotted line, strong with a bold line.
- Weak entity types have a double border.

## 6 Low Level ERD

