

# Ashanti Benons

## I. Planets

6. It is not possible to determine exoplanet mass using the transit method. It can provide info about a planet's size in terms of its radius. But data from other methods like radial velocity is needed to more accurately determine a planet's mass.

## 2. College

2. Since students can have multiple entries in the clubs Data Frame, and a club can have multiple student entries, I performed a many-to-many merge. This is to ensure that no information is lost about students' memberships in multiple clubs or clubs have multiple members.

5. I performed a many-to-one merge because multiple student enrollment records are being linked to a single course record. Other merge types such as one-to-one wouldn't work as it would lead to duplicated rows.

## 3. Concatenation

Axis=0

	a	b
0	4	9
1	5	3
0	3	23
1	4	21

Axis=1

	a	b	a	b
0	4	9	3	23
1	5	3	4	21

3.

	a	b	c	d
0	4	9	NaN	NaN
1	5	3	NaN	NaN
0	NaN	NaN	3	23
1	NaN	NaN	4	21

	a	b	c	d
0	4	9	3	23
1	1	5	4	21

#### 4. Merging

1. The merge across books and genres is one-to-one because the books and genres dataframe both have a unique isbn for each row. So since each book only has one genre, the relationship must be one-to-one.
2. The merge across genres and favorites is many-to-many because although in the genres dataframe, each ISBN matches to a single genre, the favorites dataframe has names associated with multiple genres and genres associated with multiple names. So the merge must be many-to-many because multiple people can like the same genre and each person can have multiple favorite genres.
3. The merge across genres and read is many-to-one because there are multiple rows for books that were read by multiple people, but each book only has one genre.

4. (a) Left Join

(b) Right Join

isbn	genre	name
119935	romance	NaN
559332	dystopian	Matt
2118522	dystopian	Matt
660352	fantasy	Alice
660352	fantasy	Bob

isbn	genre	name
NAN	sci-fi	Matt
660352	fantasy	Alice
660352	fantasy	Bob
NAN	history	Bob
NAN	nonfiction	Bob
559332	dystopian	Matt
2118532	dystopian	Matt

(c) Inner Join

isbn	genre	name
559332	dystopian	Matt
660352	fantasy	Alice
660352	fantasy	Bob
2118532	dystopian	Matt

(d) Outer Join - keeps all rows from both tables

isbn	genre	name
119935	romance	NaN
559332	dystopian	Matt
2118532	dystopian	Matt
660352	fantasy	Alice
660352	fantasy	Bob
NaN	Sci-fi	Matt
NaN	history	Bob
NaN	nonfiction	Bob

Inner Join - Rows in both  
tables must match