Channon Harper
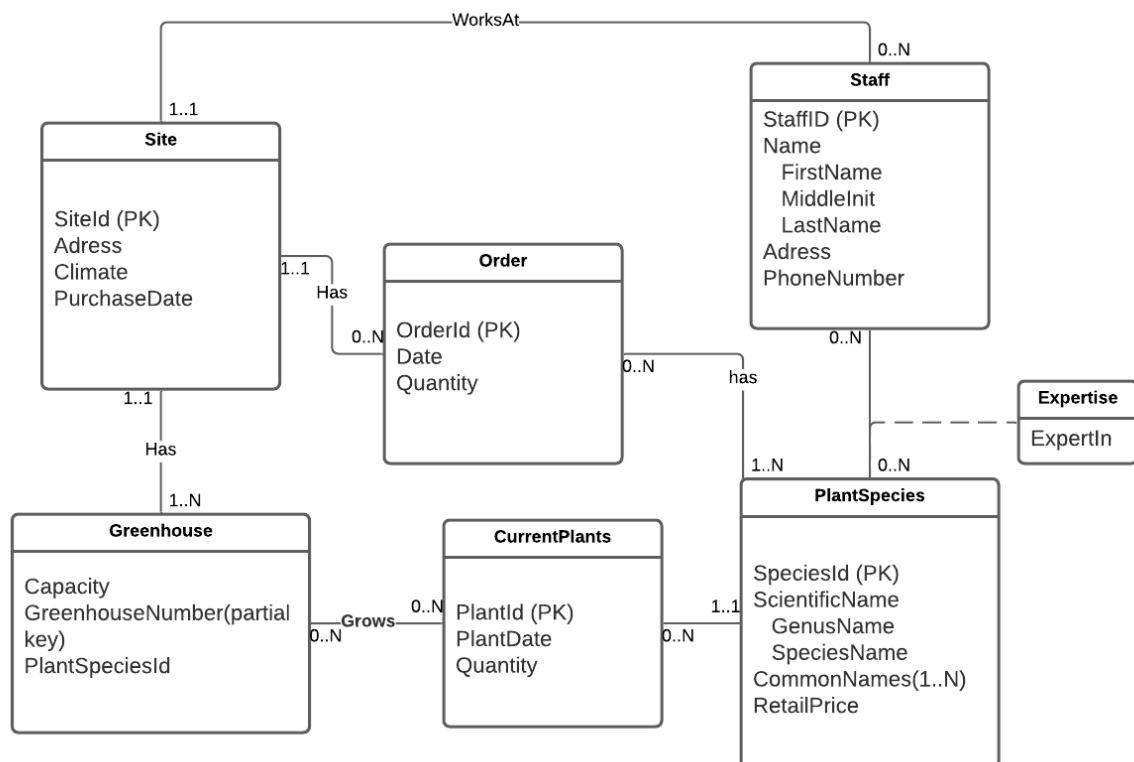# s3871491
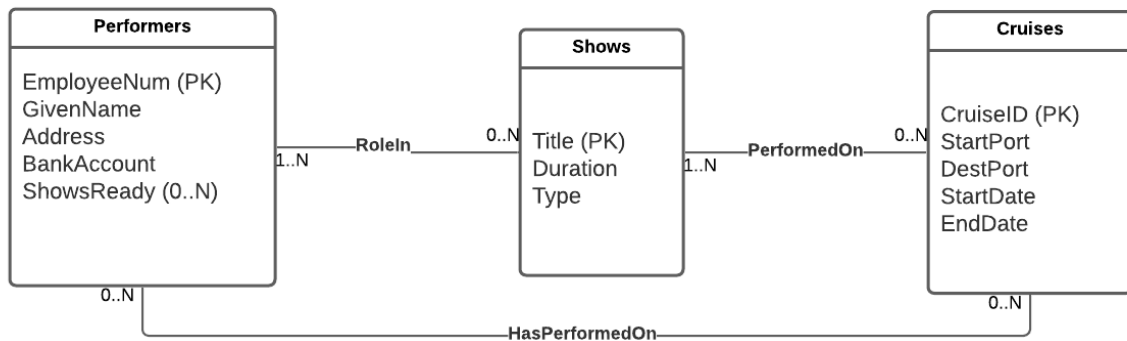# ISY2095 Assessment 1

Task 1

I think the diagram shows quite well the assumptions that I have made for this task I did however make greenhouse a weak entity was really tossing up with that one. The further assumptions that were made are the order shipping address must be the site it's going to and the plant species relationship is for the order.
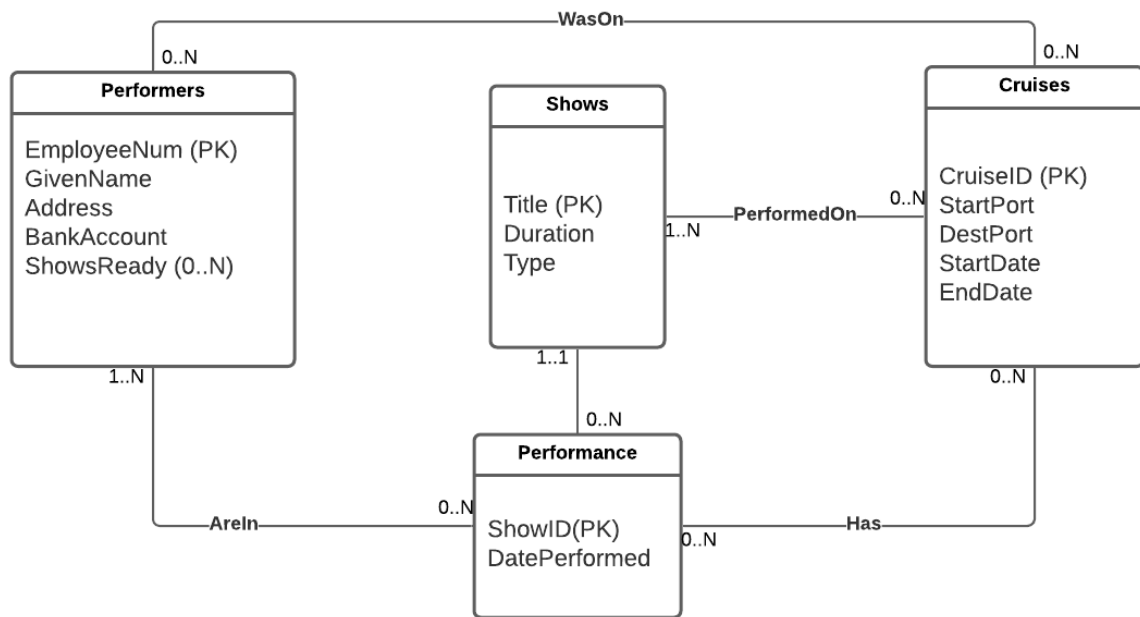
Task 2

The name I made 1 value as would be performer name and didn't think it would require a composite value, I also denoted that shows ready as multi-value however they may not have any shows they are ready for so I made it 0..N I am unsure whether this is the correct denotation or not.

Q1) For each cruise, a list of scheduled shows – easily done by querying the cruiseID and will list title of all shows.

Q2) For each such show, a list of performers – with the initial set out is still doable as can query the employeeNum for the show however as performers may change in shows the following ER would be more manageable over time.
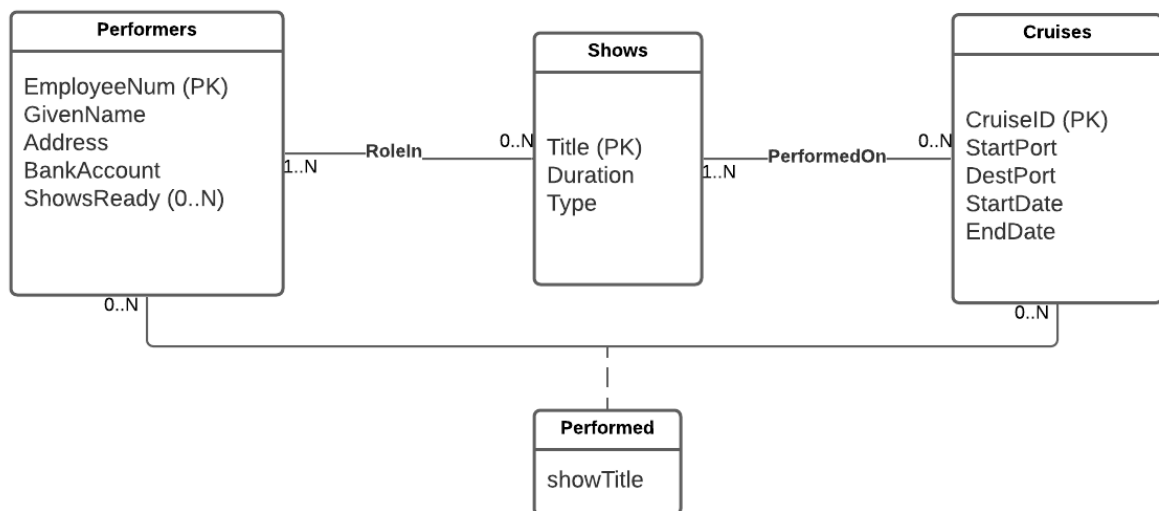
With the following the attribute added will now denote the show title that was performed by the performer on a specific cruise, but to further elaborate the following ER I believe to be more suited see below.

```
                                   ───WasOn───────────────────────────────┐
       0..N                                                          0..N
  ┌──────────────────┐         ┌──────────────┐         ┌──────────────────┐
  │    Performers    │         │    Shows     │         │     Cruises      │
  ├──────────────────┤         ├──────────────┤         ├──────────────────┤
  │ EmployeeNum (PK) │         │              │         │ CruiseID (PK)    │
  │ GivenName        │         │ Title (PK)   │ 0..N    │ StartPort        │
  │ Address          │         │ Duration ─── PerformedOn ── DestPort      │
  │ BankAccount      │         │ Type     1..N│         │ StartDate        │
  │ ShowsReady (0..N)│         │              │         │ EndDate          │
  │                  │         │              │         │                  │
  └──────────────────┘         └──────────────┘         └──────────────────┘
       1..N                        1..1                      0..N
          │                          │
          │                        0..N
          │                   ┌──────────────┐
          │                   │ Performance  │
          │             0..N  ├──────────────┤
          └────AreIn──────────│ ShowID(PK)   │────Has────┘
                              │ DatePerformed│ 0..N
                              └──────────────┘
```

Now they could see exactly the from the cruise id the shows that were on it as well as the showid from each show that will have the individual performers that had performed in each show.

Task 3

Step 1 – Map Entities

Step 1.1 Strong Entities
MediaRelease (<u>MID</u>, Title, Date)
Exhibition (<u>Etitle</u>, StartDate, Duration)
Staff (<u>EmpId</u>, Name, Address)
Artwork (<u>ArtistName</u>, <u>ArtTitle</u>, Year)

Step 1.2 Weak Entities
WallLabel (<u>AristName</u>*, <u>ArtTitle</u>*, <u>WLNum</u>, Didactic)

Step 2 - Binary Relationships

Step 2.1 1:1 Relationships
none

Step 2.2 1: N Relationships
Exhibition (<u>Etitle</u>, StartDate, Duration, EmpID*)
Staff (<u>EmpId</u>, Name, Address, Supervisor*)

Step 2.3 N: N Relationships
Displayed (<u>ETitle*</u>, <u>ArtistName*</u>, <u>ArtTitle*</u>, Location)

Step 3 – Multi-valued Attributes
ArtMedium (<u>ArtistName*</u>, <u>ArtTitle*</u>, <u>Medium</u>)

Step 4 – Higher Degree
FeaturedIn (<u>MID*</u>, <u>ETitle*</u>, <u>EmpID*</u>)

Final Schema

WallLabel (<u>AristName</u>*, <u>ArtTitle</u>*, <u>WLNum</u>, Didactic)
Exhibition (<u>Etitle</u>, StartDate, Duration, EmpID*)
Staff (<u>EmpId</u>, Name, Address, Supervisor*)
Displayed (<u>ETitle*</u>, <u>ArtistName*</u>, <u>ArtTitle*</u>, Location)
ArtMedium (<u>ArtistName*</u>, <u>ArtTitle*</u>, <u>Medium</u>)
FeaturedIn (<u>MID*</u>, <u>ETitle*</u>, <u>EmpID*</u>)
Artwork (<u>ArtistName</u>, <u>ArtTitle</u>, Year)

Task 4

1. Referential integrity, key constraint – pno is used as a foreign key alongside Essn they are both the key for works_on and must be unique. Since 333445555 already belongs to both pno 2 and 3 by updating all to 2 this would try to have 2 essn the same value for pno 2 which can not be done.

2. Key constraint, referentail integrity - Delete won't work as is supervisor for Ahmed 987987987 also has dependent, works on, and department Rellying on the key.
   would need to
   DELETE FROM dependent
     WHERE essn = 987654321
   UPDATE works_on
     SET essn = 999887777
     WHERE essn = 987654321 AND pno = 20;
   UPDATE works_on
     SET hours = 50
     WHERE essn = 987654321 AND pno = 30;
   DELETE FROM works_on
     WHERE essn = 987654321;
   UPDATE department
     SET Mgr_ssn = 999887777
     WHERE Dnumber = 4;
   UPDATE department
     SET Mgr_start_date = '2020-12-22'
     WHERE Dnumber =4;
   DELETE FROM employee
     WHERE ssn = 987654321;

3. A) no violations
   b) No it would not be logically correct as it is moving project to headquarters department which is in Houston yet the project of newbenefits will still be listed as having location as Stafford in project table.

4. Key violation, NOT NULL constraint failed - as the dependant_name is a primary key in table of dependants it could not be left null.