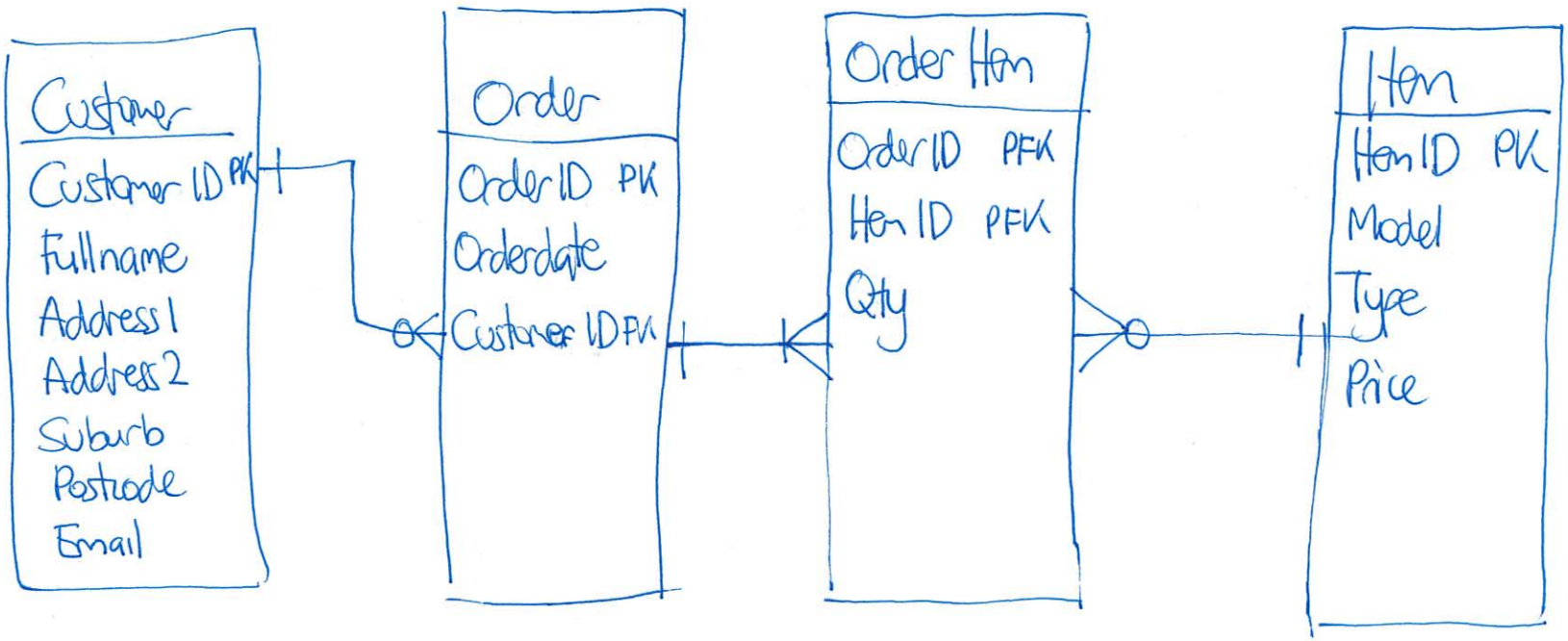
1.1

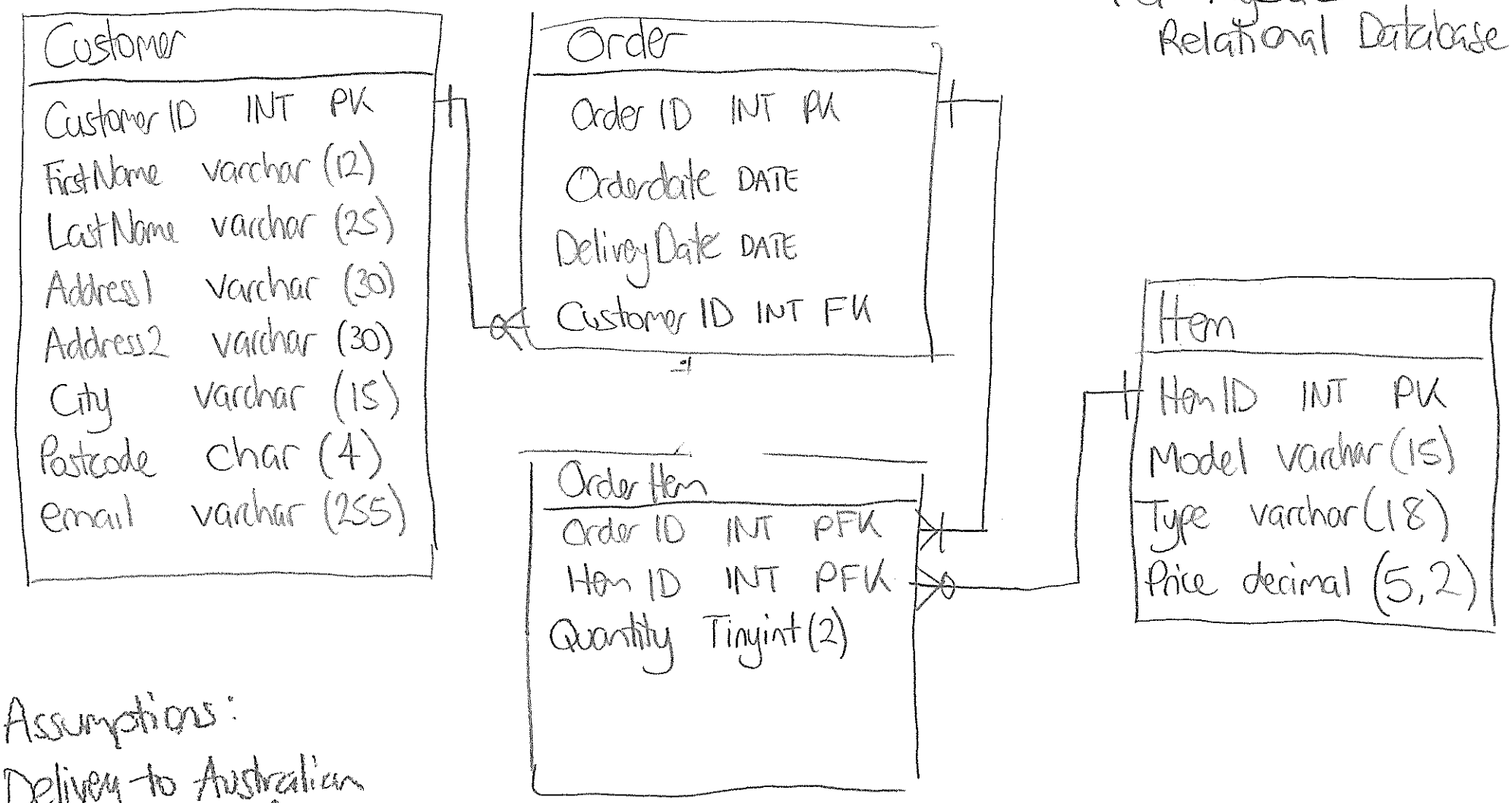
Logical Model
for Relational DB



Remember
Logical Model
is for a Relational Database
Many to Many must be resolved
DO NOT SHOW DATATYPES!

1.2

Physical Model for MySQL Relational Database



Assumptions:

Delivery to Australian postcode

Both delivery + order date required to confirm

3 day delivery

-- 2.1

```
SELECT staff_id, concat(first_name, ' ', last_name), job_title,
salary
FROM staff natural join jobs
WHERE salary =
   (SELECT min(salary)
    FROM staff);
```

-- 2.2

```
SELECT country_name, count(staff_id)
FROM countries natural join locations natural join departments
natural join staff
GROUP BY country_name
ORDER BY country_name;
```

-- 2.3

```
SELECT departments.department_name, locations.city
FROM departments natural join locations
WHERE departments.manager_id is null;
```

-- 2.4

```
SELECT b.first_name, b.last_name, count(e.staff_id)
FROM staff b INNER JOIN staff e
ON e.supervisor_id = b.staff_id
GROUP BY b.first_name, b.last_name;
```

-- 2.5

```
SELECT country_name
FROM countries
WHERE country_id in
 (SELECT country_id
     FROM locations inner join departments inner join staff
     ON locations.location_id = departments.location_ID
     AND staff.department_id = departments.department_id
     and departments.department_id in
       (SELECT department_id
        FROM staff
        WHERE salary =
          (SELECT max(salary)
           FROM staff
           )
        )
  );
```

-- 2.6

```
SELECT last_name, length(last_name)
FROM staff
ORDER BY length(last_name) DESC;
```

-- 2.7

```
SELECT first_name, last_name, hire_date
FROM staff
WHERE staff_id IN
    (SELECT (staff_id)
     FROM job_history
     GROUP BY (staff_id)
 HAVING count(*) >= 2);
```

-- 2.8

```
SELECT departments.department_name, count(staff.staff_id)
FROM staff RIGHT OUTER JOIN departments
ON staff.department_id = departments.department_id
GROUP BY departments.department_name
ORDER BY COUNT(staff.staff_id) DESC;
```