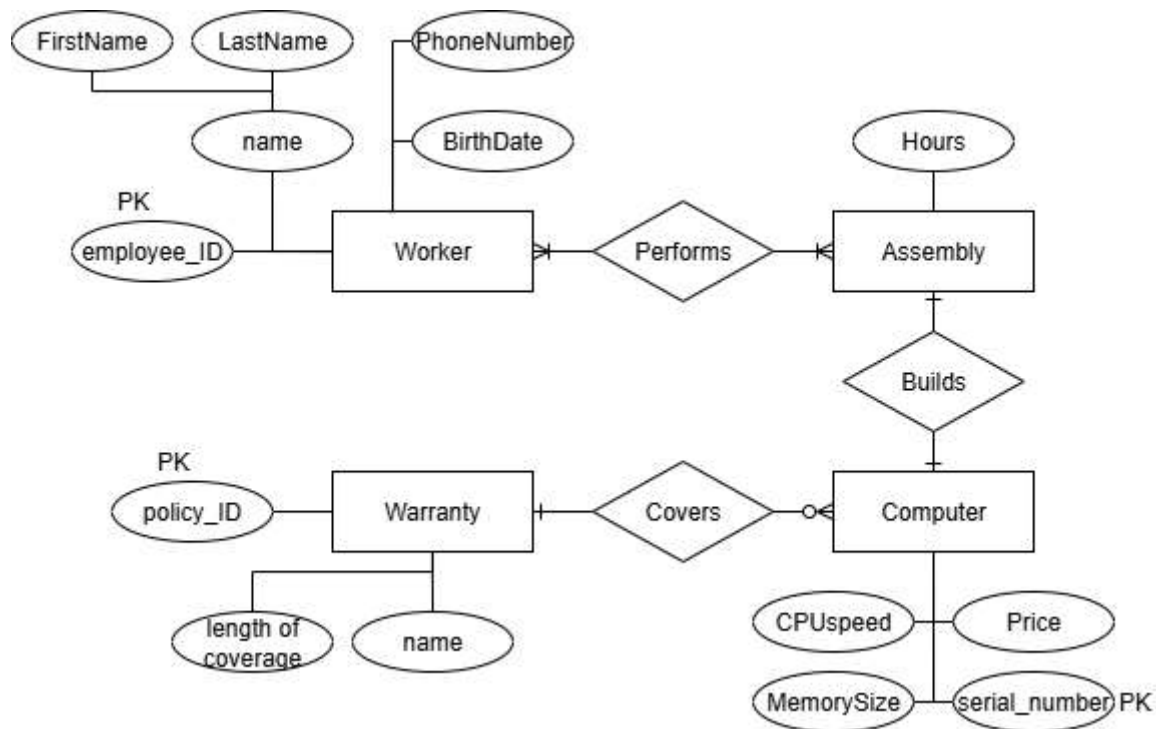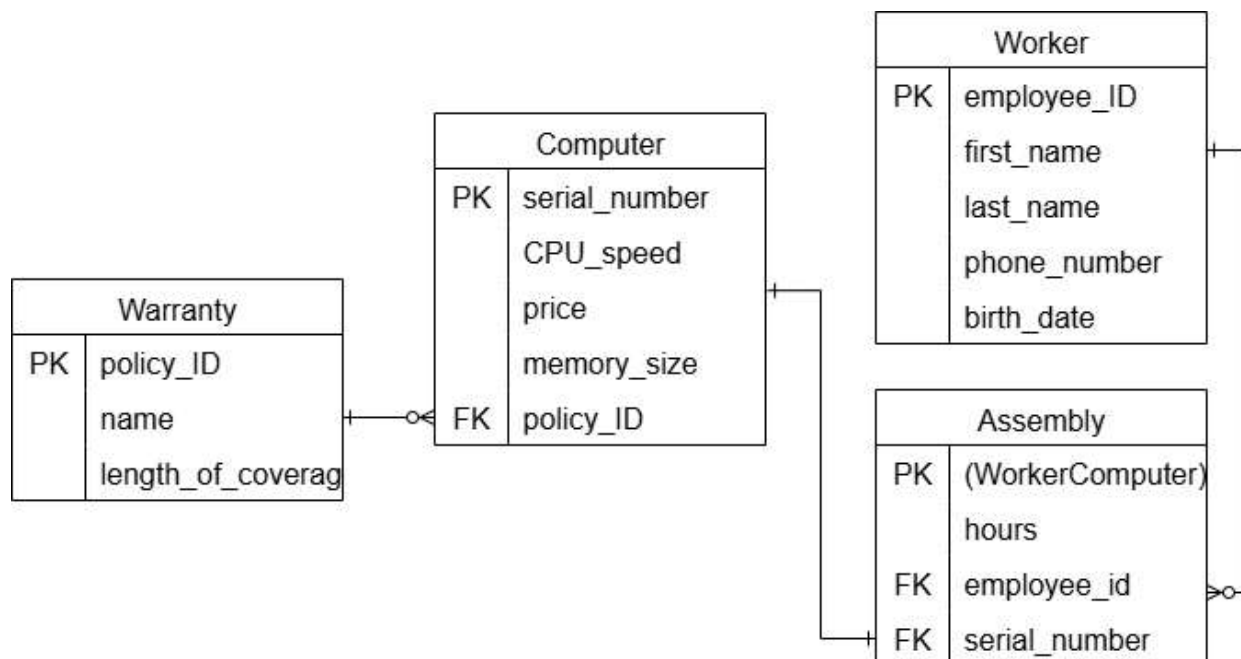# Project 4: Database Development Process

Part 1: Create the conceptual Model diagram based on the Business requirements

Part 2: Create the ER Diagram based on the Conceptual Model diagram

Part 3: Create the Database's physical objects

3.1

```
mysql> SELECT * FROM warranty;
+-----------+------------------+-------------------+
| policy_id | policy_name      | length_of_coverage |
+-----------+------------------+-------------------+
| p01       | Standard Warranty |                3 |
+-----------+------------------+-------------------+
1 row in set (0.00 sec)

mysql> SELECT * FROM computer;
+---------------+-----------+-------------+---------+-----------+
| serial_number | cpu_speed | memory_size | price   | policy_id |
+---------------+-----------+-------------+---------+-----------+
| SN1001        |      3.50 |          16 | 1200.00 | p01       |
+---------------+-----------+-------------+---------+-----------+
1 row in set (0.00 sec)

mysql> SELECT * FROM worker;
+-------------+------------+-----------+------------+--------------+
| employee_id | first_name | last_name | birth_date | phone_number |
+-------------+------------+-----------+------------+--------------+
| E001        | Alice      | Smith     | 1985-06-12 | 555-1234     |
+-------------+------------+-----------+------------+--------------+
1 row in set (0.00 sec)

mysql> SELECT * FROM assembly;
+-------------+---------------+-------------+
| employee_id | serial_number | hours_spent |
+-------------+---------------+-------------+
| E001        | SN1001        |       10.50 |
+-------------+---------------+-------------+
1 row in set (0.00 sec)
```

3.2

```
mysql> SELECT * FROM worker;
+-------------+------------+-----------+------------+--------------+
| employee_id | first_name | last_name | birth_date | phone_number |
+-------------+------------+-----------+------------+--------------+
| E001        | Alice      | Smith     | 1985-06-12 | 555-1234     |
| E002        | Bob        | Johnson   | 1978-02-20 | 555-2345     |
| E003        | Carol      | Williams  | 1990-08-14 | 555-3456     |
| E004        | David      | Brown     | 1982-12-01 | 555-4567     |
| E005        | Eva        | Davis     | 1988-05-23 | 555-5678     |
| E006        | Frank      | Miller    | 1975-11-09 | 555-6789     |
| E007        | Grace      | Wilson    | 1993-07-07 | 555-7890     |
| E008        | Henry      | Moore     | 1980-09-18 | 555-8901     |
| E009        | Ivy        | Taylor    | 1985-03-30 | 555-9012     |
| E010        | Jack       | Anderson  | 1992-01-12 | 555-0123     |
+-------------+------------+-----------+------------+--------------+
10 rows in set (0.00 sec)

mysql> SELECT * FROM assembly;
+-------------+---------------+-------------+
| employee_id | serial_number | hours_spent |
+-------------+---------------+-------------+
| E001        | SN1001        |       10.50 |
| E001        | SN1003        |        4.00 |
| E002        | SN1002        |        8.00 |
| E003        | SN1003        |        9.50 |
| E004        | SN1004        |        7.50 |
| E005        | SN1005        |       12.00 |
| E006        | SN1006        |        5.50 |
| E007        | SN1007        |       10.00 |
| E008        | SN1008        |        6.00 |
| E009        | SN1009        |        9.00 |
| E010        | SN1010        |       11.00 |
+-------------+---------------+-------------+
11 rows in set (0.00 sec)

mysql> INSERT INTO warranty VALUES ('p04', NULL, 2);
Query OK, 1 row affected (0.00 sec)

mysql> SELECT * FROM warranty WHERE policy_id = 'p04';
+-----------+-------------+-------------------+
| policy_id | policy_name | length_of_coverage |
+-----------+-------------+-------------------+
| p04       | NULL        |                 2 |
+-----------+-------------+-------------------+
1 row in set (0.00 sec)

mysql> DELETE FROM warranty WHERE policy_id = 'p01';
ERROR 1451 (23000): Cannot delete or update a parent row: a foreign key constraint fails (`project5`.`computer`, CONSTRAINT `computer_ibfk_1` FOREIGN KEY (
`policy_id`) REFERENCES `warranty` (`policy_id`))
mysql>
```

Part 4: Challenge Part

1

```
mysql> SELECT
    ->    a.serial_number,
    ->    w.first_name,
    ->    w.last_name
    -> FROM
    ->    assembly a
    -> JOIN
    ->    worker w ON a.employee_id = w.employee_id
    -> ORDER BY
    ->    a.serial_number ASC,
    ->    w.last_name ASC;
+---------------+------------+------------+
| serial_number | first_name | last_name  |
+---------------+------------+------------+
| SN1001        | Alice      | Smith      |
| SN1002        | Bob        | Johnson    |
| SN1003        | Alice      | Smith      |
| SN1003        | Carol      | Williams   |
| SN1004        | David      | Brown      |
| SN1005        | Eva        | Davis      |
| SN1006        | Frank      | Miller     |
| SN1007        | Grace      | Wilson     |
| SN1008        | Henry      | Moore      |
| SN1009        | Ivy        | Taylor     |
| SN1010        | Jack       | Anderson   |
+---------------+------------+------------+
11 rows in set (0.00 sec)
```

2

```
mysql> SELECT
    ->     serial_number,
    ->     SUM(hours_spent) AS total_hours
    -> FROM
    ->     assembly
    -> GROUP BY
    ->     serial_number
    -> ORDER BY
    ->     total_hours DESC;
+---------------+-------------+
| serial_number | total_hours |
+---------------+-------------+
| SN1003        |       13.50 |
| SN1005        |       12.00 |
| SN1010        |       11.00 |
| SN1001        |       10.50 |
| SN1007        |       10.00 |
| SN1009        |        9.00 |
| SN1002        |        8.00 |
| SN1004        |        7.50 |
| SN1008        |        6.00 |
| SN1006        |        5.50 |
+---------------+-------------+
10 rows in set (0.00 sec)
```