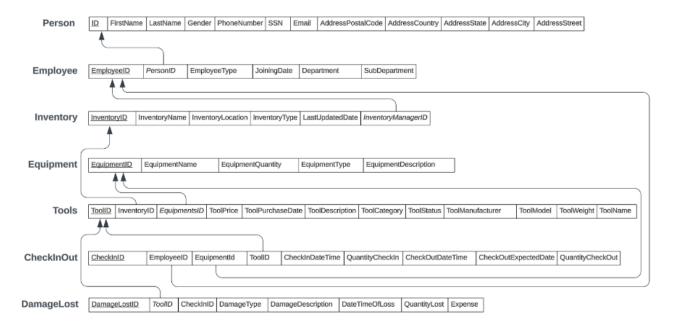# Automated Infrastructure/Construction Maintenance System

For Reliable Electronics Corp.

**Proposed Relational Schema**



- **SQL commands**
  - ALL base tables

**Table Creations:**

```sql
CREATE TABLE PERSON (
  Id int PRIMARY KEY,
  FirstName varchar(30),
  LastName varchar(30),
  Gender varchar(15),
  Email varchar(50),
  PhoneNumber numeric,
  SSN VARCHAR(20),
  Address VARCHAR(150)
);
```

```sql
CREATE TABLE EQUIPMENT (
  Id VARCHAR(10) PRIMARY KEY,
  Name VARCHAR(50),
  Quantity int,
  Type VARCHAR(50) NOT NULL,
  Description VARCHAR(1000)
);
```

```sql
CREATE TABLE DEPARTMENT(
  Id varchar(10) PRIMARY KEY,
  Name varchar(50)
);
```

```sql
CREATE TABLE SUBDEPARTMENT(
  Id varchar(10) PRIMARY KEY,
  Name varchar(50),
  DeptId varchar(10),
  CONSTRAINT FK_DeptId FOREIGN KEY (DeptId) REFERENCES Department(Id) ON DELETE CASCADE ON UPDATE CASCADE);
```

```sql
CREATE TABLE EMPLOYEE (
  Id varchar(10) PRIMARY KEY,
  PersonId int,
  JoiningDate datetime,
  SubDepartmentId varchar(10),
  CONSTRAINT FK_PersonId FOREIGN KEY (PersonId) REFERENCES PERSON(Id) ON DELETE CASCADE ON UPDATE CASCADE,
  CONSTRAINT FK_SubDepartmentId FOREIGN KEY (SubDepartmentId) REFERENCES SUBDEPARTMENT(Id)
      ON DELETE SET NULL ON UPDATE CASCADE
);
```

**Database: SQLite**

```sql
CREATE TABLE INVENTORY (
Id VARCHAR(10) PRIMARY KEY,
Name VARCHAR(50),
Location VARCHAR(50),
Type VARCHAR(20),
LastUpdatedDate DATETIME,
ManagerId VARCHAR(10),
CONSTRAINT FK_ManagerId FOREIGN KEY (ManagerId) REFERENCES EMPLOYEE(Id) ON DELETE SET NULL ON UPDATE CASCADE
);

CREATE TABLE TOOLSDETAIL (
Id INT PRIMARY KEY,
EquipId VARCHAR(10),
Name VARCHAR(50),
Manufacturer VARCHAR(15),
Model VARCHAR(15),
Category VARCHAR(20) DEFAULT 'Perishable',
Price DECIMAL,
Weight DECIMAL,
Description VARCHAR(1000),
CONSTRAINT FK_EquipId FOREIGN KEY (EquipId) REFERENCES EQUIPMENT(Id) ON DELETE SET NULL
);

CREATE TABLE TOOLS (
ToolId VARCHAR(10) PRIMARY KEY,
InvId VARCHAR(10),
PurchaseDate DATETIME,
TStatus VARCHAR(20) DEFAULT 'Available',
ToolsDetailId INT,
CONSTRAINT FK_ToolsDetailId FOREIGN KEY (ToolsDetailId) REFERENCES TOOLSDETAIL(Id) ON DELETE CASCADE ON UPDATE CASCADE,
CONSTRAINT FK_InvId FOREIGN KEY (InvId) REFERENCES INVENTORY(Id) ON DELETE SET NULL ON UPDATE CASCADE
);

CREATE TABLE CHECKINOUT (
Id VARCHAR(15) PRIMARY KEY,
EmpId VARCHAR(10),
CheckInDateTime DATETIME,
CheckInQuantity INT,
CheckOutQuantity INT,
CheckOutExpectedDate DATETIME,
CONSTRAINT FK_EmpId FOREIGN KEY (EmpId) REFERENCES EMPLOYEE(Id) ON DELETE SET NULL ON UPDATE CASCADE
);

CREATE TABLE DAMAGELOST (
Id VARCHAR(10) PRIMARY KEY,
ToolId VARCHAR(10),
CheckInId VARCHAR(15),
Type VARCHAR(20),
Description VARCHAR(1000),
DateTime DATETIME,
Expense DECIMAL,
CONSTRAINT FK_D_and_L_ToolId FOREIGN KEY (ToolId)
    REFERENCES TOOLS(ToolId) ON UPDATE CASCADE,
CONSTRAINT FK_D_and_L_CheckInId FOREIGN KEY (CheckInId)
    REFERENCES CHECKINOUT(Id) ON DELETE CASCADE ON UPDATE CASCADE
);

CREATE TABLE CHECKINOUTTOOL(
CheckInId VARCHAR(15),
ToolId VARCHAR(10),
CONSTRAINT FK_ToolsId FOREIGN KEY (ToolId)
    REFERENCES TOOLS(ToolId) ON UPDATE CASCADE,
CONSTRAINT FK_CheckInId FOREIGN KEY (CheckInId)
    REFERENCES CHECKINOUT(Id) ON DELETE CASCADE ON UPDATE CASCADE
);
```

**Database: SQLite**

## Tables' data population:

### SELECT * FROM PERSON;

```
1    SELECT * FROM PERSON;
```

|    | Id | FirstName | LastName | Gender | Email | PhoneNumber | SSN | Address |
|----|----|-----------|----------|--------|-------|-------------|-----|---------|
| 1  | 1  | John      | Doe      | Male       | john.doe@example.com      | 1234567890 | 123456789    | 123 Main St Long Beach CA USA, 12345 |
| 2  | 2  | Jane      | Smith    | Female     | jane.smith@example.com    | 9876543210 | 987654321    | 456 Oak St Queens NY USA, 54321 |
| 3  | 3  | Bob       | Johnson  | Male       | bob.johnson@example.com   | 5551234567 | 555987654    | 789 Pine St San Jose CA USA, 67890 |
| 4  | 4  | Alice     | Williams | Female     | alice.williams@example.com | 4445556666 | 444666555   | 101 Elm St Orlando FL USA, 13579 |
| 5  | 5  | Chris     | Davis    | Male       | chris.davis@example.com   | 1237894560 | 123987654    | 222 Maple St Manhattan NY USA, 24680 |
| 6  | 6  | Emily     | Jones    | Female     | emily.jones@example.com   | 9998887777 | 999777888    | 333 Birch St Santa Clara CA USA, 86420 |
| 7  | 7  | Michael   | Smith    | Male       | michael.smith@example.com | 7778889999 | 777999888    | 444 Cedar St Tampa FL USA, 97531 |
| 8  | 8  | Sara      | Brown    | Female     | sara.brown@example.com    | 1112223333 | 111333222    | 555 Pine St San Bruno CA USA, 36987 |
| 9  | 9  | David     | Miller   | Male       | david.miller@example.com  | 2223334444 | 222444333    | 666 Oak St Fremont CA USA, 75319 |
| 10 | 10 | Olivia    | Taylor   | Female     | olivia.taylor@example.com | 3334445555 | 333555444    | 777 Elm St Park City UT USA, 15963 |
| 11 | 11 | William   | Taylor   | Male       | william@email.com         | 9876543210 | 67555444     | 456 Birch St CozyTown UT USA, 44444 |
| 12 | 12 | Olivia    | Martinez | Female     | olivia@email.com          | 1234567890 | 123456789012 | 123 Avenue MegaCity MegaState MegaCountry, ... |
| 13 | 13 | Brown     | Martinez | Non-Binary | nolastname@email.com      | 4444444554 | 4567800012   | 777 Walnut St TinyVillage TinyState TinyCountry,... |
| 14 | 14 | Sophia    | Brown    | Female     | sophianame@email.com      | 4444444444 | 456780012    | 789 Maple St SmallTown SmallState SmallCount... |
| 15 | 15 | Emma      | Garcia   | Female     | emma@email.com            | 9876543210 | 987654321    | 101 Pine St NewCity CA USA, 98765 |

### SELECT * FROM DEPARTMENT;

```
1    SELECT * FROM DEPARTMENT;
```

|    | Id   | Name |
|----|------|------|
| 1  | D001 | Sales |
| 2  | D002 | Maintenance |
| 3  | D003 | Finance |
| 4  | D004 | Human Resources |
| 5  | D005 | Information Technology |
| 6  | D006 | Customer Support |
| 7  | D007 | Research and Development |
| 8  | D008 | Operations |
| 9  | D009 | Legal |
| 10 | D010 | Quality Assurance |

### SELECT * FROM SUBDEPARTMENT;

```
1    SELECT * FROM SUBDEPARTMENT;
```

|   | Id    | Name | DeptId |
|---|-------|------|--------|
| 1 | SD001 | Sales Team A | D001 |
| 2 | SD002 | Carpentry | D002 |
| 3 | SD003 | Painting | D002 |
| 4 | SD004 | Electrical Maintenance | D002 |
| 5 | SD005 | Welding | D002 |
| 6 | SD006 | Plumbing | D002 |
| 7 | SD007 | Finance Planning | D003 |
| 8 | SD008 | HR Recruitment | D004 |
| 9 | SD009 | IT Infrastructure | D002 |

**Database: SQLite**

## SELECT * FROM EMPLOYEE;

```
1    SELECT * FROM EMPLOYEE;
```

| | Id | PersonId | JoiningDate | SubDepartmentId |
|---|------|----------|---------------------|------------------|
| 1 | E001 | 1 | 2023-01-01 08:00:00 | SD001 |
| 2 | E002 | 2 | 2023-02-15 09:30:00 | SD002 |
| 3 | E003 | 3 | 2023-03-20 10:45:00 | SD003 |
| 4 | E004 | 4 | 2023-04-05 11:15:00 | SD004 |
| 5 | E005 | 5 | 2023-05-10 12:30:00 | SD004 |
| 6 | E006 | 6 | 2023-06-25 13:45:00 | SD003 |
| 7 | E007 | 7 | 2023-07-15 14:30:00 | SD002 |
| 8 | E008 | 8 | 2023-08-02 15:00:00 | SD001 |
| 9 | E009 | 9 | 2023-09-18 16:15:00 | SD002 |
| 10 | E010 | 10 | 2023-10-05 17:30:00 | SD001 |
| 11 | E011 | 11 | 2023-02-15 09:30:00 | SD002 |
| 12 | E012 | 12 | 2023-02-15 09:30:00 | SD003 |
| 13 | E013 | 13 | 2023-02-15 09:30:00 | SD002 |
| 14 | E014 | 14 | 2023-02-15 09:30:00 | SD004 |
| 15 | E015 | 15 | 2023-02-15 09:30:00 | SD002 |

## SELECT * FROM EQUIPMENT;

```
1    SELECT * FROM EQUIPMENT;
2
```

| | Id | Name | Quantity | Type | Description |
|---|--------|-------------------|----------|-------------|-------------|
| 1 | EQP001 | Power Drill (Cordless) | 20 | Tool | Corded power drill for various construction tasks. |
| 2 | EQP002 | Soldering Iron | 15 | Electronics | High-temperature soldering iron for electronic ... |
| 3 | EQP003 | Forklift | 5 | Vehicle | Electric forklift for material handling in the ... |
| 4 | EQP004 | Generator | 8 | Power | Diesel generator for backup power supply during ... |
| 5 | EQP005 | Excavator | 3 | Construction | Heavy-duty excavator for construction and diggin... |
| 6 | EQP006 | Printers | 30 | Office | Office printers for document printing. |
| 7 | EQP007 | Safety Helmets | 100 | Safety | Standard safety helmets for construction site ... |
| 8 | EQP008 | Network Switch | 12 | IT | Ethernet network switch for office network ... |
| 9 | EQP009 | Box of Screws | 500 | Fastener | Assorted screws for woodworking and ... |
| 10 | EQP010 | Box of Nails | 800 | Fastener | Assorted nails for various construction tasks. |

## SELECT * FROM INVENTORY;

```
1    SELECT * FROM INVENTORY;
```

| | Id | Name | Location | Type | LastUpdatedDate | ManagerId |
|---|--------|----------------|---------------|-------|---------------------|-----------|
| 1 | INV001 | Main Warehouse | Oak Street | Large | 2023-01-15 08:30:00 | E001 |
| 2 | INV002 | Small Warehouse | Maple Avenue | Small | 2023-02-20 09:45:00 | E002 |

**Database: SQLite**

**SELECT * FROM TOOLS;**

```
1        SELECT * FROM TOOLS;
```

| ToolId | InvId | PurchaseDate | TStatus | ToolsDetailId |
|--------|-------|--------------|---------|---------------|
| T001 | INV001 | 2023-01-20 10:00:00 | Available | 1 |
| T002 | INV001 | 2023-01-20 10:00:00 | Available | 2 |
| T003 | INV001 | 2023-01-20 10:00:00 | Available | 3 |
| T004 | INV002 | 2023-01-20 10:00:00 | Available | 4 |
| T005 | INV002 | 2023-01-20 10:00:00 | Available | 5 |
| T006 | INV001 | 2023-01-20 10:00:00 | Available | 6 |
| T007 | INV001 | 2023-01-20 10:00:00 | Available | 6 |
| T008 | INV002 | 2023-01-20 10:00:00 | Available | 6 |
| T009 | INV002 | 2023-01-20 10:00:00 | Available | 6 |
| T010 | INV001 | 2023-01-20 10:00:00 | Available | 7 |
| T011 | INV001 | 2023-01-20 10:00:00 | Available | 7 |
| T012 | INV002 | 2023-01-20 10:00:00 | Available | 7 |
| T013 | INV002 | 2023-01-20 10:00:00 | Available | 7 |
| T014 | INV001 | 2023-01-20 10:00:00 | Available | 8 |
| T015 | INV001 | 2023-01-20 10:00:00 | Available | 8 |

**SELECT * FROM TOOLSDETAIL;**

```
1        SELECT * FROM TOOLSDETAIL;
2
```

| Id | EquipId | Name | Manufacturer | Model | Category | Price | Weight | Description |
|----|---------|------|--------------|-------|----------|-------|--------|-------------|
| 1 | EQP001 | Hammer Drill | Makita | D100 | NonPerishable | 99 | 10 | Cordless drill for easy and portable use. |
| 2 | EQP001 | Percussion Drill | Makita | D101 | NonPerishable | 68 | 11 | Cordless drill for easy and portable use. |
| 3 | EQP001 | Mixed & Rotary Drill | Makita | D102 | NonPerishable | 75 | 10.5 | Cordless drill for easy and portable use. |
| 4 | EQP001 | Angle Drill | Makita | D103 | NonPerishable | 87 | 11 | Cordless drill for easy and portable use. |
| 5 | EQP001 | Impect Driver | Makita | D104 | NonPerishable | 54 | 9 | Cordless drill for easy and portable use. |
| 6 | EQP002 | Pointed Courtidge | Makita | Ma100 | NonPerishable | 60 | 14 | Soldring knife. |
| 7 | EQP002 | Blade Courtidge | Makita | Ma101 | NonPerishable | 55 | 15 | Soldring knife. |
| 8 | EQP002 | Chisel Courtidge | Makita | Ma102 | NonPerishable | 70 | 20 | Soldring knife. |
| 9 | EQP002 | Bevel Courtidge | Makita | Ma103 | NonPerishable | 49 | 10 | Soldring knife. |
| 10 | EQP002 | Flow Courtidge | Makita | Ma104 | NonPerishable | 65.8 | 11 | Soldring knife. |
| 11 | EQP003 | Gasoline | Bosch | DBL21 | NonPerishable | 2000 | 8.2 | Assorted drill bits for use with power drills. |
| 12 | EQP003 | Propane | Bosch | DBL22 | NonPerishable | 7986 | 8.2 | Assorted drill bits for use with power drills. |
| 13 | EQP003 | Narrow Aisle | Bosch | DBL23 | NonPerishable | 5899.99 | 8.2 | Assorted drill bits for use with power drills. |
| 14 | EQP003 | Telescopic | Bosch | DBL24 | NonPerishable | 2588.99 | 8.2 | Assorted drill bits for use with power drills. |
| 15 | EQP003 | Articulated | Bosch | DBL25 | NonPerishable | 3477 | 8.2 | Assorted drill bits for use with power drills. |
| 16 | EQP003 | Rough Terrain | Bosch | DBL26 | NonPerishable | 5000 | 8.2 | Assorted drill bits for use with power drills. |
| 17 | EQP003 | Electric | Bosch | DBL27 | NonPerishable | 9000 | 8.2 | Assorted drill bits for use with power drills. |
| 18 | EQP003 | Heavy Duty | Bosch | DBL28 | NonPerishable | 9998.99 | 8.2 | Assorted drill bits for use with power drills. |

**Database: SQLite**

**SELECT * FROM CHECKINOUT;**

```
1    SELECT * FROM CHECKINOUT;
```

| | Id | EmpId | CheckInDateTime | CheckInQuantity | CheckOutQuantity | CheckOutExpectedDate |
|---|------|-------|---------------------|-----------------|------------------|---------------------|
| 1 | CI001 | E004 | 2023-01-20 10:30:00 | 4 | 2 | 2023-02-05 14:45:00 |
| 2 | CI002 | E011 | 2023-01-20 10:30:00 | 4 | 4 | 2023-02-05 14:45:00 |
| 3 | CI003 | E005 | 2023-02-15 12:00:00 | 3 | 3 | 2023-03-10 09:30:00 |
| 4 | CI004 | E006 | 2023-03-25 13:15:00 | 1 | 1 | 2023-04-10 15:00:00 |
| 5 | CI005 | E007 | 2023-04-10 14:45:00 | 4 | 4 | 2023-04-30 11:30:00 |
| 6 | CI006 | E008 | 2023-04-15 13:15:00 | 3 | 1 | 2023-04-30 15:00:00 |
| 7 | CI007 | E006 | 2023-04-15 13:15:00 | 2 | 1 | 2023-04-30 15:00:00 |
| 8 | CI008 | E006 | 2023-04-20 13:15:00 | 4 | 2 | 2023-04-30 15:00:00 |
| 9 | CI009 | E006 | 2023-04-22 13:15:00 | 5 | 3 | 2023-04-30 15:00:00 |
| 10 | CI010 | E006 | 2023-04-30 13:15:00 | 4 | 0 | 2023-04-30 15:00:00 |

**SELECT * FROM CHECKINOUTTOOL;**

```
1    SELECT * FROM CHECKINOUTTOOL;
```

| | CheckInId | ToolId |
|----|-----------|--------|
| 1 | CI001 | T006 |
| 2 | CI001 | T007 |
| 3 | CI001 | T031 |
| 4 | CI001 | T032 |
| 5 | CI002 | T026 |
| 6 | CI002 | T033 |
| 7 | CI002 | T027 |
| 8 | CI003 | T008 |
| 9 | CI003 | T026 |
| 10 | CI003 | T016 |
| 11 | CI004 | T026 |
| 12 | CI005 | T001 |
| 13 | CI005 | T002 |
| 14 | CI005 | T029 |
| 15 | CI005 | T019 |

**Database: SQLite**

**SELECT * FROM DAMAGELOST;**

```
1    SELECT * FROM DAMAGELOST;
```

| | Id | ToolId | CheckInId | Type | Description | DateTime | Expense |
|---|---|---|---|---|---|---|---|
| 1 | DL001 | T007 | CI001 | Damage | Damaged during use. | 2023-01-26 15:30:00 | 60 |
| 2 | DL002 | T032 | CI001 | Lost | Missing | 2023-02-02 10:00:00 | 35.66 |
| 3 | DL003 | T031 | CI004 | Lost | Missing | 2023-04-30 15:00:00 | 5000 |
| 4 | DL004 | T021 | CI002 | Damage | Damaged during use | 2023-04-30 15:00:00 | 11.22 |
| 5 | DL005 | T027 | CI002 | Lost | Missing | 2023-04-30 15:00:00 | 21.96 |
| 6 | DL006 | T016 | CI002 | Lost | Missing | 2023-04-30 15:00:00 | 58.71 |
| 7 | DL007 | T015 | CI003 | Lost | Missing | 2023-04-30 15:00:00 | 100 |
| 8 | DL008 | T030 | CI003 | Lost | Missing | 2023-04-30 15:00:00 | 42 |
| 9 | DL009 | T004 | CI005 | Damage | Damaged during use | 2023-04-30 15:00:00 | 87 |

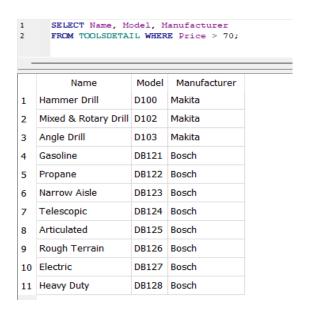○ SQL Basic, intermediate and advanced commands

▪ **Retrieve the total amount of expenses**

SELECT sum(Expense) FROM DAMAGELOST;

```
1    SELECT sum(Expense) FROM DAMAGELOST;
```

| | sum(Expense) |
|---|---|
| 1 | 5416.55 |

▪ **Retrieve Tools with basic details with price more than 70$**

SELECT Name, Model, Manufacturer FROM TOOLSDETAIL WHERE Price > 70;

```
1    SELECT Name, Model, Manufacturer
2    FROM TOOLSDETAIL WHERE Price > 70;
```

| | Name | Model | Manufacturer |
|---|---|---|---|
| 1 | Hammer Drill | D100 | Makita |
| 2 | Mixed & Rotary Drill | D102 | Makita |
| 3 | Angle Drill | D103 | Makita |
| 4 | Gasoline | DB121 | Bosch |
| 5 | Propane | DB122 | Bosch |
| 6 | Narrow Aisle | DB123 | Bosch |
| 7 | Telescopic | DB124 | Bosch |
| 8 | Articulated | DB125 | Bosch |
| 9 | Rough Terrain | DB126 | Bosch |
| 10 | Electric | DB127 | Bosch |
| 11 | Heavy Duty | DB128 | Bosch |

**Database: SQLite**

- **Retrieve Tools with having Damage under usage**

  SELECT * FROM DAMAGELOST WHERE Type like "Damage";

  ```
  1    SELECT * FROM DAMAGELOST
  2    WHERE Type like "Damage";
  ```

  | | Id | ToolId | CheckInId | Type | Description | DateTime | Expense |
  |---|---|---|---|---|---|---|---|
  | 1 | DL001 | T007 | CI001 | Damage | Damaged during use. | 2023-01-26 15:30:00 | 60 |
  | 2 | DL004 | T021 | CI002 | Damage | Damaged during use | 2023-04-30 15:00:00 | 11.22 |
  | 3 | DL009 | T004 | CI005 | Damage | Damaged during use | 2023-04-30 15:00:00 | 87 |

- **Retrieve all Equipments with Fastener as type**
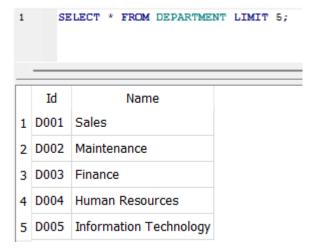
  SELECT Name, Quantity FROM EQUIPMENT WHERE Type = "Fastener";

  ```
  1    SELECT Name, Quantity FROM EQUIPMENT
  2    WHERE Type = "Fastener";
  ```

  | | Name | Quantity |
  |---|---|---|
  | 1 | Box of Screws | 500 |
  | 2 | Box of Nails | 800 |

- **Retrieve first 5 departments in the list**

  SELECT * FROM DEPARTMENT LIMIT 5;

  ```
  1    SELECT * FROM DEPARTMENT LIMIT 5;
  ```

  | | Id | Name |
  |---|---|---|
  | 1 | D001 | Sales |
  | 2 | D002 | Maintenance |
  | 3 | D003 | Finance |
  | 4 | D004 | Human Resources |
  | 5 | D005 | Information Technology |

**Database: SQLite**

- **Retrieve the list of inventory details with no of tools**

  SELECT iv.Name, iv.Location, iv.Type, count(TOOLS.ToolId) as 'No. of Tools'
  FROM TOOLS join INVENTORY iv
  on TOOLS.InvId = iv.Id group by TOOLS.InvId;

```
1    select  iv.Name, iv.Location, iv.Type, count(TOOLS.ToolId) as 'No. of Tools'
2    from TOOLS join INVENTORY iv
3    on TOOLS.InvId = iv.Id
4    group by TOOLS.InvId;
```

| | Name | Location | Type | No. of Tools |
|---|---|---|---|---|
| 1 | Main Warehouse | Oak Street | Large | 18 |
| 2 | Small Warehouse | Maple Avenue | Small | 15 |

- **Retrieve list of the lost items**

  SELECT Name FROM TOOLSDETAIL td JOIN TOOLS tl on
  td.Id = tl.ToolsDetailId JOIN DAMAGELOST dl
  on dl.ToolId = tl.ToolId and dl.Type = 'Lost';

```
1    select Name
2    from TOOLSDETAIL td JOIN TOOLS tl
3    on td.Id = tl.ToolsDetailId
4    JOIN DAMAGELOST dl
5    on dl.ToolId = tl.ToolId and dl.Type = 'Lost';
```

| | Name |
|---|---|
| 1 | Electric |
| 2 | Rough Terrain |
| 3 | Propane |
| 4 | Chisel Courtidge |
| 5 | Chisel Courtidge |
| 6 | Articulated |

**Database: SQLite**

- **Retrieve the list of EmployeeId who made Damage**

  SELECT CHECKINOUT.EmpId FROM DAMAGELOST join CHECKINOUT
  on CHECKINOUT.Id = DAMAGELOST.CheckInId
  and DAMAGELOST.Type = 'Damage';

```
1   select CHECKINOUT.EmpId
2   from DAMAGELOST join CHECKINOUT
3   on CHECKINOUT.Id = DAMAGELOST.CheckInId
4   and DAMAGELOST.Type = 'Damage';
5
```

|   | EmpId |
|---|-------|
| 1 | E004  |
| 2 | E011  |
| 3 | E007  |

- **Retrieve the list of available tools of the Particular type**

  SELECT EQ.Name, count(TOOLS.ToolID) as "Available Tools"  from
  EQUIPMENT as EQ LEFT JOIN TOOLSDETAIL as TD on TD.EquipId = EQ.Id
  left join TOOLS on TD.Id =TOOLS.ToolsDetailId and
  TOOLS.TStatus = 'Available' group by EQ.Name;

```
1   SELECT EQ.Name, count(TOOLS.ToolID) as "Available Tools" from EQUIPMENT as EQ
2   LEFT JOIN TOOLSDETAIL as TD on TD.EquipId = EQ.Id
3   left join TOOLS on TD.Id = TOOLS.ToolsDetailId and TOOLS.TStatus = 'Available'
4   group by EQ.Name;
```

|    | Name                  | Available Tools |
|----|-----------------------|-----------------|
| 1  | Box of Nails          | 0               |
| 2  | Box of Screws         | 0               |
| 3  | Excavator             | 0               |
| 4  | Forklift              | 8               |
| 5  | Generator             | 0               |
| 6  | Network Switch        | 0               |
| 7  | Power Drill (Cordless) | 5              |
| 8  | Printers              | 0               |
| 9  | Safety Helmets        | 0               |
| 10 | Soldering Iron        | 20              |

**Database: SQLite**

- **Retrieve the list of EmployeeId who made Lost**

  select EmpId from CHECKINOUT cio

  where cio.Id in (select CheckInId from DAMAGELOST where Type = 'Lost');

```
1    select EmpId from CHECKINOUT cio
2    where cio.Id in (select CheckInId from DAMAGELOST where Type = 'Lost');
3
```

| | EmpId |
|---|---|
| 1 | E004 |
| 2 | E011 |
| 3 | E005 |
| 4 | E006 |

- **Retrieve the number of the Maintenance Employee**

  SELECT count(E.Id) as 'Maintenance Employee count' FROM EMPLOYEE E

  JOIN SUBDEPARTMENT SD ON E.SubDepartmentId = SD.Id

  and SD.DeptId in

  (SELECT D.Id FROM DEPARTMENT WHERE Name LIKE '%Maintenance%');

```
1    SELECT count(E.Id) as 'Maintenance Employee count' FROM EMPLOYEE E
2    JOIN SUBDEPARTMENT SD ON E.SubDepartmentId = SD.Id
3    and SD.DeptId in
4    (SELECT D.Id FROM DEPARTMENT D WHERE Name LIKE '%Maintenance%');
```

| | Maintenance Employee count |
|---|---|
| 1 | 12 |

**Database: SQLite**

- **Retrieve the list of tools checking on the Particular date**

    SELECT TD.Name, count(TD.Name) AS 'Tools count'

    FROM TOOLSDETAIL AS TD JOIN TOOLS ON TOOLS.ToolsDetailId = TD.Id

    JOIN CHECKINOUTTOOL cit ON cit.ToolId = tools.ToolId

    JOIN CHECKINOUT cio ON cio.id = cit.CheckInId

    WHERE cio.CheckInDateTime = '2023-01-20 10:30:00'

    GROUP BY TD.Name;

```
1    SELECT TD.Name, count(TD.Name) AS 'Tools count'
2    FROM TOOLSDETAIL AS TD JOIN TOOLS ON TOOLS.ToolsDetailId = TD.Id
3    JOIN CHECKINOUTTOOL cit ON cit.ToolId = tools.ToolId
4    JOIN CHECKINOUT cio ON cio.id = cit.CheckInId
5    WHERE cio.CheckInDateTime = '2023-01-20 10:30:00'
6    GROUP BY TD.Name;
7
```

| | Name | Tools count |
|---|---|---|
| 1 | Electric | 1 |
| 2 | Gasoline | 1 |
| 3 | Heavy Duty | 1 |
| 4 | Pointed Courtidge | 2 |
| 5 | Propane | 1 |
| 6 | Rough Terrain | 1 |

- **Retrieve the list of Employee who made Damage or Lost**

    select E.Id, FirstName || ' ' || LastName as 'EmployeeName' from PERSON P

    join EMPLOYEE E on E.PersonId = P.id

    where E.id in

    (select EmpId from CHECKINOUT C where C.Id in (select CheckInId from DAMAGELOST));

```
1    select E.Id, FirstName || ' ' || LastName as 'EmployeeName' from PERSON P
2    join EMPLOYEE E on E.PersonId = P.id
3    where E.id in
4    (select EmpId from CHECKINOUT C where C.Id in (select CheckInId from DAMAGELOST));
5
```

| | Id | EmployeeName |
|---|---|---|
| 1 | E004 | Alice Williams |
| 2 | E005 | Chris Davis |
| 3 | E006 | Emily Jones |
| 4 | E007 | Michael Smith |
| 5 | E011 | William Taylor |

**Database: SQLite**