

# Assignment 1B – MonH Forms Normalisation

## Form (i): Data used by clerks in establishing costings for quotes

### UNF

PURPOSE (purpose\_no, purpose\_desc, (combo\_code, truck\_vin, truck\_rego\_no, trailer\_code, trailer\_manufacturer, trailer\_model, trailer\_class, trailer\_load\_cap, trailer\_dimensions))

### 1NF

PURPOSE (purpose\_no, purpose\_desc, combo\_code)

COMBO (combo\_code, truck\_vin, truck\_rego\_no, trailer\_code, trailer\_manufacturer, trailer\_model, trailer\_class, trailer\_load\_cap, trailer\_dimensions)

Partial dependencies:

- truck\_vin → truck\_rego\_no
- trailer\_code → trailer\_manufacturer, trailer\_model, trailer\_class, trailer\_load\_cap, trailer\_dimensions

### 2NF

PURPOSE (purpose\_no, purpose\_desc, combo\_code)

COMBO (combo\_code, truck\_vin, trailer\_code)

TRUCK (truck\_vin, truck\_rego\_no)

TRAILER (trailer\_code, trailer\_manufacturer, trailer\_model, trailer\_class, trailer\_load\_cap, trailer\_dimensions)

Transitive dependencies:

- trailer\_manufacturer, trailer\_model → trailer\_class

### 3NF

PURPOSE (purpose\_no, purpose\_desc, combo\_code)

COMBO (combo\_code, truck\_vin, trailer\_code)

TRUCK (truck\_vin, truck\_rego\_no)

TRAILER (trailer\_code, trailer\_manufacturer, trailer\_model, trailer\_load\_cap, trailer\_dimensions)

TRAILERCLASS (trailer\_manufacturer, trailer\_model, trailer\_class)

Full dependencies:

- purpose\_no → purpose\_desc, combo\_code

- combo\_code → truck\_vin, trailer\_code
- truck\_vin → truck\_rego\_no
- trailer\_code → trailer\_manufacturer, trailer\_model, trailer\_load\_cap, trailer\_dimensions
- trailer\_manufacturer, trailer\_model → trailer\_class

### Form (ii): Company Job Sheet

#### **UNF**

JOB (job\_no, quote\_no, quote\_prep\_date, purpose\_no, purpose\_desc, quote\_days\_required, quote\_cost, combo\_code, driver\_emp\_no, driver\_name, mechanic\_emp\_no, mechanic\_name, job\_pickup\_date\_time, job\_intended\_dropoff\_date\_time, job\_actual\_dropoff\_date\_time, job\_cost, job\_date\_paid)

#### **1NF**

JOB (job\_no, quote\_no, quote\_prep\_date, purpose\_no, purpose\_desc, quote\_days\_required, quote\_cost, combo\_code, driver\_emp\_no, driver\_name, mechanic\_emp\_no, mechanic\_name, job\_pickup\_date\_time, job\_intended\_dropoff\_date\_time, job\_actual\_dropoff\_date\_time, job\_cost, job\_date\_paid)

Partial dependencies:

- No partial dependencies present

#### **2NF**

JOB (job\_no, quote\_no, quote\_prep\_date, purpose\_no, purpose\_desc, quote\_days\_required, quote\_cost, combo\_code, driver\_emp\_no, driver\_name, mechanic\_emp\_no, mechanic\_name, job\_pickup\_date\_time, job\_intended\_dropoff\_date\_time, job\_actual\_dropoff\_date\_time, job\_cost, job\_date\_paid)

Transitive dependencies:

- quote\_no → quote\_prep\_date, purpose\_no, purpose\_desc, quote\_days\_required, quote\_cost
- purpose\_no → purpose\_desc
- driver\_emp\_no → driver\_name
- mechanic\_emp\_no → mechanic\_name

#### **3NF**

JOB (job\_no, quote\_no, combo\_code, driver\_emp\_no, mechanic\_emp\_no, job\_pickup\_date\_time, job\_intended\_dropoff\_date\_time, job\_actual\_dropoff\_date\_time, job\_cost, job\_date\_paid)

QUOTE (quote\_no, quote\_prep\_date, purpose\_no, quote\_days\_required, quote\_cost)

PURPOSE (purpose\_no, purpose\_desc)

DRIVER (driver\_emp\_no, driver\_name)

MECHANIC (mechanic\_emp\_no, mechanic\_name)

Full dependencies:

- job\_no → quote\_no, combo\_code, driver\_emp\_no, mechanic\_emp\_no, job\_pickup\_date\_time, job\_intended\_dropoff\_date\_time, job\_actual\_dropoff\_date\_time, job\_cost, job\_date\_paid
- quote\_no → quote\_prep\_date, purpose\_no, quote\_days\_required, quote\_cost
- purpose\_no → purpose\_desc
- driver\_emp\_no → driver\_name
- mechanic\_emp\_no → mechanic\_name

## Attribute Synthesis:

### **Collected 3NF Relations**

1. PURPOSE (purpose\_no, purpose\_desc, combo\_code)
2. COMBO (combo\_code, truck\_vin, trailer\_code)
3. TRUCK (truck\_vin, truck\_rego\_no)
4. TRAILER (trailer\_code, trailer\_manufacturer, trailer\_model, trailer\_load\_cap, trailer\_dimensions)
5. TRAILERCLASS (trailer\_manufacturer, trailer\_model, trailer\_class)
6. JOB (job\_no, quote\_no, combo\_code, driver\_emp\_no, mechanic\_emp\_no, job\_pickup\_date\_time, job\_intended\_dropoff\_date\_time, job\_actual\_dropoff\_date\_time, job\_cost, job\_date\_paid)
7. QUOTE (quote\_no, quote\_prep\_date, purpose\_no, quote\_days\_required, quote\_cost)
8. PURPOSE (purpose\_no, purpose\_desc)
9. DRIVER (driver\_emp\_no, driver\_name)
10. MECHANIC (mechanic\_emp\_no, mechanic\_name)

### **Relations to Combine**

- Relation 1 and Relation 8 (i.e., PURPOSE from Form (i) and PURPOSE from Form (ii)).
- Relation 9 and Relation 10 (i.e., DRIVER from Form (ii) and MECHANIC from Form (ii)), since they both represent company employees.

### **Final 3NF**

PURPOSE (purpose\_no, purpose\_desc, combo\_code)

COMBO (combo\_code, truck\_vin, trailer\_code)

TRUCK (truck\_vin, truck\_rego\_no)

TRAILER (trailer\_code, trailer\_manufacturer, trailer\_model, trailer\_load\_cap, trailer\_dimensions)

TRAILERCLASS (trailer\_manufacturer, trailer\_model, trailer\_class)

JOB (job\_no, quote\_no, combo\_code, driver\_emp\_no, mechanic\_emp\_no,  
job\_pickup\_date\_time, job\_intended\_dropoff\_date\_time, job\_actual\_dropoff\_date\_time,  
job\_cost, job\_date\_paid)

QUOTE (quote\_no, quote\_prep\_date, purpose\_no, quote\_days\_required, quote\_cost)

EMPLOYEE (emp\_no, emp\_name)