

Note: We have represented primary keys using both bold and underline for easier reading.

Normalization Document for FIT3171 Database Assignment 1B

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

Truck Trailer Purpose Details

Purpose Number: P01
Description: Dry Cargo Transportation

Truck and Trailer	Truck Details	Trailer Details						
ComboCode	VIN	Reg No	Code	Manufacturer	Model	Class	Load Capacity	Dimensions (LxW)
C01	YV9F4B0C9M053703	TRK123456	DRY01	Schmitz	Axxl Load Steer	FR	26.500 kg	11.5 x 2.49 m
C02	YHRSRSCNHLJ19702	TRK123456	DRY02	Freightliner	Steel A	FA	21.640 kg	10.5 x 2.44 m
C03	XLRIT47MSCE952292	TRK10457	DRY02	Freighter	Steel A	FA	21.640 kg	10.5 x 2.44 m
C04	XLRIT47MSCE952292	TRK10457	DRY03	Vawdrey	Curtainsider A	FA	20.089 kg	10.0 x 2.49 m
C05	XLRIT47MSCE952279	TRK10478	DRY04	Vawdrey	Curtainsider A	FA	20.089 kg	10.0 x 2.49 m

Purpose Number: P02
Description: Refrigerated Cargo Transportation

Truck and Trailer	Truck Details	Trailer Details						
ComboCode	VIN	Reg No	Code	Manufacturer	Model	Class	Load Capacity	Dimensions (LxW)
C11	YV9F4B0C9M053703	TRK123456	REF01	Vawdrey	Icelandair12	R12	26.500 kg	11.5 x 2.49 m
C12	XLRIT47MSCE952292	TRK10457	REF02	Freightliner	Steel A	FA	22.310 kg	10.5 x 2.44 m
C13	JHDF84JGLXXX10363	TRK282456	REF01	Vawdrey	Icelandair12	R12	28.300 kg	12.6 x 2.49 m
C14	JHDF84JGLXXX10363	TRK282456	REF03	Schmitz	Cargobull	R12	26.123 kg	12.2 x 2.44 m

Purpose Number: P03
Description: House Shifting

Truck and Trailer	Truck Details	Trailer Details						
ComboCode	VIN	Reg No	Code	Manufacturer	Model	Class	Load Capacity	Dimensions (LxW)
C01	YHRSRSCNHLJ19702	TRK123456	DRY01	Schmitz	Axxl Load Steer	FR	26.500 kg	11.5 x 2.49 m
C02	JHDF84JGLXXX10363	TRK282456	DRY02	Freighter	Steel A	FA	21.640 kg	10.5 x 2.44 m
C03	XLRIT47MSCE952292	TRK10457	DRY02	Freighter	Steel A	FA	21.640 kg	10.5 x 2.44 m
C04	XLRIT47MSCE952292	TRK10457	DRY03	Vawdrey	Curtainsider A	FA	20.089 kg	10.0 x 2.49 m

Purpose Number: P04
Description: Rugged Terrain Transportation

Truck and Trailer	Truck Details	Trailer Details						
ComboCode	VIN	Reg Number	Code	Manufacturer	Model	Class	Load Capacity	Dimensions (LxW)
C03	JT719UA0A09000301	TRK14508B	DRY01	Schmitz	Axxl Load Steer	FR	26.500 kg	11.5 x 2.49 m
C04	JT719UA0A09000301	TRK14508B	DRY02	Freighter	Steel A	FA	21.640 kg	10.5 x 2.44 m

UNF

no PK declaration in UNF

- PURPOSE (purp_no, purp_desc, (combo_code, truck_VIN, truck_reg_no, trailer_code, trailer_make, trailer_model, trailer_c_name, trailer_capacity, trailer_length, trailer_width))

Note we have broken up the composite "dimensions" attribute into simple "length" and "width" attributes.

1NF

- PURPOSE_COMBO(combo_code, purp_no, truck_VIN, truck_reg_no, trailer_code, trailer_make, trailer_model, trailer_c_name, trailer_capacity, trailer_length, trailer_width) ✓
- PURPOSE(purp_no, purp_desc)

Partial dependencies: missing CKs identification

- combo_code -> truck_VIN, truck_reg_no, trailer_code, trailer_make, trailer_model, trailer_c_name, trailer_capacity, trailer_length, trailer_width ✗

2NF

- PURPOSE_COMBO(combo_code, purp_no)
- TRUCK_TRAILER_COMBO(combo_code, truck_VIN, truck_reg_no, trailer_code, trailer_make, trailer_model, trailer_c_name, trailer_capacity, trailer_length, trailer_width) ✓
- PURPOSE(purp_no, purp_desc)

Transitive dependencies: missing TD

- truck_VIN -> truck_reg_no ✓
- trailer_code -> trailer_make, trailer_model, trailer_c_name, trailer_capacity, trailer_length, trailer_width ✓

3NF

- PURPOSE_COMBO(combo_code, purp_no)
- TRUCK_TRAILER_COMBO(combo_code, truck_VIN, trailer_code)
- PURPOSE(purp_no, purp_desc)

- TRUCK(~~truck_VIN~~, truck_reg_no)✓
- TRAILER(~~trailer_code~~, trailer_make, trailer_model, trailer_c_name, trailer_capacity, trailer_length, trailer_width) ✓

Full dependencies: ✓

- combo_code -> truck_VIN, trailer_code
- purp_no -> purp_desc
- truck_VIN -> truck_reg_no
- trailer_code -> trailer_make, trailer_model, trailer_c_name, trailer_capacity, trailer_length, trailer_width

(ii) Company job sheet

SAMPLE B:

Monash Haulers Job Sheet

Job No	1256
QUOTE DETAILS:	
Quote No	1299
Quote Prepared	24 Aug 2022
Quote Purpose Number	P04
Quote Purpose Description	Rugged Terrain Transportation
Quote Number of days required	1
Quoted Cost	\$650.00
JOB DETAILS:	
Assigned Truck Trailer Combo	C43
Assigned Driver	
Driver Employee Number	10
Driver Name	William McLaur
Combo Certified by Mechanic	
Mechanic Employee Number	18
Mechanic Name	Marian McQuinn
Pickup date and time	26 Aug 2022 07:00
Intended Drop off date and time	26 Aug 2022 13:50
Actual Drop off date and time	26 Aug 2022 13:55
Job Cost (if different to quote)	\$750
Date Customer Paid	28 Aug 2022

UNF no PK declaration in UNF

- JOB_QUOTE(**job_no**, quote_no, quote_date_prepared, purp_no, purp_desc, quote_days_req, quote_cost, combo_code, driver_no, driver_fname, driver_lname, mech_no, mech_fname, mech_lname, pickup_dt, job_int_dropoff_dt, job_act_dropoff_dt, job_rev_cost, job_dt_paid)

No repeating groups present.

1NF

Same as above. **should write the relation**

Missing CKs identification

No partial dependencies present. X

2NF

Same as above. should write the relation

Transitive dependencies:

- quote_no -> quote_date_prepared, purp_no, purp_desc, quote_days_req, quote_cost ✓
- driver_no -> driver_fname, driver_lname ✓
- mech_no -> mech_fname, mech_lname ✓

3NF (1st iteration)

- QUOTE(quote_no, quote_date_prepared, purp_no, purp_desc, quote_days_req, quote_cost)
- DRIVER(driver_no, driver_fname, driver_lname)
- MECHANIC(mech_no, mech_fname, mech_lname)
- JOB(job_no, quote_no, combo_code, driver_no, mech_no, pickup_dt, job_int_dropoff_dt, job_act_dropoff_dt, job_rev_cost, job_dt_paid)

Transitive dependencies:

- purp_no -> purp_desc
- combo_code -> mech_no

3NF (2nd iteration)

- PURPOSE(purp_no, purp_desc)
- QUOTE(quote_no, quote_date_prepared, purp_no, quote_days_req, quote_cost)
- DRIVER(driver_no, driver_fname, driver_lname)
- MECHANIC(mech_no, mech_fname, mech_lname)
- JOB(job_no, quote_no, combo_code, driver_no, pickup_dt, job_int_dropoff_dt, job_act_dropoff_dt, job_rev_cost, job_dt_paid)
- TRUCK_TRAILER_COMBO(combo_code, mech_no) X

Full dependencies:

- purp_no -> purp_desc
- quote_no -> quote_date_prepared, purp_no, quote_days_req, quote_cost
- driver_no -> driver_fname, driver_lname
- mech_no -> mech_fname, mech_lname
- job_no -> quote_no, combo_code, driver_no, pickup_dt, job_int_dropoff_dt, job_act_dropoff_dt, job_rev_cost, job_dt_paid
- combo_code -> mech_no

Final normalisation (synthesised) ✓

Combined MECHANIC and DRIVER into EMPLOYEE since they are identical relations:

- PURPOSE_COMBO(combo_code, purp_no)
- TRUCK_TRAILER_COMBO(combo_code, truck_VIN, trailer_code, mech_no)
- PURPOSE(purp_no, purp_desc)
- TRUCK(truck_VIN, truck_reg_no)
- TRAILER(trailer_code, trailer_make, trailer_model, trailer_c_name, trailer_capacity, trailer_length, trailer_width)

- QUOTE(quote_no, quote_date_prepared, purp_no, quote_days_req, quote_cost)
- EMPLOYEE(emp_no, emp_fname, emp_lname)
- JOB(job_no, quote_no, combo_code, driver_no, pickup_dt, job_int_dropoff_dt, job_act_dropoff_dt, job_rev_cost, job_dt_paid)