

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 Number	Code	Manufacturer	Model	Class	Load Capacity	Dimensions (LxW)
C01	1HGLJRSRBEJ419702	TRK123456	DRY01	Stonemaster	4x4 Quad Steer	FR	26,500 Kg	11.5 x 2.49 m
C02	1HGLJRSRBEJ419702	TRK123456	DRY02	Freightster	Steel A	FA	21,640 Kg	10.5 x 2.44 m
C03	XLRTT47MBCSE52202	TRK100457	DRY02	Freightster	Steel A	FA	21,640 Kg	10.5 x 2.44 m
C04	XLRTT47MBCSE52202	TRK100457	DRY03	Voadstry	Curtainseider A	FA	20,089 Kg	10.0 x 2.49 m
C05	XLRTT47MBCSE52279	TRK100476	DRY04	Voadstry	Curtainseider 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 Number	Code	Manufacturer	Model	Class	Load Capacity	Dimensions (LxW)
C11	YH9F4B3D9W0563763	TRK278901	REF01	Voadstry	Isolander12	R12	28,300 Kg	12.6 x 2.49 m
C12	XLRTT47MBCSE52202	TRK100457	REF02	Freightster	Taufliner	R10	22,310 Kg	10.5 x 2.44 m
C13	JHDFBAGLXXX10363	TRK282456	REF01	Voadstry	Isolander12	R12	28,300 Kg	12.6 x 2.49 m
C14	JHDFBAGLXXX10363	TRK282456	REF03	Schenck	Cargosult	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 Number	Code	Manufacturer	Model	Class	Load Capacity	Dimensions (LxW)
C01	1HGLJRSRBEJ419702	TRK123456	DRY01	Stonemaster	4x4 Quad Steer	FR	26,500 Kg	11.5 x 2.49 m
C02	JHDFBAGLXXX10363	TRK282456	DRY02	Freightster	Steel A	FA	21,640 Kg	10.5 x 2.44 m
C03	XLRTT47MBCSE52202	TRK100457	DRY02	Freightster	Steel A	FA	21,640 Kg	10.5 x 2.44 m
C04	XLRTT47MBCSE52202	TRK100457	DRY03	Voadstry	Curtainseider 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)
C43	J7731BUA000000301	TRK145086	DRY01	Stonemaster	4x4 Quad Steer	FR	26,500 Kg	11.5 x 2.49 m
C44	J7731BUA000000301	TRK145086	DRY02	Freightster	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 of date and time	26 Aug 2022 13:50
Actual Drop of 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. ❌

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) ❌

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)