

UNF: (Unnormalised form - consists of repeating groups)

staff_id	staff_name	staff_email	cust_id	cust_name	cust_address	cust_email	booking_ref_number	booking_date	tour_number	departure_id	departure_city	start_date_time	end_date_time	tour_package	tour_code	number_of_adults	number_of_children	adult_fare	child_fare	payment_id	payment_date	amount_paid	payment_type
1	Ms. Adriana Green	agreen@motel.com.au	1	Mr. King Martin	1234, Princes Highway, Armadale, VIC - 3143	kingmartin@xyz.com	98765	06-Feb-15	231	56789	Melbourne	10-mar-2015 / 07:00	10-mar-2015 / 07:00	Melbourne to Sydney 3-day	67	2	3	650	340	1	06-Feb-15	\$300	CREDIT
																				12-Feb-15	\$1,500	CASH	

REPEATING GROUPS  (payment_date, amount_paid, payment_type)

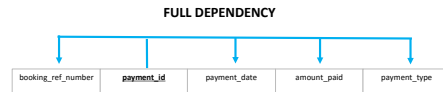
TO CONVERT FROM UNF TO 1NF:

Move from UNF to 1NF by *removing repeating group* along with the PK of the main relation

NOTE: The primary keys are the attributes written in bold and underlined in the table above which are booking_ref_number and payment_id.



1NF: (Removed repeating groups)



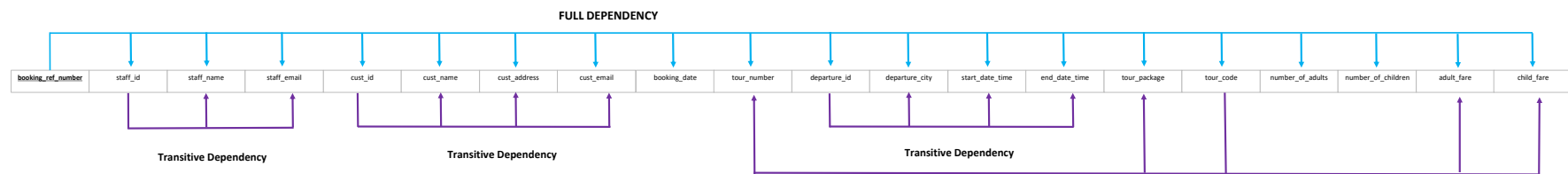
PAYMENT (payment_id, payment_date, amount_paid, payment_type, booking_ref_number)

LEGEND:

Blue Arrows = Full Dependency

Purple Arrows = Transitive Dependency

NOTE: The primary keys of each table are the attributes written in bold and underlined for each table respectively.



BOOKING (booking_ref_number, staff_id, staff_name, staff_email, cust_id, cust_name, cust_address, cust_email, booking_date, tour_number, departure_id, departure_city, start_date_time, end_date_time, tour_package, tour_code, number_of_adults, number_of_children, adult_fare, child_f are)

TRANSITIVE DEPENDENCIES:

(staff_id → staff_name, staff_email)

(cust_id → cust_name, cust_address, cust_email)

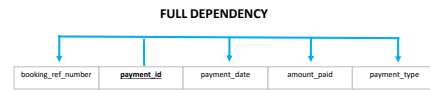
(departure_id → departure_city, start_date_time, end_date_time)

(tour_code → tour_number, tour_package, adult_fare, child_fare)

NOTE: Since no partial dependencies exist, this dependency diagram is already in 2NF as well.

Also, we have not included any derived quantities as part of the normalization such Amount due/Total payable as they could be derived through the multiplication of the number and fare of adults and children respectively.

2NF: (Remove partial dependencies - if any exist), since none did, therefore 1NF and 2NF are the same)



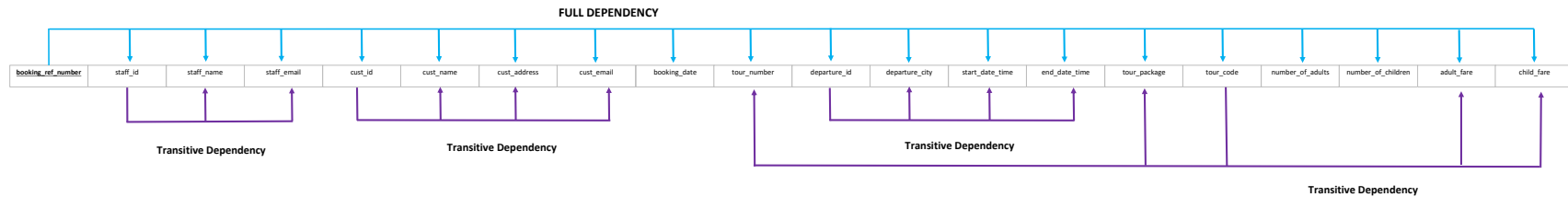
PAYMENT (payment_id, payment_date, amount_paid, payment_type, booking_ref_number)

LEGEND:

Blue Arrows = Full Dependency

Purple Arrows = Transitive Dependency

NOTE: The primary keys of each table are the attributes written in bold and underlined for each table respectively.



BOOKING (booking_ref_number, staff_id, staff_name, staff_email, cust_id, cust_name, cust_address, cust_email, booking_date, tour_number, departure_id, departure_city, start_date_time, end_date_time, tour_package, tour_code, number_of_adults, number_of_children, adult_fare, child_f are)

TRANSITIVE DEPENDENCIES:

(staff_id → staff_name, staff_email)

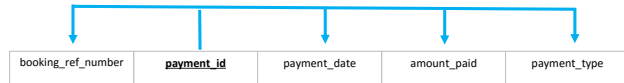
(cust_id → cust_name, cust_address, cust_email)

(departure_id → departure_city, start_date_time, end_date_time)

(tour_code → tour_number, tour_package, adult_fare, child_fare)

3NF: (all transitive dependencies have been removed)

FULL DEPENDENCY



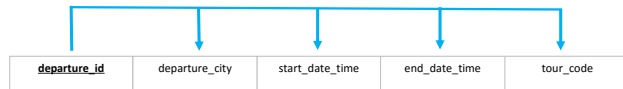
PAYMENT (**payment_id**, booking_ref_number, payment_date, amount_paid, payment_type)

FULL DEPENDENCY



CUSTOMER (**cust_id**, cust_name, cust_address, cust_email)

FULL DEPENDENCY



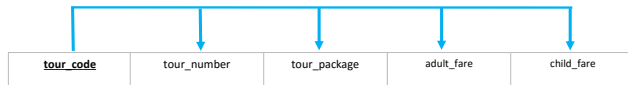
DEPARTURE (**departure_id**, departure_city, start_date_time, end_date_time, tour_code)

FULL DEPENDENCY



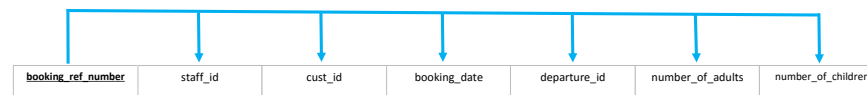
STAFF (**staff_id**, staff_name, staff_email)

FULL DEPENDENCY



TOUR (**tour_code**, tour_number, tour_package, adult_fare, child_fare)

FULL DEPENDENCY



BOOKING (**booking_ref_number**, staff_id, cust_id, booking_date, departure_id, number_of_adults, number_of_children)

LEGEND:

Blue Arrows = Full Dependency

NOTE: The primary keys of each table are the attributes written in bold and underlined for each table respectively.