Normalisation

Group 62: Sohan Jagadeesh (32916221)

Lee Pui Yin (32964773)

Vincent Vincent (30052386)

Form 1: Port Tours Available

UNF

PORT_TOUR_AVAILABLE (port_code, port_name, country_code, country_name, (temp_month, temp_avg_high, temp_avg_low), (tour_no, tour_name, tour_desc, tour_hours_req, tour_cost_pp, tour_wc_access, tour_availability, tour_start_time))

Repeating groups:

- temp_month, temp_avg_high, temp_avg_low
- tour_no, tour_name, tour_desc, tour_hours_req, tour_cost_pp, tour_wc_access, tour_availability, tour_start_time

1NF

PORT_TOUR_AVAILABLE (<u>port_code</u>, port_name, country_code, country_name)

TEMPERATURE (<u>port_code</u>, <u>temp_month</u>, temp_avg_high, temp_avg_low)

TOUR_DETAILS (<u>port_code</u>, <u>tour_no</u>, tour_name, tour_desc, tour_hours_req, tour_cost_pp, tour_wc_access, tour_availability, tour_start_time)

Partial dependencies:

- No partial dependencies
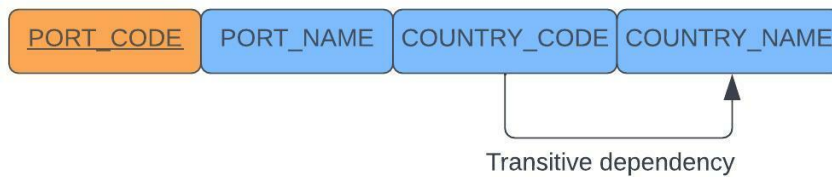
2NF

PORT_TOUR_AVAILABLE (<u>port_code</u>, port_name, country_code, country_name)

TEMPERATURE (<u>port_code</u>, <u>temp_month</u>, temp_avg_high, temp_avg_low)

TOUR_DETAILS (<u>port_code</u>, <u>tour_no</u>, tour_name, tour_desc, tour_hours_req, tour_cost_pp, tour_wc_access, tour_availability, tour_start_time)

Transitive dependencies:

- country_code → country_name

Transitive dependency

3NF

COUNTRY (country_code, country_name)

PORT_TOUR_AVAILABLE (port_code, port_name, country_code)

TEMPERATURE (port_code, temp_month, temp_avg_high, temp_avg_low)

TOUR_DETAILS (port_code, tour_no, tour_name, tour_desc, tour_hours_req, tour_cost_pp, tour_wc_access, tour_availability, tour_start_time)

Full dependencies

- country_code → country_name
- port_code → port_name, country_code
- port_code, temp_month → temp_avg_high, temp_avg_low
- port_code, tour_no → tour_name, tour_desc, tour_hours_req, tour_cost_pp, tour_wc_access, tour_availability, tour_start_time

Form 2: Port - Tour Participant Report

UNF

PORT_TOUR_PARTICIPANT (port_code, tour_no, tour_name, tour_date, tour_start_time, (passenger_id, passenger_name, passenger_language, cruise_id, cruise_name, payment_received)

Repeating groups:

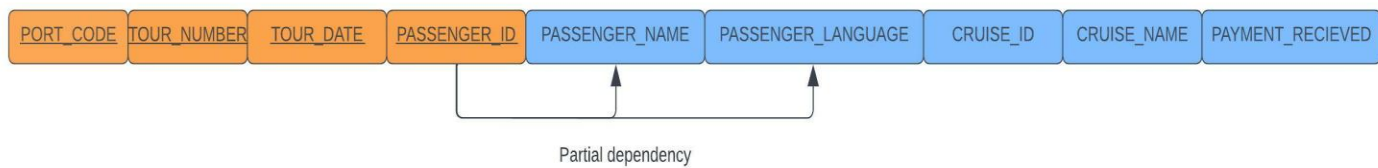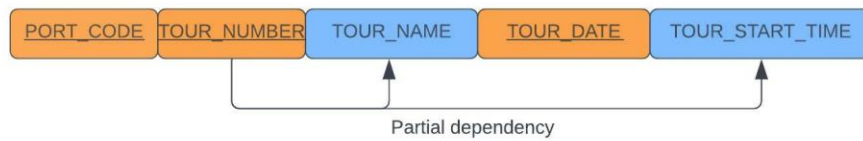passenger_id, passenger_name, passenger_language, cruise_id, cruise_name, payment_received

1NF

PORT_TOUR_PARTICIPANT (port_code, tour_no, tour_name, tour_date, tour_start_time)

REGISTRATION (port_code, tour_no, tour_date, passenger_id, passenger_name, passenger_language, cruise_id, cruise_name, payment_received)

Partial dependencies:

- port_code, tour_no → tour_name, tour_start_time
- passenger_id → passengers_name, passenger_language

Partial dependency

Partial dependency

2NF

TOUR_DETAILS (port_code, tour_no, tour_name, tour_start_time)

PORT_TOUR_PARTICIPANT (port_code, tour_no, tour_date)

PASSENGER (passenger_id, passenger_name, passenger_language)

REGISTRATION (port_code, tour_no, tour_date, passenger_id, cruise_id, cruise_name, payment_received)

Transitive dependencies:

- cruise _id → cruise_name

Transitive dependency

3NF

TOUR_DETAILS (port_code, tour_no, tour_name, tour_start_time)

PORT_TOUR_PARTICIPANT (port_code, tour_no, tour_date)

PASSENGER (<u>passenger_id</u>, passenger_name, passenger_language)

REGISTRATION (<u>port_code</u>, <u>tour_no,</u> <u>tour_date</u>, <u>passenger_id</u>, cruise_id, payment_received)

CRUISE (<u>cruise_id</u>, cruise_name)

Full dependencies

- port_code, tour_no → tour_name, tour_start_time
- port_code, tour_no, tour_date
- passenger_id → passenger_name, passenger_language
- port_code, tour_no, tour_date, passenger_id → cruise_id, payment_received
- cruise_id → cruise_name

Collected 3NF Relations from Both Forms

1. PORT_TOUR_AVAILABLE (<u>port_code</u>, port_name, country_code)
2. COUNTRY (<u>country_code</u>, country_name)
3. TEMPERATURE (<u>port_code</u>, <u>temp_month</u>, temp_avg_high, temp_avg_low)
4. TOUR_DETAILS (<u>port_code</u>, <u>tour_no</u>, tour_name, tour_desc, tour_hours_req, tour_cost_pp, tour_wc_access, tour_availability, tour_start_time)
5. TOUR_DETAILS (<u>port_code</u>, <u>tour_no</u>, tour_name, tour_start_time)
6. PORT_TOUR_PARTICIPANT (<u>port_code</u>, <u>tour_no</u>, <u>tour_date</u>)
7. PASSENGER (<u>passenger_id</u>, passenger_name, passenger_language)
8. REGISTRATION (<u>port_code</u>, <u>tour_no,</u> <u>tour_date</u>, <u>passenger_id</u>, cruise_id, payment_received)
9. CRUISE (<u>cruise_id</u>, cruise_name)

Attribute Synthesis

1.

PORT (<u>port_code</u>, port_name, country_code)

2.

COUNTRY (<u>country_code</u>, country_name)

3.

TEMPERATURE (<u>port_code</u>, <u>temp_month</u>, temp_avg_high, temp_avg_low)

4. & 5.

TOUR (<u>port_code</u>, <u>tour_no</u>, tour_name, tour_desc, tour_hours_req, tour_cost_pp, tour_wc_access, tour_availability, tour_start_time)

6.

TOUR_DATE (port_code, tour_no, tour_date)

7.

PASSENGER (passenger_id, passenger_name, passenger_language) **Note:** Based on Assignment 1A, passenger_name will split into two attributes which are passenger_first_name and passenger_last_name.

8.

REGISTRATION (port_code, tour_no, tour_date, passenger_id, cruise_id, payment_received)

9.

CRUISE (cruise_id, cruise_name)