Normalisation

i) Tours which are available at a given port

UNF

PORT_TOUR (port_code, port_name, country_code, country_name, (temp_month, temp_average_high, temp_average_low), (tour_number, tour_name, tour_description, tour_hours_required, tour_cost_per_person, tour_wheel_chair_access, tour_availability, tour_start_time))

1NF

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

PORT_TEMP (<u>temp_month</u>, <u>port_code</u>, temp_average_high, temp_average_low)

PORT_AVAILABLE_TOUR (<u>tour_number</u>, <u>port_code</u>, tour_name, tour_description, tour_hours_required, tour_cost_per_person, tour_wheel_chair_access, tour_availability, tour_start_time)

Candidate keys

For PORT_TOUR

- (port_code)

For PORT_TEMP

- (temp_month, port_code)

For PORT_AVAILABLE_TOUR

- (tour_number, port_code)
- (port_code, tour_name)

Partial dependencies:

For PORT_TOUR

- No partial dependencies present

For PORT_TEMP

- No partial dependencies present

For PORT_AVAILABLE_TOUR

- No partial dependencies present

Normalisation

2NF

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

PORT_TEMP (<u>temp_month</u>, <u>port_code</u>, temp_average_high, temp_average_low)

PORT_AVAILABLE_TOUR (<u>tour_number</u>, <u>port_code</u>, tour_name, tour_description, tour_hours_required, tour_cost_per_person, tour_wheel_chair_access, tour_availability, tour_start_time)

Transitive dependencies:

For PORT_TOUR

- country_code -> country_name

For PORT_TEMP

- No transitive dependencies present

For PORT_AVAILABLE_TOUR

- No transitive dependencies present

3NF

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

PORT_TEMP (<u>temp_month</u>, <u>port_code</u>, temp_average_high, temp_average_low)

PORT_AVAILABLE_TOUR (<u>tour_number</u>, <u>port_code</u>, tour_name, tour_description, tour_hours_required, tour_cost_per_person, tour_wheel_chair_access, tour_availability, tour_start_time)

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

Full Dependency

port_code -> port_name, coutry_code

temp_month, port_code -> temp_average_high, temp_average_low

tour_number, port_code -> tour_name, tour_description, tour_hours_required, tour_cost_per_person, tour_wheel_chair_access, tour_availability, tour_start_time

country_code -> country_name

Normalisation

ii) Participants for a particular tour instance

UNF

PARTICIPANT_REPORT (port_code, tour_number, tour_name, tour_date, tour_start_time, (passenger_id, passenger_name, passenger_spoken_language, cruise_id, cruise_name, payment_received))

1NF

PARTICIPANT_REPORT (<u>port_code</u>, <u>tour_number</u>, <u>tour_date</u>, tour_name, tour_start_time)

PORT_TOUR_PARTICIPANT (<u>passenger_id</u>, <u>port_code</u>, <u>tour_number</u>, <u>tour_date</u>, cruise_id, passenger_name, passenger_spoken_language, cruise_name, payment_received)

Candidate keys

For PARTICIPANT_REPORT

- (port_code, tour_number, tour_date)

For PORT_TOUR_PARTICIPANT

- (<u>passenger_id</u>, <u>port_code</u>, <u>tour_number</u>, <u>tour_date</u>)

Partial dependencies:

For PARTICIPANT_REPORT

- No partial dependencies present

For PORT_TOUR_PARTICIPANT

- passenger_id -> passenger_name, passenger_spoken_language

Normalisation

2NF

PARTICIPANT_REPORT (<u>port_code</u>, <u>tour_number</u>, <u>tour_date</u>, tour_name, tour_start_time)

PORT_TOUR_PARTICIPANT (<u>passenger_id</u>, <u>port_code</u>, <u>tour_number</u>, <u>tour_date</u>, cruise_id, cruise_name, payment_received)

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

Transitive dependencies:

For PARTICIPANT_REPORT

- No transitive dependencies present

For PORT_TOUR_PARTICIPANT

- cruise_id -> cruise_name

For PASSENGER

- No transitive dependencies present

3NF

PARTICIPANT_REPORT (<u>port_code</u>, <u>tour_number</u>, <u>tour_date</u>, tour_name, tour_start_time)

PORT_TOUR_PARTICIPANT (<u>passenger_id</u>, <u>port_code</u>, <u>tour_number</u>, <u>tour_date</u>, cruise_id, payment_received)

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

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

Full Dependency

port_code, tour_number, tour_date -> tour_name, tour_start_time

passenger_id, port_code, tour_number, tour_date -> cruise_id, payment_received

passenger_id -> passenger_name, passenger_spoken_language

cruise_id -> cruise_name

Normalisation