

## CHEN ZHUO

UNF

PORT(port\_code, port\_name, country\_code, country\_name, (month, aver\_high, aver\_low),  
(tour\_number, tour\_name, tour\_desr, tour\_hours\_req, tour\_cost\_per\_preson,  
tour\_wheelchair\_access, tour\_avaliability, tour\_start\_time ) )

1NF

PORT(port\_code, port\_name, country\_code, country\_name)

TEMPERATURE(month, port\_code, aver\_high, aver\_low)

TOUR(tour\_number, tour\_name, port\_code, tour\_desr, tour\_hours\_req,  
tour\_cost\_per\_preson, tour\_wheelchair\_access, tour\_avaliability, tour\_start\_time)

Candidate Keys:

port\_code

Port\_name

month

Tour\_name

Partial dependency

NO

2NF

PORT(port\_code, port\_name, country\_code, country\_name)

TEMPERATURE(month, port\_code, aver\_high, aver\_low)

TOUR(tour\_number, tour\_name, tour\_desr, tour\_hours\_req, tour\_cost\_per\_preson,  
tour\_wheelchair\_access, tour\_avaliability, tour\_start\_time)

Transitive dependency

Country\_code -> country\_name

3NF

PORT(port\_code, port\_name, country\_code)

TEMPERATURE(month, aver\_high, aver\_low)

TOUR(tour\_number, tour\_name, tour\_desr, tour\_hours\_req, tour\_cost\_per\_preson,  
tour\_wheelchair\_access, tour\_avaliability, tour\_start\_time)

COUNTRY(country\_code, country\_name)

Full dependency

Port\_code -> port\_name, country\_code

Moth -> aver\_high, aver\_low

Tour\_name -> tour\_number, tour\_desr, tour\_hours\_req, tour\_cost\_per\_preson,  
tour\_wheelchair\_access, tour\_avaliability, tour\_start\_time

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PARTICIPANT\_RERPOT(port\_code, tour\_no, tour\_name, tour\_date, tour\_start\_time,  
(passen\_id, passen\_name, pricipal\_spoken\_language, cruise\_id, cruise\_name,  
payment\_recived))

1NF

PARTICIPANT\_RERPOT(port\_code, tour\_no, tour\_name, tour\_date, tour\_start\_time)  
REPOT(passen\_id, passen\_name, pricipal\_spoken\_language, cruise\_id, cruise\_name,  
payment\_recived)

Candidate Keys:

Port\_code, tour\_no, tour\_date

Port\_code, tour\_name, tour\_date

Passen\_id

Partial dependency

NO

2NF

PARTICIPANT\_RERPOT(port\_code, tour\_no, tour\_name, tour\_date, tour\_start\_time)  
REPOT(passen\_id, passen\_name, pricipal\_spoken\_language, cruise\_id, cruise\_name,  
payment\_recived)

Transitive dependency

Cruise\_id -> cruise\_name

3NF

PARTICIPANT\_RERPOT(port\_code, tour\_no, tour\_name, tour\_date, tour\_start\_time)  
REPOT(passen\_id, passen\_name, pricipal\_spoken\_language, payment\_recived)  
CRUISE(cruise\_id, cruise\_name)

Full dependency

Port\_code, tour\_name, tour\_date -> tour\_no, tour\_start\_time

Cruise\_id -> cruise\_name

Passen\_id -> passen\_name, pricipal\_spoken\_language, payment\_recived)

**(i) Tours which are available in a given port:**

### **UNF**

Port(port\_code, port\_name, port\_country\_code, port\_country, (temp\_month, temp\_avg\_high, temp\_avg\_low) , (tour\_num, tour\_name, tour\_descrip, tour\_hrs\_req, tour\_cost, tour\_wheel\_chair\_access, tour\_start\_time,tour\_avl))

### **1NF**

Port(port\_code, port\_name, port\_country\_code, port\_country)

Port\_Temp( port\_code, temp\_month, temp\_avg\_high, temp\_avg\_low )

Port\_Tour ( tour\_num, tour\_name, tour\_descrip, tour\_hrs\_req, tour\_cost, tour\_wheel\_chair\_access, tour\_start\_time, port\_code, tour\_avl)

Partial Dependencies :

No Partial Dependencies

### **2NF**

Port(port\_code, port\_name, port\_country\_code, port\_country)

Port\_Temp( port\_code, temp\_month, temp\_avg\_high, temp\_avg\_low )

Port\_Tour (tour\_num, tour\_name, tour\_descrip, tour\_hrs\_req, tour\_cost,  
tour\_wheel\_chair\_access, tour\_start\_time, port\_code, tour\_avl)

Transitive Dependencies:

Tour\_name → tour\_descrip

port\_country → port\_country\_code

### 3NF

Port(port\_code, port\_name, port\_country)

Port\_Temp( port\_code, temp\_month, temp\_avg\_high, temp\_avg\_low )

Port\_Tour (tour\_num, tour\_name, tour\_hrs\_req, tour\_cost,  
tour\_wheel\_chair\_access, tour\_start\_time, port\_code, tour\_avl)

Tour(tour\_name, tour\_descrip)

Port\_country(port\_country, port\_country\_code)

Full Dependencies :

port\_code → port\_name, port\_country

port\_code, temp\_month → temp\_avg\_high, temp\_avg\_low

tour\_num, port\_code → tour\_name, tour\_hrs\_req, tour\_cost,  
tour\_wheel\_chair\_access, tour\_start\_time, tour\_avl

tour\_name → tour\_descrip

port\_country → port\_country\_code

## SENG WEI HAN

### Participants for a particular tour instance:

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Port\_Tour(port\_code, tour\_num, tour\_name, tour\_date, tour\_start\_time,  
(pas\_id,pas\_fname, pas\_lname , spoken\_language, cruise\_id, cruise\_name,  
tour\_payment\_received ))

#### 1NF

Port\_Tour (port\_code, tour\_num, tour\_name, tour\_date, tour\_start\_time)

Passenger\_Cruise( pas\_id,pas\_fname,pas\_lname, spoken\_language,  
cruise\_id, cruise\_name, tour\_payment\_received,port\_code, tour\_num,  
tour\_date)

Candidate keys : (pas\_id,cruise\_id) , (cruise\_id, port\_code) ,  
(cruise\_id,pas\_id, tour\_num)

*Partial dependencies :*

pas\_id → pas\_fname,pas\_lname

Cruise\_id → cruise\_name

#### 2NF

Port\_Tour (port\_code, tour\_num, tour\_name, tour\_date, tour\_start\_time)

Passenger\_Cruise( pas\_id, spoken\_language, cruise\_id, cruise\_name,  
tour\_payment\_received,port\_code, tour\_num, tour\_date)

Passenger(pas\_id, pas\_fname,pas\_lname)

Cruise(cruise\_id, cruise\_name)

*Transitive dependencies :*

Cruise\_id  $\rightarrow$  cruise\_name

**3NF**

Port\_Tour (port\_code, tour\_num, tour\_name, tour\_date, tour\_start\_time)

Passenger\_Cruise( pas\_id, spoken\_language, cruise\_id,  
tour\_payment\_received, port\_code, tour\_num, tour\_date)

Passenger(pas\_id, pas\_fname, pas\_lname)

Cruise(cruise\_id , cruise\_name )

*Full dependencies :*

port\_code, tour\_num, tour\_date  $\rightarrow$  tour\_name, tour\_start\_time

pas\_id  $\rightarrow$  pas\_fname, pas\_lname

Cruise\_id  $\rightarrow$  cruise\_name

pas\_id , port\_code , tour\_num , tour\_date  $\rightarrow$  spoken\_language,  
tour\_payment\_received , cruise\_id