

## Computer Programming II — Homework Assignment #13

**Problem:** Design a simplified object-oriented Taiwan High Speed Rail Booking System

**Function:**

1. Booking: Add a new record into the end of the binary file **Reservation details.dat** (randomly generate a reservation number).
2. Booking History: Enter the contact person's ID number and reservation number to retrieve an existing reservation.
  - ① Cancellation: Cancel the reservation
  - ② Reduce: Decrease the number of passengers

// top-right: ticket fares for business car, bottom-left: ticket fares for standard car

```
int adultTicketPrice[ 13 ][ 13 ] = {  
    0,    0,    0,    0,    0,    0,    0,    0,    0,    0,    0,    0,    0,  
    0,    0,    0,    0,  500,  700,  920, 1330, 1510, 1660, 1880, 2290, 2500,  
    0,   40,    0,    0,  440,  640,  850, 1250, 1430, 1600, 1820, 2230, 2440,  
    0,   70,   40,    0,  400,  590,  800, 1210, 1390, 1550, 1780, 2180, 2390,  
    0,  200,  160,  130,    0,  400,  620, 1010, 1210, 1370, 1580, 1990, 2200,  
    0,  330,  290,  260,  130,    0,  410,  820, 1010, 1160, 1390, 1790, 2000,  
    0,  480,  430,  400,  280,  140,    0,  610,  790,  950, 1160, 1580, 1790,  
    0,  750,  700,  670,  540,  410,  270,    0,  400,  550,  770, 1180, 1390,  
    0,  870,  820,  790,  670,  540,  390,  130,    0,  370,  580, 1000, 1210,  
    0,  970,  930,  900,  780,  640,  500,  230,  110,    0,  430,  830, 1040,  
    0, 1120, 1080, 1050,  920,  790,  640,  380,  250,  150,    0,  620,  820,  
    0, 1390, 1350, 1320, 1190, 1060,  920,  650,  530,  420,  280,    0,  410,  
    0, 1530, 1490, 1460, 1330, 1200, 1060,  790,  670,  560,  410,  140,    0 };
```

```
char departureTimes[ 37 ][ 8 ] = { "",
    "06:00", "06:30", "07:00", "07:30", "08:00", "08:30", "09:00", "09:30",
    "10:00", "10:30", "11:00", "11:30", "12:00", "12:30", "13:00", "13:30",
    "14:00", "14:30", "15:00", "15:30", "16:00", "16:30", "17:00", "17:30",
    "18:00", "18:30", "19:00", "19:30", "20:00", "20:30", "21:00", "21:30",
    "22:00", "22:30", "23:00", "23:30" };
```

The format of the binary file **Reservation details.dat** is as follows:

```
struct Reservation
{
    char reservationNumber[ 12 ]; // used to identify a reservation 訂位代號
    char trainNumber[ 8 ]; // used to identify a train 車次號碼
    char idNumber[ 12 ]; // the id number of the contact person 取票人的身分證字號
    char phone[ 12 ]; // the (local or mobile) phone number of the contact person 取票人的聯絡電話
    char date[ 12 ]; // outbound date 搭乘日期
    int originStation; // the origin station code 起程站代碼
    int destinationStation; // the destination station code 到達站代碼
    int carClass; // the car class code; 1:standard car, 2:business car 車廂種類; 1:標準車廂, 2:商務車廂
    int adultTickets; // the number of adult tickets 全票張數
    int concessionTickets; // the number of concession tickets 優待票張數
};

struct Train
{
    char trainNumber[ 8 ]; // used to identify a train 車次號碼
    char departureTimes[ 13 ][ 8 ]; // the departure time of a train for each station 火車在各站的離站時間
};                                     // departureTimes[0] is not used  departureTimes[0]未使用
```

## Sample screen dialog #1

Taiwan High Speed Rail Booking System

Enter Your Choice

1. Booking
2. Booking History
3. End Program

? 1

Origin Station                      displayed in MakingReservation::chooseTrain

1. Nangang
2. Taipei
3. Banqiao
4. Taoyuan
5. Hsinchu
6. Miaoli
7. Taichung
8. Changhua
9. Yunlin
10. Chiayi
11. Tainan
12. Zuoying

? 2

#### Destination Station

1. Nangang
2. Taipei
3. Banqiao
4. Taoyuan
5. Hsinchu
6. Miaoli
7. Taichung
8. Changhua
9. Yunlin
10. Chiayi
11. Tainan
12. Zuoying
- ? 7

#### Departure Time

1. 06:00
2. 06:30
3. 07:00
4. 07:30
5. 08:00
6. 08:30
7. 09:00
8. 00:30
9. 10:00
10. 10:30

11.	11:00
12.	11:30
13.	12:00
14.	12:30
15.	13:00
16.	13:30
17.	14:00
18.	14:30
19.	15:00
20.	15:30
21.	16:00
22.	16:30
23.	17:00
24.	17:30
25.	18:00
26.	18:30
27.	19:00
28.	19:30
29.	20:00
30.	20:30
31.	21:00
32.	21:30
33.	22:00
34.	22:30
35.	23:00
36.	23:30

? 13

Train No.	Departure	Arrival
825	12:11	13:17
1637	12:21	13:25
129	12:31	13:20
639	12:46	13:48
829	13:11	14:17
1643	13:21	14:25
133	13:31	14:20
645	13:46	14:48
833	14:11	15:17
1649	14:21	15:25

Enter Train Number: 825

Car Class displayed in MakingReservation::inputReservationDetails

1. Standard Car

2. Business Car

? 1

Departure Date: 99

How many adult tickets? 1

How many concession tickets? 1

### Trip Details

displayed in Reservation::displayReservationDetails

Date	Train No.	From	To	Departure	Arrival	Adult	Concession	Fare	Class
99	825	Taipei	Taichung	12:11	13:17	700*1	350*1	1050	Standard

Enter Contact Person Information

displayed in MakingReservation::inputContactPersonInfo

ID Number: 99

Phone: 99

Reservation Number: 19799969

Reservation Completed!

Enter Your Choice

1. Booking
  2. Booking History
  3. End Program
- ? 2

Enter ID Number: 99

displayed in ReservationHistory::execute

Enter Reservation Number: 19799969

### Reservation Details

displayed in Reservation::displayReservationDetails

Date	Train No.	From	To	Departure	Arrival	Adult	Concession	Fare	Class
99	825	Taipei	Taichung	12:11	13:17	700*1	350*1	1050	Standard

Enter Your Choice

1. Cancellation
  2. Reduce
  3. End
- ? 2

How many adult tickets to cancel? 0

displayed in ReservationDatabase::reduceSeats

How many concession tickets to cancel? 1

displayed in Reservation::displayReservationDetails

Date	Train No.	From	To	Departure	Arrival	Adult	Concession	Fare	Class
99	825	Taipei	Taichung	12:11	13:17	700*1	350*0	700	Standard

You have successfully reduced the number of tickets!

Enter Your Choice

1. Booking
  2. Booking History
  3. End Program
- ? 2



Enter ID Number: 99

Enter Reservation Number: 19799969

#### Reservation Details

Date	Train No.	From	To	Departure	Arrival	Adult	Concession	Fare	Class
99	825	Taipei	Taichung	12:11	13:17	700*1	350*0	700	Standard

Enter Your Choice

1. Cancellation
  2. Reduce
  3. End
- ? 1

Reservation Cancelled.

Enter Your Choice

1. Booking
  2. Booking History
  3. End Program
- ? 2

Enter ID Number: 99 displayed in ReservationHistory::execute

Enter Reservation Number: 19799969

Reservation record not found.

Enter Your Choice

1. Booking
  2. Booking History
  3. End Program
- ? 3

Thank you. Goodbye.

請按任意鍵繼續 . . .

## Sample screen dialog #2

Taiwan High Speed Rail Booking System

Enter Your Choice

1. Booking
  2. Booking History
  3. End Program
- ? 1

Origin Station

1. Nangang
2. Taipei
3. Banqiao
4. Taoyuan
5. Hsinchu
6. Miaoli
7. Taichung
8. Changhua
9. Yunlin
10. Chiayi
11. Tainan
12. Zuoying
- ? 7

Destination Station

1. Nangang
2. Taipei
3. Banqiao
4. Taoyuan
5. Hsinchu
6. Miaoli
7. Taichung
8. Changhua
9. Yunlin
10. Chiayi

11. Tainan  
12. Zuoying  
? 2

Departure Time

1. 06:00
2. 06:30
3. 07:00
4. 07:30
5. 08:00
6. 08:30
7. 09:00
8. 00:30
9. 10:00
10. 10:30
11. 11:00
12. 11:30
13. 12:00
14. 12:30
15. 13:00
16. 13:30
17. 14:00
18. 14:30
19. 15:00
20. 15:30
21. 16:00

22. 16:30  
23. 17:00  
24. 17:30  
25. 18:00  
26. 18:30  
27. 19:00  
28. 19:30  
29. 20:00  
30. 20:30  
31. 21:00  
32. 21:30  
33. 22:00  
34. 22:30  
35. 23:00  
36. 23:30  
? 13

Train No.	Departure	Arrival
630	12:00	13:02
822	12:36	13:42
124	12:39	13:31
636	13:00	14:02
826	13:36	14:42
1640	13:32	14:36
128	13:39	14:31
642	14:00	15:02

1538	14:04	15:16
830	14:36	15:42

Enter Train Number: 830

Car Class

1. Standard Car
  2. Business Car
- ? 1

Departure Date: 99

How many adult tickets? 2

How many concession tickets? 2

Trip Details

Date	Train No.	From	To	Departure	Arrival	Adult	Concession	Fare	Class
99	830	Taichung	Taipei	14:36	15:42	700*2	350*2	2100	Standard

Enter Contact Person Information

ID Number: 1

Phone: 1

Reservation Number: 20044916

Reservation Completed!

Enter Your Choice

1. Booking
2. Booking History
3. End Program
- ? 3

Thank you. Goodbye.

請按任意鍵繼續 . . .

### Sample screen dialog #3

5. Hsinchu
6. Miaoli
7. Taichung
8. Changhua
9. Yunlin
10. Chiayi
11. Tainan
12. Zuoying

? 1

Destination Station

1. Nangang
2. Taipei
3. Banqiao
4. Taoyuan
5. Hsinchu
6. Miaoli
7. Taichung
8. Changhua
9. Yunlin
10. Chiayi
11. Tainan
12. Zuoying

? 12

Departure Time

1. 06:00
2. 06:30
3. 07:00
4. 07:30
5. 08:00
6. 08:30
7. 09:00
8. 00:30



9. 10:00  
10. 10:30  
11. 11:00  
12. 11:30  
13. 12:00  
14. 12:30  
15. 13:00  
16. 13:30  
17. 14:00  
18. 14:30  
19. 15:00  
20. 15:30  
21. 16:00  
22. 16:30  
23. 17:00  
24. 17:30  
25. 18:00  
26. 18:30  
27. 19:00  
28. 19:30  
29. 20:00  
30. 20:30  
31. 21:00  
32. 21:30  
33. 22:00  
34. 22:30

35. 23:00

36. 23:30

? 1

Train No.	Departure	Arrival
803	06:15	08:40
603	06:40	08:50
805	07:00	09:25
1607	07:10	09:20
109	07:20	09:05
609	07:35	09:45
205	07:40	09:30
809	08:00	10:25
613	08:10	10:20
113	08:20	10:05

Enter Train Number: 803

Car Class

1. Standard Car

2. Business Car

? 2

Departure Date: 99

How many adult tickets? 1

How many concession tickets? 1

### Trip Details

Date	Train No.	From	To	Departure	Arrival	Adult	Concession	Fare	Class
99	803	Nangang	Zuoying	06:15	08:40	2500*1	1250*1	3750	Business

### Enter Contact Person Information

ID Number: 99

Phone: 99

Reservation Number: 22977541

Reservation Completed!

### Enter Your Choice

1. Booking
  2. Booking History
  3. End Program
- ? 1

Origin Station

1. Nangang
2. Taipei
3. Banqiao
4. Taoyuan
5. Hsinchu
6. Miaoli
7. Taichung
8. Changhua
9. Yunlin
10. Chiayi
11. Tainan
12. Zuoying
- ? 12

Destination Station

1. Nangang
2. Taipei
3. Banqiao
4. Taoyuan
5. Hsinchu
6. Miaoli
7. Taichung
8. Changhua
9. Yunlin
10. Chiayi
11. Tainan

12. Zuoying

? 1

Departure Time

1. 06:00
2. 06:30
3. 07:00
4. 07:30
5. 08:00
6. 08:30
7. 09:00
8. 00:30
9. 10:00
10. 10:30
11. 11:00
12. 11:30
13. 12:00
14. 12:30
15. 13:00
16. 13:30
17. 14:00
18. 14:30
19. 15:00
20. 15:30
21. 16:00
22. 16:30

23. 17:00  
24. 17:30  
25. 18:00  
26. 18:30  
27. 19:00  
28. 19:30  
29. 20:00  
30. 20:30  
31. 21:00  
32. 21:30  
33. 22:00  
34. 22:30  
35. 23:00  
36. 23:30  
? 1

Train No.	Departure	Arrival
802	06:15	08:40
1202	06:25	08:15
1602	06:40	08:50
1302	06:45	08:55
204	06:55	08:45
606	07:00	09:10
206	07:15	09:05
806	07:25	09:50
610	07:35	09:45

108 07:55 09:40

Enter Train Number: 802

Car Class

1. Standard Car

2. Business Car

? 2

Departure Date: 99

How many adult tickets? 1

How many concession tickets? 1

Trip Details

Date	Train No.	From	To	Departure	Arrival	Adult	Concession	Fare	Class
99	802	Zuoying	Nangang	06:15	08:40	2500*1	1250*1	3750	Business

Enter Contact Person Information

ID Number: 99

Phone: 99

Reservation Number: 19376202

Reservation Completed!

Enter Your Choice

1. Booking
  2. Booking History
  3. End Program
- ? 2

Enter ID Number: 99

Enter Reservation Number: 19376202

Reservation Details

Date	Train No.	From	To	Departure	Arrival	Adult	Concession	Fare	Class
99	802	Zuoying	Nangang	06:15	08:40	2500*1	1250*1	3750	Business

Enter Your Choice

1. Cancellation
  2. Reduce
  3. End
- ? 3



Enter Your Choice

1. Booking
  2. Booking History
  3. End Program
- ? 2

Enter ID Number: 99

Enter Reservation Number: 22977541

Reservation Details

Date	Train No.	From	To	Departure	Arrival	Adult	Concession	Fare	Class
99	803	Nangang	Zuoying	06:15	08:40	2500*1	1250*1	3750	Business

Enter Your Choice

1. Cancellation
  2. Reduce
  3. End
- ? 3

Enter Your Choice

1. Booking
2. Booking History

3. End Program

? 2

Enter ID Number: 99

Enter Reservation Number: 99

Reservation record not found.

Enter Your Choice

1. Booking

2. Booking History

3. End Program

? 2

Enter ID Number: 88

Enter Reservation Number: 22977541

Reservation record not found.

Enter Your Choice

1. Booking

2. Booking History

3. End Program

? 3

Thank you. Goodbye.

請按任意鍵繼續 . . .

#### Sample screen dialog #4

Taiwan High Speed Rail Booking System

Enter Your Choice

1. Booking

2. Booking History

3. End Program

? 2

Enter ID Number: 99

Enter Reservation Number: 22977541

Reservation Details

Date	Train No.	From	To	Departure	Arrival	Adult	Concession	Fare	Class
99	803	Nangang	Zuoying	06:15	08:40	2500*1	1250*1	3750	Business

Enter Your Choice

1. Cancellation
  2. Reduce
  3. End
- ? 3

Enter Your Choice

1. Booking
  2. Booking History
  3. End Program
- ? 3

Thank you. Goodbye.

請按任意鍵繼續 . . .

### Sample screen dialog #5

Taiwan High Speed Rail Booking System

Enter Your Choice

1. Booking
  2. Booking History
  3. End Program
- ? 1

Origin Station

1. Nangang
2. Taipei
3. Banqiao
4. Taoyuan
5. Hsinchu
6. Miaoli
7. Taichung
8. Changhua
9. Yunlin
10. Chiayi
11. Tainan
12. Zuoying
- ? 5

Destination Station

1. Nangang
2. Taipei
3. Banqiao
4. Taoyuan
5. Hsinchu
6. Miaoli
7. Taichung
8. Changhua
9. Yunlin

- 10. Chiayi
- 11. Tainan
- 12. Zuoying
- ? 9

Departure Time

- 1. 06:00
- 2. 06:30
- 3. 07:00
- 4. 07:30
- 5. 08:00
- 6. 08:30
- 7. 09:00
- 8. 00:30
- 9. 10:00
- 10. 10:30
- 11. 11:00
- 12. 11:30
- 13. 12:00
- 14. 12:30
- 15. 13:00
- 16. 13:30
- 17. 14:00
- 18. 14:30
- 19. 15:00
- 20. 15:30

21. 16:00  
 22. 16:30  
 23. 17:00  
 24. 17:30  
 25. 18:00  
 26. 18:30  
 27. 19:00  
 28. 19:30  
 29. 20:00  
 30. 20:30  
 31. 21:00  
 32. 21:30  
 33. 22:00  
 34. 22:30  
 35. 23:00  
 36. 23:30  
 ? 22

Train No.	Departure	Arrival
841	16:47	17:41
845	17:47	18:41
849	18:47	19:41
853	19:47	20:41
857	20:47	21:41
861	21:47	22:41

Enter Train Number: 861

Car Class

1. Standard Car

2. Business Car

? 2

Departure Date: 99

How many adult tickets? 1

How many concession tickets? 1

Trip Details

Date	Train No.	From	To	Departure	Arrival	Adult	Concession	Fare	Class
99	861	Hsinchu	Yunlin	21:47	22:41	1160*1	580*1	1740	Business

Enter Contact Person Information

ID Number: 99

Phone: 99

Reservation Number: 78562474



Reservation Completed!

Enter Your Choice

1. Booking
  2. Booking History
  3. End Program
- ? 1

Origin Station

1. Nangang
  2. Taipei
  3. Banqiao
  4. Taoyuan
  5. Hsinchu
  6. Miaoli
  7. Taichung
  8. Changhua
  9. Yunlin
  10. Chiayi
  11. Tainan
  12. Zuoying
- ? 9

Destination Station

1. Nangang

2. Taipei
3. Banqiao
4. Taoyuan
5. Hsinchu
6. Miaoli
7. Taichung
8. Changhua
9. Yunlin
10. Chiayi
11. Tainan
12. Zuoying
- ? 5

Departure Time

1. 06:00
2. 06:30
3. 07:00
4. 07:30
5. 08:00
6. 08:30
7. 09:00
8. 00:30
9. 10:00
10. 10:30
11. 11:00
12. 11:30

13. 12:00  
14. 12:30  
15. 13:00  
16. 13:30  
17. 14:00  
18. 14:30  
19. 15:00  
20. 15:30  
21. 16:00  
22. 16:30  
23. 17:00  
24. 17:30  
25. 18:00  
26. 18:30  
27. 19:00  
28. 19:30  
29. 20:00  
30. 20:30  
31. 21:00  
32. 21:30  
33. 22:00  
34. 22:30  
35. 23:00  
36. 23:30  
? 22

Train No.	Departure	Arrival
842	17:12	18:08
846	18:12	19:08
850	19:12	20:08
854	20:12	21:08
858	21:12	22:08
862	22:16	23:12

Enter Train Number: 862

Car Class

1. Standard Car
  2. Business Car
- ? 2

Departure Date: 99

How many adult tickets? 1

How many concession tickets? 1

Trip Details

Date	Train No.	From	To	Departure	Arrival	Adult	Concession	Fare	Class
99	862	Yunlin	Hsinchu	22:16	23:12	1160*1	580*1	1740	Business

Enter Contact Person Information

ID Number: 99

Phone: 99

Reservation Number: 83798276

Reservation Completed!

Enter Your Choice

1. Booking
  2. Booking History
  3. End Program
- ? 3

Thank you. Goodbye.

請按任意鍵繼續 . . .

### Sample screen dialog #6

Taiwan High Speed Rail Booking System

Enter Your Choice

1. Booking
2. Booking History
3. End Program
- ? 1

#### Origin Station

1. Nangang
2. Taipei
3. Banqiao
4. Taoyuan
5. Hsinchu
6. Miaoli
7. Taichung
8. Changhua
9. Yunlin
10. Chiayi
11. Tainan
12. Zuoying
- ? 5

#### Destination Station

1. Nangang
2. Taipei
3. Banqiao
4. Taoyuan
5. Hsinchu

6. Miaoli
7. Taichung
8. Changhua
9. Yunlin
10. Chiayi
11. Tainan
12. Zuoying
- ? 9

Departure Time

1. 06:00
2. 06:30
3. 07:00
4. 07:30
5. 08:00
6. 08:30
7. 09:00
8. 00:30
9. 10:00
10. 10:30
11. 11:00
12. 11:30
13. 12:00
14. 12:30
15. 13:00
16. 13:30

- 17. 14:00
- 18. 14:30
- 19. 15:00
- 20. 15:30
- 21. 16:00
- 22. 16:30
- 23. 17:00
- 24. 17:30
- 25. 18:00
- 26. 18:30
- 27. 19:00
- 28. 19:30
- 29. 20:00
- 30. 20:30
- 31. 21:00
- 32. 21:30
- 33. 22:00
- 34. 22:30
- 35. 23:00
- 36. 23:30
- ? 33

Sorry! No train is available!

Enter Your Choice



1. Booking
2. Booking History
3. End Program
- ? 1

#### Origin Station

1. Nangang
2. Taipei
3. Banqiao
4. Taoyuan
5. Hsinchu
6. Miaoli
7. Taichung
8. Changhua
9. Yunlin
10. Chiayi
11. Tainan
12. Zuoying
- ? 9

#### Destination Station

1. Nangang
2. Taipei
3. Banqiao
4. Taoyuan
5. Hsinchu

6. Miaoli
7. Taichung
8. Changhua
9. Yunlin
10. Chiayi
11. Tainan
12. Zuoying
- ? 5

Departure Time

1. 06:00
2. 06:30
3. 07:00
4. 07:30
5. 08:00
6. 08:30
7. 09:00
8. 00:30
9. 10:00
10. 10:30
11. 11:00
12. 11:30
13. 12:00
14. 12:30
15. 13:00
16. 13:30

- 17. 14:00
- 18. 14:30
- 19. 15:00
- 20. 15:30
- 21. 16:00
- 22. 16:30
- 23. 17:00
- 24. 17:30
- 25. 18:00
- 26. 18:30
- 27. 19:00
- 28. 19:30
- 29. 20:00
- 30. 20:30
- 31. 21:00
- 32. 21:30
- 33. 22:00
- 34. 22:30
- 35. 23:00
- 36. 23:30
- ? 34

Sorry! No train is available!

Enter Your Choice

1. Booking
  2. Booking History
  3. End Program
- ? 3

Thank you. Goodbye.

請按任意鍵繼續 . . .

### Station Code

Nangang	Taipei	Banqiao	Taoyuan	Hsinchu	Miaoli	Taichung	Changhua	Yunlin	Chiayi	Tainan	Zuoying
1	2	3	4	5	6	7	8	9	10	11	12

### Regular Full Fare Tickets

Station	Nangang	Taipei	Banqiao	Taoyuan	Hsinchu	Miaoli	Taichung	Changhua	Yunlin	Chiayi	Tainan	Zuoying	Business Car tickets
Nangang	0	0	0	500	700	920	1330	1510	1660	1880	2290	2500	
Taipei	40	0	0	440	640	850	1250	1430	1600	1820	2230	2440	
Banqiao	70	40	0	400	590	800	1210	1390	1550	1780	2180	2390	
Taoyuan	200	160	130	0	400	620	1010	1210	1370	1580	1990	2200	
Hsinchu	330	290	260	130	0	410	820	1010	1160	1390	1790	2000	
Miaoli	480	430	400	280	140	0	610	790	950	1160	1580	1790	
Taichung	750	700	670	540	410	270	0	400	550	770	1180	1390	

Changhua	870	820	790	670	540	390	130	0	370	580	1000	1210	
Yunlin	970	930	900	780	9640	500	230	110	0	430	830	1040	
Chiayi	1120	1080	1050	920	790	640	380	250	150	0	620	820	
Tainan	1390	1350	1320	1190	1060	920	650	530	420	280	0	410	
Zuoying	1530	1490	1460	1330	1200	1060	790	670	560	410	140	0	
Standard Car tickets													

#### Timetable - Southbound

Train No.	Nangang	Taipei	Banqiao	Taoyuan	Hsinchu	Miaoli	Taichung	Changhua	Yunlin	Chiayi	Tainan	Zuoying
583	—	—	—	—	—	—	06:25	06:37	06:47	06:59	07:17	07:30
803	06:15	06:26	06:34	06:49	07:02	07:13	07:32	07:45	07:56	08:10	08:28	08:40
203	—	06:30	06:38	—	—	—	07:20	—	—	07:45	08:03	08:15
603	06:40	06:51	07:00	07:15	07:27	—	07:53	—	—	08:19	08:38	08:50
805	07:00	07:11	07:19	07:34	07:47	07:58	08:17	08:30	08:41	08:55	09:13	09:25
1607	07:10	07:21	07:29	07:43	07:56	—	08:25	—	—	08:50	09:07	09:20
109	07:20	07:31	07:39	—	—	—	08:20	—	—	—	—	09:05
1505	07:25	07:36	07:46	08:01	08:12	08:25	08:42	—	—	—	—	—
609	07:35	07:46	07:55	08:10	08:22	—	08:48	—	—	09:14	09:33	09:45
205	07:40	07:51	07:59	—	—	—	08:40	—	—	—	09:18	09:30
809	08:00	08:11	08:19	08:34	08:47	08:58	09:17	09:30	09:41	09:55	10:13	10:25

613	08:10	08:21	08:29	08:43	08:56	—	09:25	—	—	09:50	10:07	10:20
113	08:20	08:31	08:39	—	—	—	09:20	—	—	—	—	10:05
615	08:35	08:46	08:55	09:10	09:22	—	09:48	—	—	10:14	10:33	10:45
1209	08:40	08:51	08:59	—	—	—	09:40	—	—	—	10:18	10:30
813	09:00	09:11	09:19	09:34	09:47	09:58	10:17	10:30	10:41	10:55	11:13	11:25
619	09:10	09:21	09:29	09:43	09:56	—	10:25	—	—	10:50	11:07	11:20
117	09:20	09:31	09:39	—	—	—	10:20	—	—	—	—	11:05
1513	09:25	09:36	09:46	10:01	10:12	10:25	10:42	—	—	—	—	—
621	09:35	09:46	09:55	10:10	10:22	—	10:48	—	—	11:14	11:33	11:45
1213	09:40	09:51	09:59	—	—	—	10:40	—	—	—	11:18	11:30
1309	09:50	10:01	10:10	—	—	—	10:54	11:06	11:17	11:30	11:48	12:00
817	10:00	10:11	10:19	10:34	10:47	10:58	11:17	11:30	11:41	11:55	12:13	12:25
625	10:10	10:21	10:29	10:43	10:56	—	11:25	—	—	11:50	12:07	12:20
121	10:20	10:31	10:39	—	—	—	11:20	—	—	—	—	12:05
627	10:35	10:46	10:55	11:10	11:22	—	11:48	—	—	12:14	12:33	12:45
1217	10:40	10:51	10:59	—	—	—	11:40	—	—	—	12:18	12:30
821	11:00	11:11	11:19	11:34	11:47	11:58	12:17	12:30	12:41	12:55	13:13	13:25
1631	11:10	11:21	11:29	11:43	11:56	—	12:25	—	—	12:50	13:07	13:20
125	11:20	11:31	11:39	—	—	—	12:20	—	—	—	—	13:05
633	11:35	11:46	11:55	12:10	12:22	—	12:48	—	—	13:14	13:33	13:45
825	12:00	12:11	12:19	12:34	12:47	12:58	13:17	13:30	13:41	13:55	14:13	14:25
1637	12:10	12:21	12:29	12:43	12:56	—	13:25	—	—	13:50	14:07	14:20

129	12:20	12:31	12:39	—	—	—	13:20	—	—	—	—	14:05
639	12:35	12:46	12:55	13:10	13:22	—	13:48	—	—	14:14	14:33	14:45
829	13:00	13:11	13:19	13:34	13:47	13:58	14:17	14:30	14:41	14:55	15:13	15:25
1643	13:10	13:21	13:29	13:43	13:56	—	14:25	—	—	14:50	15:07	15:20
133	13:20	13:31	13:39	—	—	—	14:20	—	—	—	—	15:05
645	13:35	13:46	13:55	14:10	14:22	—	14:48	—	—	15:14	15:33	15:45
833	14:00	14:11	14:19	14:34	14:47	14:58	15:17	15:30	15:41	15:55	16:13	16:25
1649	14:10	14:21	14:29	14:43	14:56	—	15:25	—	—	15:50	16:07	16:20
137	14:20	14:31	14:39	—	—	—	15:20	—	—	—	—	16:05
651	14:35	14:46	14:55	15:10	15:22	—	15:48	—	—	16:14	16:33	16:45
837	15:00	15:11	15:19	15:34	15:47	15:58	16:17	16:30	16:41	16:55	17:13	17:25
1655	15:10	15:21	15:29	15:43	15:56	—	16:25	—	—	16:50	17:07	17:20
141	15:20	15:31	15:39	—	—	—	16:20	—	—	—	—	17:05
657	15:35	15:46	15:55	16:10	16:22	—	16:48	—	—	17:14	17:33	17:45
1237	15:40	15:51	15:59	—	—	—	16:40	—	—	—	17:18	17:30
841	16:00	16:11	16:19	16:34	16:47	16:58	17:17	17:30	17:41	17:55	18:13	18:25
661	16:10	16:21	16:29	16:43	16:56	—	17:25	—	—	17:50	18:07	18:20
145	16:20	16:31	16:39	—	—	—	17:20	—	—	—	—	18:05
1541	16:25	16:36	16:46	17:01	17:12	17:25	17:42	—	—	—	—	—
663	16:35	16:46	16:55	17:10	17:22	—	17:48	—	—	18:14	18:33	18:45
1241	16:40	16:51	16:59	—	—	—	17:40	—	—	—	18:18	18:30
845	17:00	17:11	17:19	17:34	17:47	17:58	18:17	18:30	18:41	18:55	19:13	19:25

667	17:10	17:21	17:29	17:43	17:56	—	18:25	—	—	18:50	19:07	19:20
149	17:20	17:31	17:39	—	—	—	18:20	—	—	—	—	19:05
1545	17:25	17:36	17:46	18:01	18:12	18:25	18:42	—	—	—	—	—
669	17:35	17:46	17:55	18:10	18:22	—	18:48	—	—	19:14	19:33	19:45
1245	17:40	17:51	17:59	—	—	—	18:40	—	—	—	19:18	19:30
849	18:00	18:11	18:19	18:34	18:47	18:58	19:17	19:30	19:41	19:55	20:13	20:25
673	18:10	18:21	18:29	18:43	18:56	—	19:25	—	—	19:50	20:07	20:20
153	18:20	18:31	18:39	—	—	—	19:20	—	—	—	—	20:05
1549	18:25	18:36	18:46	19:01	19:12	19:25	19:42	—	—	—	—	—
675	18:35	18:46	18:55	19:10	19:22	—	19:48	—	—	20:14	20:33	20:45
249	18:40	18:51	18:59	—	—	—	19:40	—	—	—	20:18	20:30
1327	18:50	19:01	19:10	—	—	—	19:54	20:06	20:17	20:30	20:48	21:00
853	19:00	19:11	19:19	19:34	19:47	19:58	20:17	20:30	20:41	20:55	21:13	21:25
1679	19:10	19:21	19:29	19:43	19:56	—	20:25	—	—	20:50	21:07	21:20
157	19:20	19:31	19:39	—	—	—	20:20	—	—	—	—	21:05
1553	19:25	19:36	19:46	20:01	20:12	20:25	20:42	—	—	—	—	—
681	19:35	19:46	19:55	20:10	20:22	—	20:48	—	—	21:14	21:33	21:45
1253	19:40	19:51	19:59	—	—	—	20:40	—	—	—	21:18	21:30
857	20:00	20:11	20:19	20:34	20:47	20:58	21:17	21:30	21:41	21:55	22:13	22:25
1685	20:10	20:21	20:29	20:43	20:56	—	21:25	—	—	21:50	22:07	22:20
161	20:20	20:31	20:39	—	—	—	21:20	—	—	—	—	22:05
1557	20:25	20:36	20:46	21:01	21:12	21:25	21:42	—	—	—	—	—



687	20:35	20:46	20:55	21:10	21:22	—	21:48	—	—	22:14	22:33	22:45
1257	20:40	20:51	20:59	—	—	—	21:40	—	—	—	22:18	22:30
861	21:00	21:11	21:19	21:34	21:47	21:58	22:17	22:30	22:41	22:55	23:13	23:25
165	21:20	21:31	21:39	—	—	—	22:20	—	—	—	—	23:05
693	21:30	21:41	21:50	22:05	22:17	—	22:43	—	—	23:09	23:28	23:40
333	21:45	21:56	—	22:15	—	—	22:49	23:01	23:12	23:24	23:42	23:55
1563	21:55	22:05	22:14	22:27	22:38	22:52	23:10	—	—	—	—	—
295	22:05	22:16	—	22:35	—	—	23:07	—	—	23:30	23:48	23:59
565	22:15	22:26	22:35	22:48	23:00	23:12	23:29	—	—	—	—	—
567	22:50	23:00	23:08	23:21	23:32	23:43	23:59	—	—	—	—	—

### Timetable - Northbound

Train No.	Zuoying	Tainan	Chiayi	Yunlin	Changhua	Taichung	Miaoli	Hsinchu	Taoyuan	Banqiao	Taipei	Nangang
502	—	—	—	—	—	06:25	06:44	06:57	07:09	07:22	07:32	07:40
1504	—	—	—	—	—	06:45	07:05	07:20	07:32	07:45	07:56	08:05
1508	—	—	—	—	—	07:05	07:25	07:38	07:51	08:05	08:16	08:25
1510	—	—	—	—	—	07:17	07:37	07:50	08:03	08:16	08:27	08:35
802	06:15	06:29	06:48	07:00	07:13	07:25	07:45	07:58	08:10	08:22	08:32	08:40
1202	06:25	06:38	06:57	—	—	07:21	—	—	—	—	08:07	08:15
1602	06:40	06:53	07:12	—	—	07:40	—	08:05	08:18	08:31	08:42	08:50
1302	06:45	06:59	07:19	07:32	07:42	07:53	—	—	—	08:36	08:47	08:55

204	06:55	07:07	—	—	—	07:48	—	—	—	08:27	08:37	08:45
606	07:00	07:13	07:32	—	—	08:00	—	08:25	08:38	08:51	09:02	09:10
1514	—	—	—	—	—	08:04	08:24	08:39	08:51	09:05	09:16	09:25
206	07:15	07:28	—	—	—	08:08	—	—	—	08:47	08:57	09:05
806	07:25	07:41	08:00	08:12	08:24	08:36	08:56	09:08	09:20	09:32	09:42	09:50
610	07:35	07:48	08:08	—	—	08:32	—	08:57	09:11	09:25	09:36	09:45
108	07:55	—	—	—	—	08:39	—	—	—	09:21	09:31	09:40
612	08:00	08:13	08:32	—	—	09:00	—	09:25	09:38	09:51	10:02	10:10
1210	08:15	08:28	—	—	—	09:08	—	—	—	09:47	09:57	10:05
810	08:25	08:41	09:00	09:12	09:24	09:36	09:56	10:08	10:20	10:32	10:42	10:50
616	08:35	08:48	09:08	—	—	09:32	—	09:57	10:11	10:25	10:36	10:45
112	08:55	—	—	—	—	09:39	—	—	—	10:21	10:31	10:40
618	09:00	09:13	09:32	—	—	10:00	—	10:25	10:38	10:51	11:02	11:10
814	09:25	09:41	10:00	10:12	10:24	10:36	10:56	11:08	11:20	11:32	11:42	11:50
1622	09:35	09:48	10:08	—	—	10:32	—	10:57	11:11	11:25	11:36	11:45
116	09:55	—	—	—	—	10:39	—	—	—	11:21	11:31	11:40
624	10:00	10:13	10:32	—	—	11:00	—	11:25	11:38	11:51	12:02	12:10
1218	10:15	10:28	—	—	—	11:08	—	—	—	11:47	11:57	12:05
818	10:25	10:41	11:00	11:12	11:24	11:36	11:56	12:08	12:20	12:32	12:42	12:50
628	10:35	10:48	11:08	—	—	11:32	—	11:57	12:11	12:25	12:36	12:45
120	10:55	—	—	—	—	11:39	—	—	—	12:21	12:31	12:40
630	11:00	11:13	11:32	—	—	12:00	—	12:25	12:38	12:51	13:02	13:10

822	11:25	11:41	12:00	12:12	12:24	12:36	12:56	13:08	13:20	13:32	13:42	13:50
124	11:55	—	—	—	—	12:39	—	—	—	13:21	13:31	13:40
636	12:00	12:13	12:32	—	—	13:00	—	13:25	13:38	13:51	14:02	14:10
826	12:25	12:41	13:00	13:12	13:24	13:36	13:56	14:08	14:20	14:32	14:42	14:50
1640	12:35	12:48	13:08	—	—	13:32	—	13:57	14:11	14:25	14:36	14:45
128	12:55	—	—	—	—	13:39	—	—	—	14:21	14:31	14:40
642	13:00	13:13	13:32	—	—	14:00	—	14:25	14:38	14:51	15:02	15:10
1538						14:04	14:24	14:39	14:51	15:05	15:16	15:25
830	13:25	13:41	14:00	14:12	14:24	14:36	14:56	15:08	15:20	15:32	15:42	15:50
1646	13:35	13:48	14:08	—	—	14:32	—	14:57	15:11	15:25	15:36	15:45
132	13:55	—	—	—	—	14:39	—	—	—	15:21	15:31	15:40
648	14:00	14:13	14:32	—	—	15:00	—	15:25	15:38	15:51	16:02	16:10
1542						15:04	15:24	15:39	15:51	16:05	16:16	16:25
1234	14:15	14:28	—	—	—	15:08	—	—	—	15:47	15:57	16:05
834	14:25	14:41	15:00	15:12	15:24	15:36	15:56	16:08	16:20	16:32	16:42	16:50
1652	14:35	14:48	15:08	—	—	15:32	—	15:57	16:11	16:25	16:36	16:45
136	14:55	—	—	—	—	15:39	—	—	—	16:21	16:31	16:40
654	15:00	15:13	15:32	—	—	16:00	—	16:25	16:38	16:51	17:02	17:10
1546	—	—	—	—	—	16:04	16:24	16:39	16:51	17:05	17:16	17:25
1238	15:15	15:28	—	—	—	16:08	—	—	—	16:47	16:57	17:05
838	15:25	15:41	16:00	16:12	16:24	16:36	16:56	17:08	17:20	17:32	17:42	17:50
1658	15:35	15:48	16:08	—	—	16:32	—	16:57	17:11	17:25	17:36	17:45

1320	15:45	15:58	16:19	16:31	16:41	16:53	—	—	—	17:36	17:47	17:55
140	15:55	—	—	—	—	16:39	—	—	—	17:21	17:31	17:40
660	16:00	16:13	16:32	—	—	17:00	—	17:25	17:38	17:51	18:02	18:10
1550	—	—	—	—	—	17:04	17:24	17:39	17:51	18:05	18:16	18:25
242	16:15	16:28	—	—	—	17:08	—	—	—	17:47	17:57	18:05
842	16:25	16:41	17:00	17:12	17:24	17:36	17:56	18:08	18:20	18:32	18:42	18:50
664	16:35	16:48	17:08	—	—	17:32	—	17:57	18:11	18:25	18:36	18:45
144	16:55	—	—	—	—	17:39	—	—	—	18:21	18:31	18:40
666	17:00	17:13	17:32	—	—	18:00	—	18:25	18:38	18:51	19:02	19:10
1554	—	—	—	—	—	18:04	18:24	18:39	18:51	19:05	19:16	19:25
1246	17:15	17:28	—	—	—	18:08	—	—	—	18:47	18:57	19:05
846	17:25	17:41	18:00	18:12	18:24	18:36	18:56	19:08	19:20	19:32	19:42	19:50
670	17:35	17:48	18:08	—	—	18:32	—	18:57	19:11	19:25	19:36	19:45
148	17:55	—	—	—	—	18:39	—	—	—	19:21	19:31	19:40
672	18:00	18:13	18:32	—	—	19:00	—	19:25	19:38	19:51	20:02	20:10
1558	—	—	—	—	—	19:04	19:24	19:39	19:51	20:05	20:16	20:25
1250	18:15	18:28	—	—	—	19:08	—	—	—	19:47	19:57	20:05
850	18:25	18:41	19:00	19:12	19:24	19:36	19:56	20:08	20:20	20:32	20:42	20:50
676	18:35	18:48	19:08	—	—	19:32	—	19:57	20:11	20:25	20:36	20:45
152	18:55	—	—	—	—	19:39	—	—	—	20:21	20:31	20:40
678	19:00	19:13	19:32	—	—	20:00	—	20:25	20:38	20:51	21:02	21:10
1562	—	—	—	—	—	20:04	20:24	20:39	20:51	21:05	21:16	21:25

1254	19:15	19:28	—	—	—	20:08	—	—	—	20:47	20:57	21:05
854	19:25	19:41	20:00	20:12	20:24	20:36	20:56	21:08	21:20	21:32	21:42	21:50
1682	19:35	19:48	20:08	—	—	20:32	—	20:57	21:11	21:25	21:36	21:45
156	19:55	—	—	—	—	20:39	—	—	—	21:21	21:31	21:40
684	20:00	20:13	20:32	—	—	21:00	—	21:25	21:38	21:51	22:02	22:10
1566	—	—	—	—	—	21:04	21:24	21:39	21:51	22:05	22:16	22:25
1258	20:15	20:28	—	—	—	21:08	—	—	—	21:47	21:57	22:05
858	20:25	20:41	21:00	21:12	21:24	21:36	21:56	22:08	22:20	22:32	22:42	22:50
1688	20:35	20:48	21:08	—	—	21:32	—	21:57	22:11	22:25	22:36	22:45
1330	20:45	20:58	21:19	21:31	21:42	21:54	—	—	—	22:36	22:47	22:55
160	20:55	—	—	—	—	21:39	—	—	—	22:21	22:31	22:40
1570	—	—	—	—	—	21:51	22:10	22:23	22:36	22:49	23:01	23:10
690	21:05	21:18	21:37	—	—	22:05	—	22:30	22:43	22:56	23:07	23:15
862	21:30	21:44	22:03	22:16	22:28	22:40	23:00	23:12	23:25	23:37	23:47	23:55
1264	21:40	21:53	—	—	—	22:30	—	—	—	23:11	23:21	23:30
696	21:55	22:11	22:32	—	—	22:59	—	23:27	23:40	23:52	23:59	23:59
294	22:10	22:23	—	—	—	23:03	—	—	—	23:42	23:52	—
598	22:55	23:08	23:27	23:39	23:49	23:59	—	—	—	—	—	—