Computer Programming II — Assignment 12

Design an Object Oriented Hi-Lai Harbour Taoyuan Location Reservation System

**Functions:**

1. Book a Table: Insert a new record into the binary file Reservations.dat, and decrease by one the number of available tables at corresponding time in AvailTables.dat.

2. My Bookings: Display all records in Reservations.dat for the current user, then let the user choose one of them. Moreover, let user choose whether to cancel a reservation. If the user choose to cancel a reservation, then increase by one the number of available tables at corresponding time in AvailTables.dat.

**Requirements:** Global variables are not allowed.

Your program should contain seven classes Date, AvailTable, AvailTableDatabase, Reservation, ReservationDatabase, MakeReservation and ReservationInquiry.

The file record format of the file Reservations.dat:

int numCustomers = 0; // number of customers

Date date = Date(); // reservation date

int time = 0; // reservation time code

char name[ 8 ] = ""; // name

char mobileNumber[ 12 ] = ""; // mobile phone number

char email[ 40 ] = ""; // email address

char password[ 12 ] = ""; // reservation password

char reservationNumber[ 12 ] = ""; // reservation number

The file record format of the file AvailTables.dat:

Date date;

int numAvailTables[ 4 ][ 6 ]; // the number of available tables, specifically,

// numAvailTables[ 1 ][ i ] is the number of available type i tables on 11:30

// numAvailTables[ 2 ][ i ] is the number of available type i tables on 14:30

// numAvailTables[ 3 ][ i ] is the number of available type i tables on 17:30

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| **Table Type** | **Number of customers** |
| **1** | **1~2** |
| **2** | **3~4** |
| **3** | **4~5** |
| **4** | **6~7** |
| **5** | **10~12** |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Number of customers |  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |  |  | 10 | 11 | 12 |
| Table Type |  | 1 | 1 | 2 | 2 | 3 | 4 | 4 |  |  | 5 | 5 | 5 |

The screen dialog #1 (executed on 2021/05/18):

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| Welcome to Hi-Lai Harbour Taoyuan Location!  1 - Book a Table  2 - My Bookings  3 - End  Enter your choice: (1~3): 2  No reservations!  1 - Book a Table  2 - My Bookings  3 - End  Enter your choice: (1~3): 1  Enter the number of customers (1 - 7, 10 - 12): 2  Choose a date  1. 2021/05/19 2. 2021/05/20 3. 2021/05/21 4. 2021/05/22  5. 2021/05/23 6. 2021/05/24 7. 2021/05/25 8. 2021/05/26  9. 2021/05/27 10. 2021/05/28 11. 2021/05/29 12. 2021/05/30  13. 2021/05/31 14. 2021/06/01 15. 2021/06/02 16. 2021/06/03  17. 2021/06/04 18. 2021/06/05 19. 2021/06/06 20. 2021/06/07  21. 2021/06/08 22. 2021/06/09 23. 2021/06/10 24. 2021/06/11  25. 2021/06/12 26. 2021/06/13 27. 2021/06/14 28. 2021/06/15  29. 2021/06/16 30. 2021/06/17  ? 1  Choose a time:  1. 11:30  2. 14:30  3. 17:30  ? 1  Enter name: aa  Enter mobile number: 11  Enter email address: aa  Enter reservation password: 11  Mobile No. Name Date Time Email No of Customers Password Reservation No.  11 aa 2021/05/19 11:30 aa 2 11 17409488  Reservation Completed.  1 - Book a Table  2 - My Bookings  3 - End  Enter your choice: (1~3): 1  Enter the number of customers (1 - 7, 10 - 12): 2  Choose a date  1. 2021/05/19 2. 2021/05/20 3. 2021/05/21 4. 2021/05/22  5. 2021/05/23 6. 2021/05/24 7. 2021/05/25 8. 2021/05/26  9. 2021/05/27 10. 2021/05/28 11. 2021/05/29 12. 2021/05/30  13. 2021/05/31 14. 2021/06/01 15. 2021/06/02 16. 2021/06/03  17. 2021/06/04 18. 2021/06/05 19. 2021/06/06 20. 2021/06/07  21. 2021/06/08 22. 2021/06/09 23. 2021/06/10 24. 2021/06/11  25. 2021/06/12 26. 2021/06/13 27. 2021/06/14 28. 2021/06/15  29. 2021/06/16 30. 2021/06/17  ? 1  Choose a time:  1. 11:30  2. 14:30  3. 17:30  ? 1  Enter name: bb  Enter mobile number: 22  Enter email address: bb  Enter reservation password: 22  Mobile No. Name Date Time Email No of Customers Password Reservation No.  22 bb 2021/05/19 11:30 bb 2 22 24551711  Reservation Completed.  1 - Book a Table  2 - My Bookings  3 - End  Enter your choice: (1~3): 1  Enter the number of customers (1 - 7, 10 - 12): 2  Choose a date  1. 2021/05/19 2. 2021/05/20 3. 2021/05/21 4. 2021/05/22  5. 2021/05/23 6. 2021/05/24 7. 2021/05/25 8. 2021/05/26  9. 2021/05/27 10. 2021/05/28 11. 2021/05/29 12. 2021/05/30  13. 2021/05/31 14. 2021/06/01 15. 2021/06/02 16. 2021/06/03  17. 2021/06/04 18. 2021/06/05 19. 2021/06/06 20. 2021/06/07  21. 2021/06/08 22. 2021/06/09 23. 2021/06/10 24. 2021/06/11  25. 2021/06/12 26. 2021/06/13 27. 2021/06/14 28. 2021/06/15  29. 2021/06/16 30. 2021/06/17  ? 1  Choose a time:  2. 14:30  3. 17:30  ? 2  Enter name: cc  Enter mobile number: 33  Enter email address: cc  Enter reservation password: 33  Mobile No. Name Date Time Email No of Customers Password Reservation No.  33 cc 2021/05/19 14:30 cc 2 33 52761423  Reservation Completed.  1 - Book a Table  2 - My Bookings  3 - End  Enter your choice: (1~3): 1  Enter the number of customers (1 - 7, 10 - 12): 2  Choose a date  1. 2021/05/19 2. 2021/05/20 3. 2021/05/21 4. 2021/05/22  5. 2021/05/23 6. 2021/05/24 7. 2021/05/25 8. 2021/05/26  9. 2021/05/27 10. 2021/05/28 11. 2021/05/29 12. 2021/05/30  13. 2021/05/31 14. 2021/06/01 15. 2021/06/02 16. 2021/06/03  17. 2021/06/04 18. 2021/06/05 19. 2021/06/06 20. 2021/06/07  21. 2021/06/08 22. 2021/06/09 23. 2021/06/10 24. 2021/06/11  25. 2021/06/12 26. 2021/06/13 27. 2021/06/14 28. 2021/06/15  29. 2021/06/16 30. 2021/06/17  ? 1  Choose a time:  2. 14:30  3. 17:30  ? 2  Enter name: dd  Enter mobile number: 44  Enter email address: dd  Enter reservation password: 44  Mobile No. Name Date Time Email No of Customers Password Reservation No.  44 dd 2021/05/19 14:30 dd 2 44 22168576  Reservation Completed.  1 - Book a Table  2 - My Bookings  3 - End  Enter your choice: (1~3): 1  Enter the number of customers (1 - 7, 10 - 12): 2  Choose a date  1. 2021/05/19 2. 2021/05/20 3. 2021/05/21 4. 2021/05/22  5. 2021/05/23 6. 2021/05/24 7. 2021/05/25 8. 2021/05/26  9. 2021/05/27 10. 2021/05/28 11. 2021/05/29 12. 2021/05/30  13. 2021/05/31 14. 2021/06/01 15. 2021/06/02 16. 2021/06/03  17. 2021/06/04 18. 2021/06/05 19. 2021/06/06 20. 2021/06/07  21. 2021/06/08 22. 2021/06/09 23. 2021/06/10 24. 2021/06/11  25. 2021/06/12 26. 2021/06/13 27. 2021/06/14 28. 2021/06/15  29. 2021/06/16 30. 2021/06/17  ? 1  Choose a time:  3. 17:30  ? 3  Enter name: ee  Enter mobile number: 55  Enter email address: ee  Enter reservation password: 55  Mobile No. Name Date Time Email No of Customers Password Reservation No.  55 ee 2021/05/19 17:30 ee 2 55 18927954  Reservation Completed.  1 - Book a Table  2 - My Bookings  3 - End  Enter your choice: (1~3): 1  Enter the number of customers (1 - 7, 10 - 12): 2  Choose a date  1. 2021/05/19 2. 2021/05/20 3. 2021/05/21 4. 2021/05/22  5. 2021/05/23 6. 2021/05/24 7. 2021/05/25 8. 2021/05/26  9. 2021/05/27 10. 2021/05/28 11. 2021/05/29 12. 2021/05/30  13. 2021/05/31 14. 2021/06/01 15. 2021/06/02 16. 2021/06/03  17. 2021/06/04 18. 2021/06/05 19. 2021/06/06 20. 2021/06/07  21. 2021/06/08 22. 2021/06/09 23. 2021/06/10 24. 2021/06/11  25. 2021/06/12 26. 2021/06/13 27. 2021/06/14 28. 2021/06/15  29. 2021/06/16 30. 2021/06/17  ? 1  Choose a time:  3. 17:30  ? 3  Enter name: ff  Enter mobile number: 66  Enter email address: ff  Enter reservation password: 66  Mobile No. Name Date Time Email No of Customers Password Reservation No.  66 ff 2021/05/19 17:30 ff 2 66 31233411  Reservation Completed.  1 - Book a Table  2 - My Bookings  3 - End  Enter your choice: (1~3): 1  Enter the number of customers (1 - 7, 10 - 12): 2  Choose a date  2. 2021/05/20 3. 2021/05/21 4. 2021/05/22 5. 2021/05/23  6. 2021/05/24 7. 2021/05/25 8. 2021/05/26 9. 2021/05/27  10. 2021/05/28 11. 2021/05/29 12. 2021/05/30 13. 2021/05/31  14. 2021/06/01 15. 2021/06/02 16. 2021/06/03 17. 2021/06/04  18. 2021/06/05 19. 2021/06/06 20. 2021/06/07 21. 2021/06/08  22. 2021/06/09 23. 2021/06/10 24. 2021/06/11 25. 2021/06/12  26. 2021/06/13 27. 2021/06/14 28. 2021/06/15 29. 2021/06/16  30. 2021/06/17  ? 2  Choose a time:  1. 11:30  2. 14:30  3. 17:30  ? 1  Enter name: gg  Enter mobile number: 77  Enter email address: gg  Enter reservation password: 77  Mobile No. Name Date Time Email No of Customers Password Reservation No.  77 gg 2021/05/20 11:30 gg 2 77 38742779  Reservation Completed.  1 - Book a Table  2 - My Bookings  3 - End  Enter your choice: (1~3): 2  Enter reservation number: 31233411  Enter reservation password: 66  Mobile No. Name Date Time Email No of Customers Password Reservation No.  66 ff 2021/05/19 17:30 ff 2 66 31233411  Cancel this reservation? ( y/n ) y  This reservation has been cancelled.  1 - Book a Table  2 - My Bookings  3 - End  Enter your choice: (1~3): 2  Enter reservation number: 31233411  No reservations with this reservation number!  1 - Book a Table  2 - My Bookings  3 - End  Enter your choice: (1~3): 1  Enter the number of customers (1 - 7, 10 - 12): 2  Choose a date  1. 2021/05/19 2. 2021/05/20 3. 2021/05/21 4. 2021/05/22  5. 2021/05/23 6. 2021/05/24 7. 2021/05/25 8. 2021/05/26  9. 2021/05/27 10. 2021/05/28 11. 2021/05/29 12. 2021/05/30  13. 2021/05/31 14. 2021/06/01 15. 2021/06/02 16. 2021/06/03  17. 2021/06/04 18. 2021/06/05 19. 2021/06/06 20. 2021/06/07  21. 2021/06/08 22. 2021/06/09 23. 2021/06/10 24. 2021/06/11  25. 2021/06/12 26. 2021/06/13 27. 2021/06/14 28. 2021/06/15  29. 2021/06/16 30. 2021/06/17  ? 1  Choose a time:  3. 17:30  ? 3  Enter name: hh  Enter mobile number: 88  Enter email address: hh  Enter reservation password: 88  Mobile No. Name Date Time Email No of Customers Password Reservation No.  88 hh 2021/05/19 17:30 hh 2 88 31986502  Reservation Completed.  1 - Book a Table  2 - My Bookings  3 - End  Enter your choice: (1~3): 3  請按任意鍵繼續 . . . |

The screen dialog #2 (executed on 2021/05/19):

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| Welcome to Hi-Lai Harbour Taoyuan Location!  1 - Book a Table  2 - My Bookings  3 - End  Enter your choice: (1~3): 2  Enter reservation number: 31986502  No reservations with this reservation number!  1 - Book a Table  2 - My Bookings  3 - End  Enter your choice: (1~3): 1  Enter the number of customers (1 - 7, 10 - 12): 2  Choose a date  1. 2021/05/20 2. 2021/05/21 3. 2021/05/22 4. 2021/05/23  5. 2021/05/24 6. 2021/05/25 7. 2021/05/26 8. 2021/05/27  9. 2021/05/28 10. 2021/05/29 11. 2021/05/30 12. 2021/05/31  13. 2021/06/01 14. 2021/06/02 15. 2021/06/03 16. 2021/06/04  17. 2021/06/05 18. 2021/06/06 19. 2021/06/07 20. 2021/06/08  21. 2021/06/09 22. 2021/06/10 23. 2021/06/11 24. 2021/06/12  25. 2021/06/13 26. 2021/06/14 27. 2021/06/15 28. 2021/06/16  29. 2021/06/17 30. 2021/06/18  ? 1  Choose a time:  1. 11:30  2. 14:30  3. 17:30  ? 1  Enter name: aa  Enter mobile number: 11  Enter email address: aa  Enter reservation password: 11  Mobile No. Name Date Time Email No of Customers Password Reservation No.  11 aa 2021/05/20 11:30 aa 2 11 17409488  Reservation Completed.  1 - Book a Table  2 - My Bookings  3 - End  Enter your choice: (1~3): 3  請按任意鍵繼續 . . . |