Computer Programming II — Final Exam

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,.

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

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

|  |  |
| --- | --- |
| **Table Type** | **Number of customers** |
| **1** | **1~2** |
| **2** | **3~4** |
| **3** | **4~5** |
| **4** | **6~7** |
| **5** | **8~9** |

Grading rule

Output correct:

10 points MakeReservation::chooseDate

10 points MakeReservation::chooseTime

20 points AvailTableDatabase::AvailTableDatabase

10 points AvailTableDatabase::availableTables( int numCustomers, Date date )

10 points AvailTableDatabase::availableTables( int numCustomers, Date date, int timeCode )

10 points AvailTableDatabase::loadAvailTables

points ReservationDatabase::loadReservations

10 points AvailTableDatabase::storeAvailTables

points ReservationDatabase::storeReservations

10 points Date::operator-

10 points Date::operator+

Output incorrect:

9 points MakeReservation::chooseDate

9 points MakeReservation::chooseTime

18 points AvailTableDatabase::AvailTableDatabase

9 points AvailTableDatabase::availableTables( int numCustomers, Date date )

9 points AvailTableDatabase::availableTables( int numCustomers, Date date, int timeCode )

9 points AvailTableDatabase::loadAvailTables

points ReservationDatabase::loadReservations

9 points AvailTableDatabase::storeAvailTables

points ReservationDatabase::storeReservations

9 points Date::operator-

9 points Date::operator+

The screen dialog #1 (executed on 2024/6/1):

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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 - 9): 2  Choose a date  1. 2024/06/02 2. 2024/06/03 3. 2024/06/04 4. 2024/06/05  5. 2024/06/06 6. 2024/06/07 7. 2024/06/08 8. 2024/06/09  9. 2024/06/10 10. 2024/06/11 11. 2024/06/12 12. 2024/06/13  13. 2024/06/14 14. 2024/06/15 15. 2024/06/16 16. 2024/06/17  17. 2024/06/18 18. 2024/06/19 19. 2024/06/20 20. 2024/06/21  21. 2024/06/22 22. 2024/06/23 23. 2024/06/24 24. 2024/06/25  25. 2024/06/26 26. 2024/06/27 27. 2024/06/28 28. 2024/06/29  29. 2024/06/30 30. 2024/07/01  ? 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 2024/06/02 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 - 9): 2  Choose a date  1. 2024/06/02 2. 2024/06/03 3. 2024/06/04 4. 2024/06/05  5. 2024/06/06 6. 2024/06/07 7. 2024/06/08 8. 2024/06/09  9. 2024/06/10 10. 2024/06/11 11. 2024/06/12 12. 2024/06/13  13. 2024/06/14 14. 2024/06/15 15. 2024/06/16 16. 2024/06/17  17. 2024/06/18 18. 2024/06/19 19. 2024/06/20 20. 2024/06/21  21. 2024/06/22 22. 2024/06/23 23. 2024/06/24 24. 2024/06/25  25. 2024/06/26 26. 2024/06/27 27. 2024/06/28 28. 2024/06/29  29. 2024/06/30 30. 2024/07/01  ? 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 2024/06/02 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 - 9): 2  Choose a date  1. 2024/06/02 2. 2024/06/03 3. 2024/06/04 4. 2024/06/05  5. 2024/06/06 6. 2024/06/07 7. 2024/06/08 8. 2024/06/09  9. 2024/06/10 10. 2024/06/11 11. 2024/06/12 12. 2024/06/13  13. 2024/06/14 14. 2024/06/15 15. 2024/06/16 16. 2024/06/17  17. 2024/06/18 18. 2024/06/19 19. 2024/06/20 20. 2024/06/21  21. 2024/06/22 22. 2024/06/23 23. 2024/06/24 24. 2024/06/25  25. 2024/06/26 26. 2024/06/27 27. 2024/06/28 28. 2024/06/29  29. 2024/06/30 30. 2024/07/01  ? 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 2024/06/02 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 - 9): 2  Choose a date  1. 2024/06/02 2. 2024/06/03 3. 2024/06/04 4. 2024/06/05  5. 2024/06/06 6. 2024/06/07 7. 2024/06/08 8. 2024/06/09  9. 2024/06/10 10. 2024/06/11 11. 2024/06/12 12. 2024/06/13  13. 2024/06/14 14. 2024/06/15 15. 2024/06/16 16. 2024/06/17  17. 2024/06/18 18. 2024/06/19 19. 2024/06/20 20. 2024/06/21  21. 2024/06/22 22. 2024/06/23 23. 2024/06/24 24. 2024/06/25  25. 2024/06/26 26. 2024/06/27 27. 2024/06/28 28. 2024/06/29  29. 2024/06/30 30. 2024/07/01  ? 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 2024/06/02 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 - 9): 2  Choose a date  1. 2024/06/02 2. 2024/06/03 3. 2024/06/04 4. 2024/06/05  5. 2024/06/06 6. 2024/06/07 7. 2024/06/08 8. 2024/06/09  9. 2024/06/10 10. 2024/06/11 11. 2024/06/12 12. 2024/06/13  13. 2024/06/14 14. 2024/06/15 15. 2024/06/16 16. 2024/06/17  17. 2024/06/18 18. 2024/06/19 19. 2024/06/20 20. 2024/06/21  21. 2024/06/22 22. 2024/06/23 23. 2024/06/24 24. 2024/06/25  25. 2024/06/26 26. 2024/06/27 27. 2024/06/28 28. 2024/06/29  29. 2024/06/30 30. 2024/07/01  ? 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 2024/06/02 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 - 9): 2  Choose a date  1. 2024/06/02 2. 2024/06/03 3. 2024/06/04 4. 2024/06/05  5. 2024/06/06 6. 2024/06/07 7. 2024/06/08 8. 2024/06/09  9. 2024/06/10 10. 2024/06/11 11. 2024/06/12 12. 2024/06/13  13. 2024/06/14 14. 2024/06/15 15. 2024/06/16 16. 2024/06/17  17. 2024/06/18 18. 2024/06/19 19. 2024/06/20 20. 2024/06/21  21. 2024/06/22 22. 2024/06/23 23. 2024/06/24 24. 2024/06/25  25. 2024/06/26 26. 2024/06/27 27. 2024/06/28 28. 2024/06/29  29. 2024/06/30 30. 2024/07/01  ? 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 2024/06/02 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 - 9): 2  Choose a date  2. 2024/06/03 3. 2024/06/04 4. 2024/06/05 5. 2024/06/06  6. 2024/06/07 7. 2024/06/08 8. 2024/06/09 9. 2024/06/10  10. 2024/06/11 11. 2024/06/12 12. 2024/06/13 13. 2024/06/14  14. 2024/06/15 15. 2024/06/16 16. 2024/06/17 17. 2024/06/18  18. 2024/06/19 19. 2024/06/20 20. 2024/06/21 21. 2024/06/22  22. 2024/06/23 23. 2024/06/24 24. 2024/06/25 25. 2024/06/26  26. 2024/06/27 27. 2024/06/28 28. 2024/06/29 29. 2024/06/30  30. 2024/07/01  ? 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 2024/06/03 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 2024/06/02 17:30 ff 2 66 31233411  1 - Book a Table  2 - My Bookings  3 - End  Enter your choice: (1~3): 3  Thank you! Goodbye! |

The screen dialog #2 (executed on 2021/6/3):

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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: 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 - 9): 2  Choose a date  1. 2024/06/04 2. 2024/06/05 3. 2024/06/06 4. 2024/06/07  5. 2024/06/08 6. 2024/06/09 7. 2024/06/10 8. 2024/06/11  9. 2024/06/12 10. 2024/06/13 11. 2024/06/14 12. 2024/06/15  13. 2024/06/16 14. 2024/06/17 15. 2024/06/18 16. 2024/06/19  17. 2024/06/20 18. 2024/06/21 19. 2024/06/22 20. 2024/06/23  21. 2024/06/24 22. 2024/06/25 23. 2024/06/26 24. 2024/06/27  25. 2024/06/28 26. 2024/06/29 27. 2024/06/30 28. 2024/07/01  29. 2024/07/02 30. 2024/07/03  ? 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 2024/06/04 11:30 aa 2 11 17409488  Reservation Completed.  1 - Book a Table  2 - My Bookings  3 - End  Enter your choice: (1~3): 3  Thank you! Goodbye! |