Assignment Case	
COMP6048 | COMP6048001 | COMP6048016 | COMP6048049 Data Structures	BINUS UNIVERSITY Software Laboratory Center
Computer Science	**Example Case**
Valid on -	**Revision 00**

Soal
Case

Hotel GrAnsylvania

Hotel GrAnsylvania is one of the largest hotels in Transylvania, Romania which is always have the busiest time serving their guests. The owner wants a new development in term of managing hotel bookings. He then asked you, an avid programmer to build a program using C language and **hash table** with **chaining method**. The program will be created based on the following requirements:

- The program will consists of **4 menus**:
  1. **Booking Hotel**
  2. **View Bookings**
  3. **Delete Bookings**
  4. **Exit**

```
+--------------------+
| Hotel GrAnsylvania |
+--------------------+

1. Booking Hotel
2. View Bookings
3. Delete Booking
4. Exit
>>
```

Figure 1. Main Menu

- If user choose **menu 1** ("**Booking Hotel**"), the program will:
  - ❖ Prompt user to input **full name**. Validate the input must be **between 3** and **30 characters** (**inclusive**).
  - ❖ Prompt user to input **phone number**. Validate the input must **begin with** "**+62**", has **1 space** at minimum, and must be **11 characters long** (exclude "+62" and space).
  - ❖ Prompt user to input **age**. Validate the input must be **more than equals to 18**.

- Prompt user to input **room type**. Validate the input must be **between** "**Regular**", "**Deluxe**", and "**Suite**" (**case sensitive**).
- Prompt user to input **stay duration**. Validate the input must be **between 0** and **30** (**inclusive**).

```
        Input Full Name [3..30] : ga
        Full name length must between 3 and 30
        Input Full Name [3..30] : Gabriella
        Input Phone Number : +6212345678900
        Phone number must begin with '+62', contains with at least 1 space and the leng
th must be 11 (Exclude +62 and space)
        Input Phone Number : +62 12345678900
        Input Age [Minimum 18] : 17
        Age must be minimum 18
        Input Age [Minimum 18] : 21
        Input Room Type [Regular | Deluxe | Suite] (Case Sensitive) : deluk
        Room type must be either Regular or Deluxe or Suite (Case Sensitive)
        Input Room Type [Regular | Deluxe | Suite] (Case Sensitive) : Deluxe
        Input How Many Night You Will Stay [1..30] : 0
        You can't stay less than 1 night or more than 30 nights
        Input How Many Night You Will Stay [1..30] : 5
```

Figure 2. Insert Booking Input

- **Generate booking id** based on the following formula.

RRXXX

RR is **first 2 character** from **room type** in **uppercase** format.

X is **random number** between 0 – 9.

Example: RE001, DE005, SU010

- **Store** new booking data to the **next item** of **the last item** of **chaining hash table** with size **100** based on following key which could be calculated as follows

Key = X mod Y

X is **sum of last 3 digits** of the **booking id minus 1**.

Y is **size of hash table**.

Example:

Booking ID : DE187

X : 1 + 8 + 7 - 1 = 15

Y : 100

Key : 15 % 100

Therefore, **key** will be **15**.

- **Display** inserted booking data.

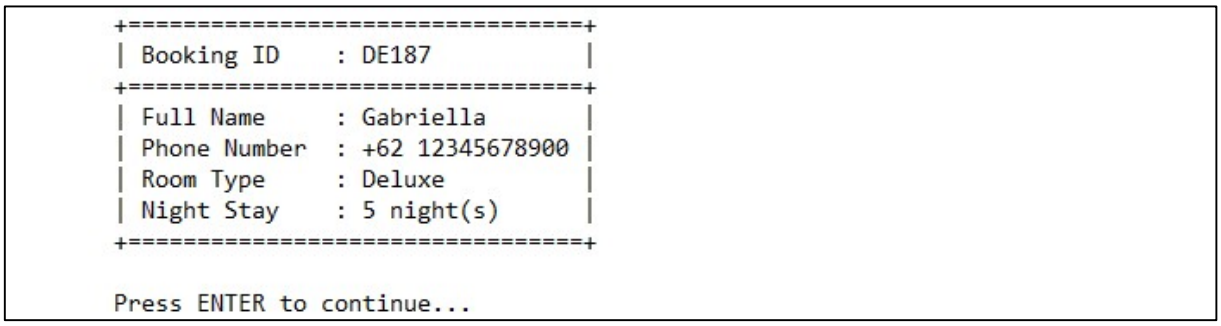

Figure 3. Success Insert Information

- If user choose **menu 2** ("**View Bookings**"), the program will:
  - ❖ Check data from hash table. If there are **no booking**, **display** following message

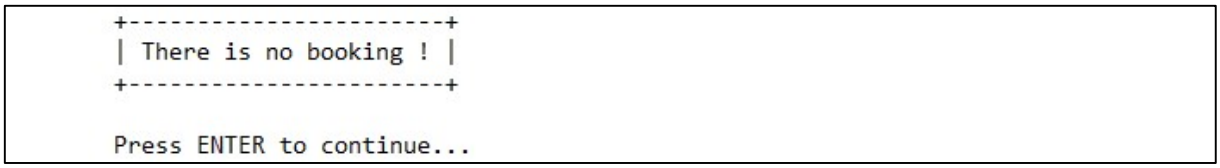

Figure 4. No Booking Message

  - ❖ Otherwise, **display** all **booking data**.

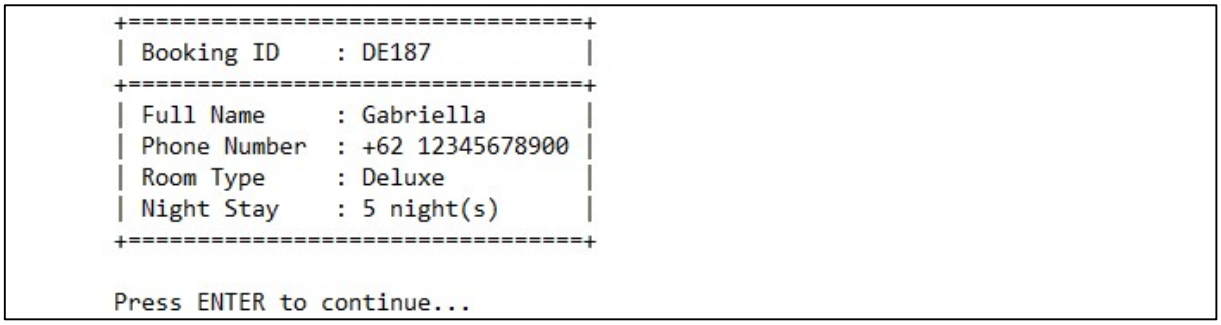

Figure 5. View Booking

- If user choose **menu 3** ("**Delete Bookings**"), the program will :
  - ❖ Check data from hash table. If there are **no booking**, **display** following message and **redirect** to main menu.

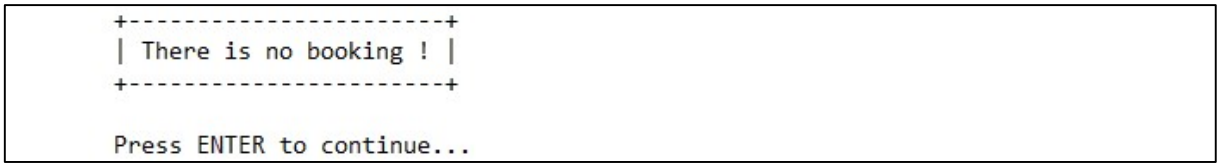

Figure 6. No Booking Message

❖ **Otherwise**,

- **Display** all booking data.
- Prompt user to input **booking id**.

```
Input Booking ID (Case Sensitive) :
```

Figure 7. Delete ID Input

- **Search** for booking data. If data **not exists**, **display** following message and **redirect** to **main menu**.

```
+--------------------------------------+
| Failed to Delete, There is No Data ! |
+--------------------------------------+

Press ENTER to continue...
```

Figure 8. No Data Found

- **Otherwise**, **remove** data from hash table, **display** following message, and **redirect** to main menu.

```
+-----------------------------------------+
| BookingID DE187 is Successfully Deleted ! |
+-----------------------------------------+

Press ENTER to continue...
```

Figure 9. Success Delete Message

- If user choose **menu 4** ("**Exit**"), the program will **close**.