


<b>Assignment Case</b>	
COMP6048   COMP6048001   COMP6048016   COMP6048049 Data Structures	
<b>Computer Science</b>	<b>Example Case</b>
<i>Valid on -</i>	<b>Revision 00</b>

**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**:

- Booking Hotel**
- View Bookings**
- Delete Bookings**
- 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 length 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.

```
+=====+
| Booking ID   : DE187 |
+=====+
| Full Name    : Gabriella |
| Phone Number : +62 12345678900 |
| Room Type    : Deluxe |
| Night Stay   : 5 night(s) |
+=====+

Press ENTER to continue...
```

*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

```
+-----+
| There is no booking ! |
+-----+

Press ENTER to continue...
```

*Figure 4. No Booking Message*

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

```
+=====+
| Booking ID   : DE187 |
+=====+
| Full Name    : Gabriella |
| Phone Number : +62 12345678900 |
| Room Type    : Deluxe |
| Night Stay   : 5 night(s) |
+=====+

Press ENTER to continue...
```

*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.

```
+-----+
| There is no booking ! |
+-----+

Press ENTER to continue...
```

*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**.