

The First Programming Assignment

with
the **Chain of Responsibility** Pattern and
Template Method

You are given 2 weeks.

Due date : **4/1**, 10 pm; **4/6**, 10pm

Level 1: Use the chain of responsibility pattern.

(Please submit level 1 or level 2.)

- You are simulating a room booking program.
- Your system checks room availability.
- There are three types of room – sing bedroom, queen bedroom, and king bedroom.
- The availability of each type of room is **changed randomly**.
- Your system checks availability of each room continually until a room request is satisfied.

Level 2 – Chain of Responsibility and Template Method

(Please submit level 1 or level 2.)

For Template Method

- Define abstract HotelService class
- Define the following services for HotelService class:

Wifi Service

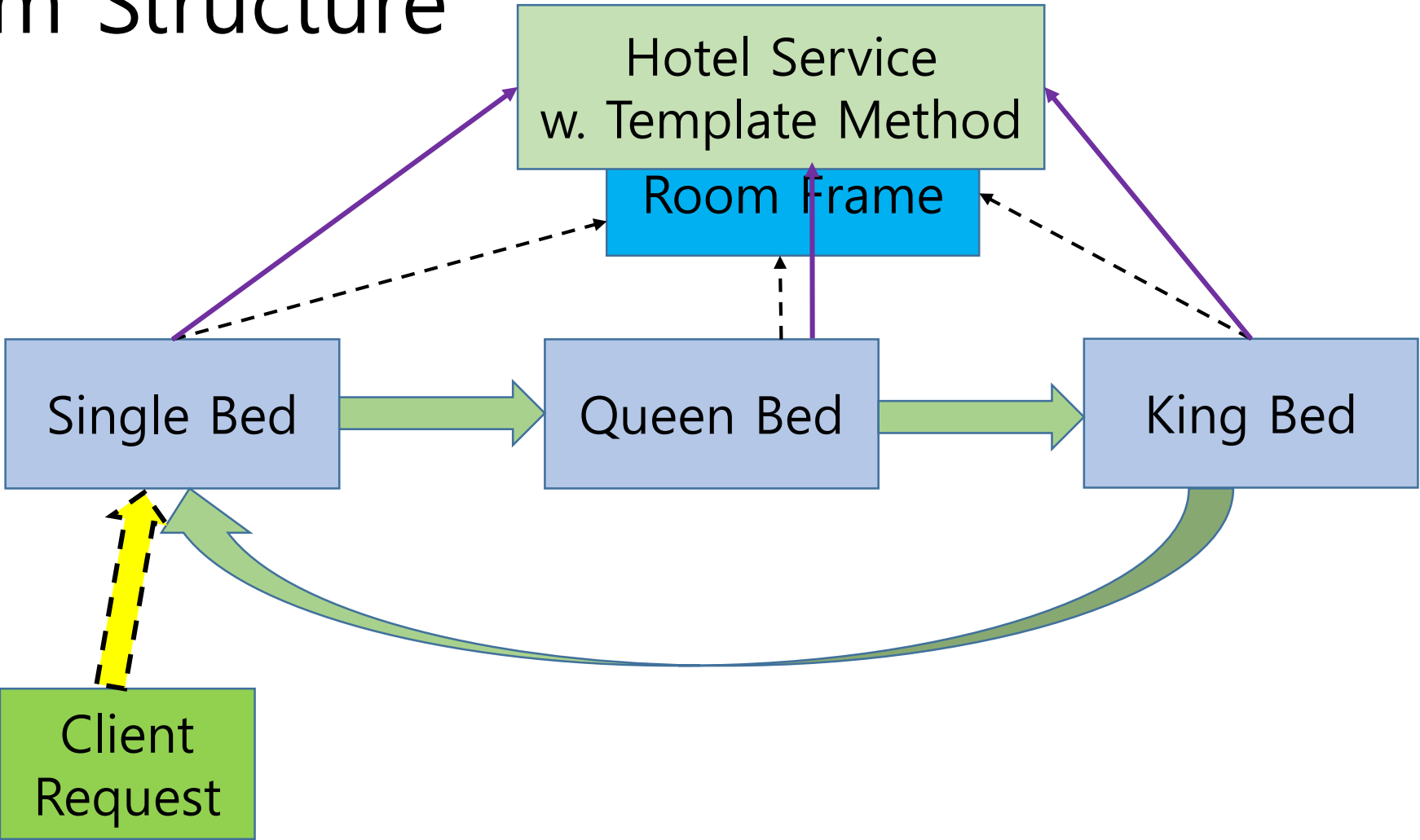
BathRoom Service

Dining Room Service

Parking Service

Provide various services for each room service – single, queen, and king bed rooms

Program Structure



King → single → queen → king

Single Bedroom Checking Unit Creatd
Queen Bedroom Checking Unit Creatd
King Bedroom Checking Unit Creatd

One king bed room is requested.

Now **in Single** Bedroom Checking Unit
Next processing unit, **for Queen** bedroom, will be checked
Now **in Queen** Bedroom Checking Unit
Next processing unit, **for King** bedroom, will be checked
Now **in King** Bedroom Checking Unit
king bed room is available now. **One King Bed Reserved**

**** Room Service Provided ****

WIFI : 3 Giga per one night ready
4 face towel, 2 shower gown, 2 cosmetic available
2 free breakfast buffet service
parking spaces for two car available

This example program is not perfect. However, follow the general sequence of output. A slight change of output may be allowed. Your output should show the flow of processing very clearly.

One single bed room is requested.

Now **in Single Bedroom** Checking Unit
single bed room available. **One Single Bed Reserved**

**** Room Service Provided ****

WIFI : 1 Giga per one night ready
2 face towel, 1 shower gown, 1 cosmetic available
breakfast buffet for \$10
parking spaces for one car available

From Template Method

One **queen bed room is requested.**
Now **in Single Bedroom** Checking Unit
Next processing unit, **for Queen** bedroom, will be checked
Now in Queen Bedroom Checking Unit
Checking a queen bed room : **1 time**
.....Queen bed room is **not ready!**
Next processing unit, for King bedroom, will be checked
Now in King Bedroom Checking Unit
Next processing unit, for Single room, will be checked
Now in Single Bedroom Checking Unit
Next processing unit, for Queen bedroom, will be checked
Now in Queen Bedroom Checking Unit
Checking a queen bed room : **2 time**
.....Queen bed room is **not ready!**
Next processing unit, for King bedroom, will be checked
Now in King Bedroom Checking Unit
Next processing unit, for Single room, will be checked
Now in Single Bedroom Checking Unit
Next processing unit, for Queen bedroom, will be checked

King → single → queen → king
Continued

Now in Queen Bedroom Checking Unit
Checking a queen bed room : **3 time**
.....Queen bed room is **not ready!**
Next processing unit, for King bedroom, will be checked
Now in King Bedroom Checking Unit
Next processing unit, for Single room, will be checked
Now in Single Bedroom Checking Unit
Next processing unit, for Queen bedroom, will be checked
Now in Queen Bedroom Checking Unit
Checking a queen bed room : **4 time**
.....Queen bed room is **not ready!**

King → single → queen → king
Continued

Next processing unit, for **King** bedroom, will be checked
Now in King Bedroom Checking Unit
Next processing unit, for **Single** room, will be checked
Now in Single Bedroom Checking Unit
Next processing unit, for **Queen** bedroom, will be checked
Now in Queen Bedroom Checking Unit
Checking a queen bed room : **5 time**
.....Queen bed room is **not ready!**
Next processing unit, for **King** bedroom, will be checked
Now in King Bedroom Checking Unit
Next processing unit, for **Single** room, will be checked
Now in Single Bedroom Checking Unit
Next processing unit, for **Queen** bedroom, will be checked
Now in Queen Bedroom Checking Unit
Checking a queen bed room : **6 time**
.....Queen bed room is **not ready!**

Next processing unit, for **King** bedroom, will be checked
Now in King Bedroom Checking Unit
Next processing unit, for **Single** room, will be checked
Now in Single Bedroom Checking Unit
Next processing unit, for **Queen** bedroom, will be checked
Now in Queen Bedroom Checking Unit
Queen bed room **is available now! One Queen Bed Reserved!**

**** Room Service Provided ****
WIFI : 2 Giga per one night ready
4 face towel, 2 shower gown, 1 cosmetic available
1 free breakfast buffet service
parking spaces for one car available

From Template Method

King → single → queen → king
Continued


One king bed room is requested.
Now in **Single** Bedroom Checking Unit
Next processing unit, for Queen bedroom, will be checked
Now in **Queen** Bedroom Checking Unit
Next processing unit, for King bedroom, will be checked
Now in **King** Bedroom Checking Unit
Checking a king bed room : **1 time**
.....King bed room is **not ready**.
Next processing unit, for **Single** room, will be checked
Now in Single Bedroom Checking Unit
Next processing unit, for **Queen** bedroom, will be checked
Now in Queen Bedroom Checking Unit
Next processing unit, for King bedroom, will be checked
Now in **King** Bedroom Checking Unit
king bed room is **available** now. **One King Bed Reserved**

**** Room Service Provided ****
WIFI : 3 Giga per one night ready
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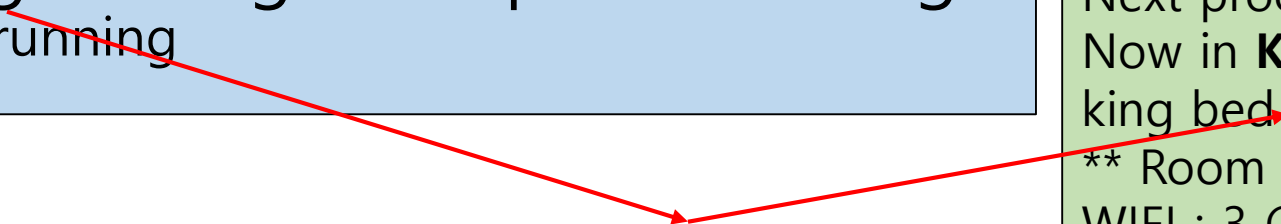
From Template Method

King → single → queen → king
2nd running

Single Bedroom Checking Unit Creatd
Queen Bedroom Checking Unit Creatd
King Bedroom Checking Unit Creatd
One **king** bed room is requested. 
Now in **Single** Bedroom Checking Unit
Next processing unit, for Queen bedroom, will be checked
Now in **Queen** Bedroom Checking Unit
Next processing unit, for King bedroom, will be checked
Now in **King** Bedroom Checking Unit
Checking a king bed room : **1 time**
.....King bed room is **not ready**.
Next processing unit, for Single room, will be checked
Now in **Single** Bedroom Checking Unit
Next processing unit, for Queen bedroom, will be checked
Now in **Queen** Bedroom Checking Unit
Next processing unit, for King bedroom, will be checked
Now in **King** Bedroom Checking Unit
Checking a king bed room : **2 time**
.....King bed room is **not ready**.
Next processing unit, for Single room, will be checked
Now in **Single** Bedroom Checking Unit
Next processing unit, for Queen bedroom, will be checked
Now in **Queen** Bedroom Checking Unit
Next processing unit, for King bedroom, will be checked
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Now in **Single** Bedroom Checking Unit
Next processing unit, for Queen bedroom, will be checked
Now in **Queen** Bedroom Checking Unit
Next processing unit, for King bedroom, will be checked

King → single → queen → king
2nd running



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Now in **King** Bedroom Checking Unit
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** Room Service Provided **
WIFI : 3 Giga per one night ready
4 face towel, 2 shower gown, 2 cosmetic available
2 free breakfast buffet service
parking spaces for two car available

One **single bed room** is requested.
Now in Single Bedroom Checking Unit
single bed room available. **One Single Bed Reserved**

** Room Service Provided **

WIFI : 1 Giga per one night ready
2 face towel, 1 shower gown, 1 cosmetic available
breakfast buffet for \$10
parking spaces for one car available

One **queen** bed room is requested.
Now in Single Bedroom Checking Unit
Next processing unit, for Queen bedroom, will be checked
Now in Queen Bedroom Checking Unit
Checking a **queen** bed room : 1 time
.....Queen bed room is not ready!
Next processing unit, for King bedroom, will be checked
Now in King Bedroom Checking Unit
Next processing unit, for Single room, will be checked
Now in Single Bedroom Checking Unit
Next processing unit, for Queen bedroom, will be checked

King → **single** → **queen** → king
2nd running

Now in Queen Bedroom Checking Unit
Checking a queen bed room : 2 time
.....Queen bed room is not ready!
Next processing unit, for King bedroom, will be checked
Now in King Bedroom Checking Unit
Next processing unit, for Single room, will be checked
Now in Single Bedroom Checking Unit
Next processing unit, for Queen bedroom, will be checked
Now in Queen Bedroom Checking Unit
Checking a queen bed room : 3 time
.....Queen bed room is not ready!
Next processing unit, for King bedroom, will be checked
Now in **King** Bedroom Checking Unit
Next processing unit, for Single room, will be checked

Now in **Single** Bedroom Checking Unit
Next processing unit, for Queen bedroom, will be checked
Now in **Queen** Bedroom Checking Unit
Queen bed room is available now! One **Queen Bed Reserved!**

** Room Service Provided **
WIFI : 2 Giga per one night ready
4 face towel, 2 shower gown, 1 cosmetic available
1 free breakfast buffet service
parking spaces for one car available

One **king** bed room is requested.
Now in **Single** Bedroom Checking Unit
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Now in **Queen** Bedroom Checking Unit
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