1. **Introduction**
   - This onsite project is conducted at Nikko hotel, which is a few blocks away from our university.
   - This document covers the 5 design thinking areas, including the work during the first week of the onsite experience at Nikko hotel.
   - Nikko hotel is undoubtedly, one of the best and eminent five stars hotels in Ho Chi Minh City.
   - After observing people surrounding the hotel, our team gains a deeper insight on the service process they are working on along with user's needs (hotel concierge).
   - In the second chapter, we cover the audience for whom we are designing by observation and interview. *Who is the users? What matters to these people?*
   - In the following chapter, we create a point of view that is based on user needs and insights*. What are their needs?*
   - The next chapter includes brainstorming and coming up with as many creative solutions as possible. *Wild ideas encouraged!*
   - The fifth chapter build a representation of one or more of the ideas above. *How can we show our ideas? Including the diagram of the prototype*
   - Last but not least is to share the prototype and gain feedbacks from the users on whether what works or does not.
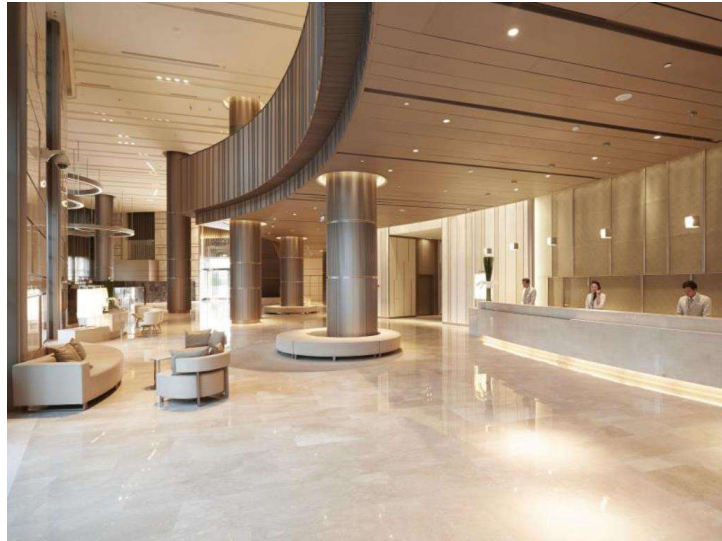
2. **DT1: Empathize**
   - In order to develop a new solution or product, we need to understand the problems that users are coping with. The empathize process helps us gaining insight and understanding them.
   - **What**
   - The two methods that the team implemented are observing the service process of the hotel and interviewing the concierge manager.
   - As for the observing method, the team asked the hotel manager for the permission to sit in the hotel lobby and to observe the surrounding.

   This helps us gain understanding of check in, check out protocol, user's behaviors. There are two main types of users, temporarily called, hotel side and customer side.

As for the hotel side, there are three sections: receptionists, door man and concierges. As for the customer side, tourists and business man are two main categories customers.

- After observing we conduct an interview the Chief of concierge of the hotel. We learned that he was a hospitable man. His work required multitasking, high standard and professional. Then we gain some insight about his problems, which we will demonstrate in the next section.

- After observing and talking to the concierge manager, we came up with the empathy map as follow:

- Thằng cò cho HQ
    - Customer
    - **Hearing?**
        - **Too far to listen to**
    - **Seeing?**
    - **Feeling?**
        - **A little tired**
    - **Doing?**

        - **Handling the checking in the process for his client (the 2 business men).**
        - **Waiting to continue the same process for the other client.**
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3. **DT2: Define**
    - As our observations, the main problem is the process of checking in and checking out. The customer has to proceed it in a traditional way, which is lack of the application of cutting-edge technologies. In fact, they have to be present at the reception to verify identity(ID card, visa and passport). They have to do the paper work if necessary. In addition, some of the customers (traveling in group) have to bypass another instance to have the checking process been done.

    - Another issue that slows down the performance of services delivery process is the management of the concierge department. First of all, they have to be in charge of the services which are related to the hotel. For instance, the head of concierge department has to recommend some exciting places for travelers to drop by or places for guests in general to dine. Secondly, supporting customers and subordinates need is another duty. An anecdotal evidence for this is when our team arrived at the hotel and asked for observing permission. The next instance is to manage cooperating vehicles from the third-party company coming to and leaving the hotel. We had a chance to look at the cars were tracked via the software used by the concierge, and it was repletely sophisticating and incommensurate. The concierge staff has to input customers, drivers and vehicles' details, flight schedule, route, departure and arrival time and name of the person who charged the bill in a

hand-operated manner. Furthermore, all emails have to be sent without automation, which could be implemented by state of the art technology.
- To make the matter worse, all the problems above, sometimes, have to be resolved at once by the concierge department.

4. **DT3: Ideate**
   - *A hotel management system like Amazon Go*
   - *No Employee*
   - *No physical checking IO process*
   - *Using biometric for authorization*
   - *IOT devices to get the metrics for better input*
   - *Mesh network to connect the above devices.*
   - *Computer vision to analyze customers' behavior*
   - *AI to analyze and adapt to the behavior of the customer.*
   - *From the points mentioned above, the team started to brainstorm for sufficient solutions.*
   - *Check in – Check out: Amazon Go like checking system:*
   - *Too traditional => using technology for convenient*
   - *Authorization => No need to be complicated*
     - *Make use of natural authentication => biometric, behavior*
   - *Make use of user everyday driver => smart phone*
   - *management of the concierge department: virtual assistant*
     - *what if an assistant has his own assistant?*
   - *Thus, the concierge department has its own protocols to deal with day to day problem and the machine has its own competent to deal w such tasks as fast as brisk.*
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5. **DT4: Prototype:**
   - As agree, we choose the checking in and out process as the main problem needs to be solved. Since, the problem can be the root cause for any other related traumatized issue.
   - Book room at home on the Nikko application
     - Register fingerprint and iris via scanner on mobile phone
     - If the user doesn't have a smartphone with such scanner, the system will record the passport barcode.
   - Arrive at Nikko Hotel:
     - The user shall authenticate themselves via the registered biometric. Otherwise, they can use the barcode on their passport to authenticate and register a new biometric via the IOT devices at the entrance of the hotel.

- From then on, they can freely go in and out of the hotel without any restriction, except accessing the hotel facilities without authorization.
- When the client violates one of the SLA, the system automatically alerts the police for punishment.

6. **DT5: Test**
7. **Conclusion**
8. **References**