**Retrospective Activity**

There are a few design decisions that could be improved in a future release of the project. The first is how the system checks for valid user input when performing tasks such as creating and updating reservations, adding an employee to the database, etc. The software is inherently heavy on user input to perform these tasks, and many more tasks like these can easily be implemented into future releases of the project, such as an update employee profile method. The way the checking for input validity is currently implemented is each class receiving input has a fairly lengthy method that performs these checks, many of which are duplicated in each class. One way to fix this design flaw is to create a class dedicated to checking for input validity containing methods that perform these checks. For example, it would have a boolean method that would accept an input string containing a phone number which would return true if the string is a valid phone number and false if not. Implementing this change would improve the readability of the code and can potentially improve the efficiency at which new features are created.

Another potential design decision that can be improved is how the view profile function is implemented. Currently, the implementation of view profile requires that the employee enters their employee number into the system which will then retrieve and display their information. However, it is very easy to instead display another employee’s information if they have their employee number, which is also not very difficult to get because there is no randomization of employee numbers when employees are added. Although random generation is a potential solution to this problem, there is also a different solution that requires a change in how registering a new account is implemented.

Currently, anyone can register an account under any role, including manager. This potentially gives any employee access to functions that they should not have access to, such as adding new employees and changing their wages. Changing how register is implemented can fix this problem and even the aforementioned problem with viewing other employee profiles. One potential change is to have a new employee only be able to register an account after a manager has added them into the system as an employee. The way it would work is by asking for personal information from the employee when they try to register an account which allows the system to verify their identity using the information already entered into the system by the manager. This could be taken a step further by using the employee’s email for identity verification, much like many web applications do today. This would mean that their roles and employee number would already be associated with their accounts as they are creating it. This would fix both the problems of employees being able to register for any role and employees (non-managers) being able to view other employee profiles. This would greatly improve the security of the system as only employees who are added to the system by management can create an account and their access to the system would already be restricted based on their given role, while also removing the risk of sensitive information being viewed by other employees.