Assumptions-

1. The user did not enter any inconsistent entries during the profile setup.

2. The user's consumption rate is updated every time he uses water.

3. The warning of exceeding usage is generated instantly when it exceeds the daily allowance.

4. The water supply bill is generated on the last day of every month.

5. The warning for pending payment is issued when the user fails to pay the bill within the last day of the next month from bill generation.

6. Extra fees for availing extra water can either be taken daily or weekly depending on for whether the user has opted to avail it for a day or a week. Also, no other option is available.

7. All complaints are forwarded to the supervisor considering that the user enters only a genuine problem.

8. No transaction error occurs during the payment.

Use Case Description:-

Between resident and moderator

1. Notification:- To notify the user about various notifications, such as water unavailability etc generated by the supervisor via the moderator.
2. Set up profile:- Residents will set up their own profile in the system which will keep track of all their water consumption, bills etc.
3. Log In:- The resident must login to the system to access his record or perform any action. This use case has the following sub cases:-
4. Verify Password (**Inclusive)**:- This is an inclusive use case of the use case login. The resident can only continue further procedures if his password and user id is verified and he is properly logged in to the system.
5. Display Login Error **(Exclusive)**:- This is an exclusive use case of the use case login. An error message will be generated to the resident upon login failure. Login failure may take place because of invalid user id, invalid password, session expiry, etc.
6. Consumption rate:- The record of the water usage of the resident which will be visible to both the resident and the moderator. This has the following sub cases:-
7. Update usage **(Inclusive)**:- Each time the resident uses water, the system will be updated about the water usage.
8. Area wise:- Moderator will keep track of total area wise water consumption.
9. Flat wise:- Moderator will also keep track of water consumption of each flat.

Both area wise and flat wise use cases have the following two sub cases:-

1. Daily Usage **(Exclusive)**:- Daily record of water consumption both flat wise and area wise will be maintained by the system.
2. Weekly Usage **(Exclusive)**:- Weekly record of water consumption will also be maintained by the system.
3. Warning of extra usage:- The system will notify both the particular resident and the moderator if any resident uses extra water.
4. Extra Water supply:- Extra water supply if needed by any resident can also be provided and the record will be stored in the system. This has the following subcases:-
5. Extra for a day **(Inclusive)**:- Extra water supply for a day can be provided if needed.
6. Extra for a week **(Inclusive)**:- Extra water supply for a week can be provided if needed.
7. Extra fee **(Inclusive)**:- Charge of extra water provided to the resident is calculated and updated to the system.
8. Bill for current month:- Each resident’s current month bill is calculated using the water usage record and stored in the system. This has the following subcase:-
9. Update Bill **(Inclusive)**:- The bill will be updated upon further usage of water or any extra water supply.
10. Make Payment:- The resident makes his payment based on his water usage. This has the following two subcases:-
11. Offline:- Offline payment is done by the resident.
12. Online:- Online payment through any bank is done by the resident.
13. Lodge a complaint:- The resident can lodge a complaint if he is unhappy about any of the services provided by the management system.
14. Complaint status:- The status of the complaint lodged by the resident will be notified to the resident each time there is any new updates on the complaint status-complaint received by the moderator or not, message of steps being taken to fix the issue, etc.
15. Warning for pending payment:- The moderator notifies the resident about his failure to make the payment within time and what actions(fine, warning, etc) may be taken against him.

Between moderator and supervisor

1. Water Unavailability:- Prior information about the unavailability of water in the local area is forwarded by the supervisor to the moderator.
2. Forward complaint:- The complaint lodged is forwarded to the supervisor and he takes necessary actions to fix the issue.
3. Report status:- The status of the complaint as per the decisions taken by the supervisor is forwarded to the moderator by him so that he can notify the resident about the changes about to be taking place.