**Summary**

BTO Management System is a system for applicants and HDB staff to view, apply and manage for BTO projects.

**Stakeholders**

* Applicant
* HDB Officer
* HDB Manager

Additional properties

* Age
* Marital status

**System details**

* Same interface used by all stakeholders
* Login credentials is Singpass account
  + Username is NRIC
  + All users start with default password “password”
  + Password can be changed
* User list initialization through text file at startup
* All users can use filters to view project (location, flat types, etc.) Assume that default is by alphabetical order. User filter settings are saved when they switch menu pages

**Stakeholder Capabilities**

Applicant

* Can view projects based on their user attributes
  + Attributes: Age, Marital Status
  + Projects have a visibility toggle
* Can only apply for one project at a time
  + Single, >=35 : 2-Rm
  + Married, >=21 : 2-Rm & 3-Rm (all types)
* Always have visibility of the project applied for
  + Regardless of project visibility status
* Able to view application status for the project
* Successful application
  + Able to request for flat booking through HDB Officer
  + Can only book one flat concurrently
* Able to request for application withdrawal before/after flat booking
* Able to submit enquiries to any visible projects
  + Able to View, Edit, Delete enquiries

HDB Officer

-Can register for a project if:

1. They have no intention of applying for the project as an applicant before and after becoming an officer for it
2. They are not a HDB Officer for another project within an application period – I.e. they can apply for multiple projects & have multiple assigned projects at once, BUT these projects cannot be happening concurrently (based on application period)

* Can do everything an applicant can do (Inherit from applicant?)
* Can see registration status for a project (Approved/Not approved). If approved, the profile will reflect the project he/she is a HDB Officer for.
* Registration is subject to approval by the HDB Manager that oversees the overall project.
* They can view the details of the project they’re handling regardless of the visibility setting, but they’re not allowed to edit them. They can also view and reply to enquiries regarding the project they’re handling.

-Role in an Applicant’s successful BTO application (flat selection responsibilities):

1. Update the number of flats for each flat type (remaining number after successful application)
2. Retrieve an applicant’s BTO application with the applicant’s NRIC
3. Update the applicant’s project status, from successful to booked
4. Update the applicant’s profile with the type of flat chosen (2/3-room)
5. They can also generate a receipt for the applicant with their respective flat booking details (NRIC, Name, age, marital status, flat type booked and project details)

HDB Manager

* They can create, edit and delete BTO project listings.
* They can only handle one project within an application period
* They can toggle the visibility of a project (on/off) – This will be reflected in the project list (visible to applicants)
* Can view all projects created (even those made by other HDB Managers) regardless of visibility. Can also filter and show only the projects that they have created
* Can view pending and approved HDB Officer registration and can approve or reject HDB Officer’s registration only if they are the Manager of the project. They must then update the project’s remaining HDB Officer slots.
* Can approve/reject Applicant’s BTO application – approval is limited to the number of available flat types and approve/reject Applicant’s request to withdraw the application
* Can generate a report of the list of applicants with their respective flat booking – flat type, project name, age and marital status (There should be filters to generate a list based on various categories e.g. married applicants one list, single another, etc…)
* Cannot apply for any BTO as an applicant
* Can view enquiries of ALL projects and reply to enquiries only he/she is handling

**Entities**

Projects

* Attributes
  + Project Name
  + Neighbourhood
  + HDB Manager
  + List of up to 10 HDB Officers
  + Types of flats
    - Number of units for each type
  + Application starting date
  + Application ending date
  + Visibility toggle
  + List of enquiries
* Contains HDB Officer registrations
  + Able to View, Reject, Approve
* Filtering (ignores visibility status)?
  + By creator

(Test case 20, Managers should be able to filter to see their own projects)

* + Location
  + Flat Types
  + etc
* Contains project applications
  + Able to View, Approve, Reject
* Contains project application withdrawals
  + Able to View, Approve, Reject
* Able to generate Reports
  + Reports can be filtered (look under Report Entity)

Applications

* Statuses
  + Pending

*Entry status upon application – No conclusive decision made about the outcome of the application*

* + Successful

*Outcome of the application is successful, hence invited to make a flat booking with the HDB Officer*

* + Unsuccessful

*Outcome of the application is unsuccessful, hence cannot make a flat booking for this application. Applicant may apply for another project.*

* + Booked

*Secured a unit after a successful application and completed a flat booking with the HDB Officer.*

Enquiries

* Attributes: enquiryId, message, applicant, project, reply

Receipt (Read-only class)

* Attributes: receiptId, issuedDate, applicant, project

Report

* Attributes: a list of applicants for a specific project
* Filtering options
  + Flat type
  + Project name
  + Cont.

**Program Flow**

Repo and Data Handling - Done at Startup:

1. Read File
2. Instantiate User accounts (manager etc.) from file
3. Instantiate Projects from file

Applicant:

1. Login

They can at any time submit, view and delete their enquiry

1. Set/edit filter criteria (save as it remains through run time)
2. View **visible** projects based on **filter** criteria & **user group**
3. Apply for **an eligible project**
   1. Check if applicant has applied for other projects
   2. Menu of project selection based on user group
   3. Select project for application
      1. Check if they **fit eligibility criteria**
         1. Singles, 35 years old and above, can ONLY apply for projects that have 2-Rooms
         2. Married, 21 years old and above, can apply for any flat types (2- Room or 3-Room)
4. Await approval
5. Check application status (At any time after application)
   1. Regardless of project visibility
6. Request withdrawal (if necessary)
7. Upon successful allocation
8. Send request to book flat with HDB Officer
   1. Indicate flat preference
9. Request withdrawal (if necessary)
10. Logout
11. Update Files

HDB Officer:

1. Login
2. Set/edit project filters (must be stored)
3. Based on filter view all project
4. view and reply to enquiries regarding the project he/she is handling

|  |  |
| --- | --- |
| Officer role | Applicant |
| 1. Submit Registration as officer for project    1. Cannot be a project he/she applied for    2. Cannot be a project he/she intends on applying for (BTO application will not go thru)    3. Not an officer for another project within the same application period (aka cannot have 2 projects running at the same time) 2. Await Manager’s approval 3. Check registration status   After successful registration:   1. View project details they are working on regardless of visibility setting 2. View enquiries 3. Reply to enquiries 4. View Booking request 5. Book flats for ^    1. Update number of flats remaining    2. Retrieve application details    3. Update applicant’s application status from “successful” to “booked”    4. Update application with chosen flat type    5. Generate a receipt | They can at any time submit, view and delete their enquiry   1. Set/edit filter criteria (save as it remains through run time) 2. View **visible** projects based on **filter** criteria & **user group** 3. Apply for **an eligible project**    1. Check if applicant has applied for other projects    2. Menu of project selection based on user group    3. Select project for application       1. Check if they **fit eligibility criteria**          1. Check if they are an officer for that project          2. re Singles, 35 years old and above, can ONLY apply for projects that have 2-Rooms          3. Married, 21 years old and above, can apply for any flat types (2- Room or 3-Room) 4. Await approval 5. Check application status (At any time after application)    1. Regardless of project visibility 6. Request withdrawal (if necessary) 7. Upon successful allocation 8. Send request to book flat with HDB Officer    1. Indicate flat preference 9. Request withdrawal (if necessary) |

1. Logout
2. Update Files

HDB Manager

1. Login
2. Fetch All projects – regardless of visibility
3. Filtered project viewing (saved filters)
4. Filtered by self created
5. Fetch All enquiries through all projects (read only)
6. View self created enquiries
7. Reply to self created enquiries

|  |  |  |
| --- | --- | --- |
| BTO Project Management | Officer Management | Applications Management |
| 1. Create a BTO Project    1. Name    2. Neighbourhood    3. Type of flats (assume 2rm & 3rm only)    4. Number of units/ type    5. Application opening date    6. Application closing data    7. Manager in charge (auto tied)    8. Officer slots (max 10)    9. Visibility (default “off”)   Ensure that he can only handle 1 project in the same application window   1. Edit current project details 2. Delete project | 1. View list of managers that applied to the project he/she is on 2. Approve    1. Remove available slot    2. Update manager’s status 3. Or reject    1. Retain slots    2. Update manager’s status | 1. View current applications for the project 2. View project details (Occupancy count) 3. If available, accept    * 1. Set applications status to “Successful”      2. Decrement available flats 4. Or Reject    * 1. No change to available flats 5. Check withdrawal requests 6. Approve or deny    * 1. Update application’s status |
| **Generate Report**   1. Generate a report of flat bookings    1. Applicant    2. Marital status    3. Age    4. Project name    5. Flat type   With the feature to filter based on any of the above |

1. Logout
2. Update Files

**Report format**

Application ID 1

* Applicant information
* Flat type
* <project name>

Application ID 2

* abc
* abc