# Help Desk Ticketing System Software Development Life Cycle

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| **SDLC** | Date |  |
| **Planning** | 02/09/23 | Read Assessment 2: Software Project  **Client Requirements**   * The client would like a Help Desk ticketing system prototype developed. * The Help Desk ticketing system should handle tickets from **internal customers only**. * Tickets will be requested for assistance **from**the Help Desk **by** staff members of the organisation. |
| **Requirements**  **Analysis**  **(Tick when Requirements**  **Implemented**  **In Construction and Testing Phases**  ) | 02/09/23 | **Read and Understand all Requirements of the Help Desk Ticketing System**  Tickets:  Tickets can be submitted by providing all of the following information:  \*\*Test case 1  Staff ID  Ticket creator name  Contact email  Description of the issue  Internal Tickets’ ticket number should be assigned automatically using the counter static field plus 2000.  All information must be provided as input while submitting the ticket.  Responding to tickets:  \*\*Test case 2  If the ticket’s description of the issue contains the words “Password Change”, the new password should be generated following the rule:  The first two characters of the staffID, followed by the first three characters of the ticket creator name.  -- Hint: (can be useful to consider: split(), join(), string operations)  \*\*Test case 3  There should be an option, after the ticket has been submitted, to respond to a ticket by providing a feedback response.  \*\*Test case 1  Default response can be set as “Not Yet Provided”.  Statistics:  \*\*Test case 6  There should be a way to keep track of:  The number of tickets submitted  The number of resolved tickets  The Number of open tickets  A way to display those statistics to the console.  \*\*Test case 2  If the staff member has submitted the “Password change” request, after the new password is generated and the ticket’s response has been updated, the ticket should close, with the number of closed tickets increased and the number of open tickets reduced by 1. Ticket’s status should be changed to “Closed”.  \*\*Test case 3  Once a member of the IT department provides the response to a ticket, the ticket should close, with the number of closed tickets increased and the number of open tickets reduced by 1. Ticket’s status should be changed to “Closed”.  \*\*Test case 4  There should be an option for the IT department to reopen the ticket. At this point the number of open tickets should be increased and the number of closed tickets should be reduced by 1. Ticket’s status should be changed to “Reopened”  \*\*Test case 5  Displaying the ticket:  There should be a way to display the ticket information:  Ticket number,  Name of the ticket’s creator,  StaffID,  Email address,  Description of the issue,  Response from the IT department  ticket status (open, closed or reopened). |
| **Solution** **Design** |  | Technical Requirements  The senior developer has provided you with the following technical requirements for the project.  The Ticket class should contain common ticket information in the Ticket class.  The Ticket class should also have method allowing the staff to submit ticket and the IT team to respond to the tickets, specifically resolve, reopen and provide a response to the ticket.  The Ticket class should contain a method for resolving password change requests. As well as calling the method that would generate the new password, it should set up a response for the ticket and change the ticket status to closed.  There should be a method to print information for all the ticket objects.  Hint: research and use List<Ticket>  The TicketStats method in Ticket class should contain information on ticket statistics and shall be able to return the statistics information.  The main class, containing the Main method.  \*\*Test case 2  Create at least one instance of submitting tickets and include at least one ticket with the request of “Password change”.  \*\*Test case 1  After the tickets are created, display ticket statistics.  \*\*Test cases 2, 3, 4, 5, 6  Resolve some of the tickets, then display the ticket information and ticket statistics. o Reopen some of the resolved tickets, then display the ticket information and ticket statistics. |
| **Detailed** **Design** | 02 – 04/  09/23 | Design Ticket Class  Researching about Designing “Main Class”  🡺 Described in below section (\*1) |
| **Construction**  **\*\***  **All Requirements specified in**  **Requirements**  **Analysis & Solution** **Design have been checked, implemented, and reviewed**  **throughout the Construction and Testing Phases** | 05/09/23  06/09/23  07/09/23  08/09/23  09/09/23  12/09/23 | Display Options  Sort out Main class & main method  Check in my senior about Main class & main method  Modify Main class & Ticket class  Review password generation  - keep “slice” operation instead of “split(), join(),” string operations  Refine “print statements”  After the tickets are created, display ticket statistics  respond ticket&reopen ticket 🡺 dictionary  Add “no results” to show all tickets  Create at least one instance of submitting tickets and include at least one ticket with the request of “Password change”.  Resolve some of the tickets, then display the ticket information and ticket statistics. o Reopen some of the resolved tickets, then display the ticket information and ticket statistics.  Update the ticket\_stats method in Ticket class to return the statistics information. |
| **System Testing** | 05/09/23  07/09/23  12/09/23 | - Display Options = ok  Menu 1&2 Test  - password change = ok  - status change = ok  - display all ticket with required & updated info, exception handle = ok 🡺Final Testing performed described in below section (\*2) |
| **Deployment** | 12/09/23 | Deployment Folder Created |
| **Operation** |  | To be commenced |
| **Maintenance** |  | To be carried out, will be revised when needed |

**(\*1)Detailed Design:**

Class name: Ticket

Class variables:

open\_tickets (int)= 0

resolved\_tickets(int)= 0

Instance variables(Attributes):

Ticket\_number (int)

staff\_id (str)

creater\_name (str)

contact\_email (str)

description (str)

response (str) = Not Yet Provided

status (str) = Open

method: \_\_init\_\_ = to create a new ticket instance and change class variables (increment the number of

open ticket)

method: resolve\_password\_change = to resolve password change requests,

call get\_generate\_new\_password method

to respond for the ticket with a new password

instance variable to change the ticket status to closed

= to change class variables (increment the number of resolved ticket and

decrement the number of open ticket)

method: get\_generate\_new\_password = to generate a new password (The first two characters of the staffID,

followed by the first three characters of the ticket creator name)

method: ticket\_info = to return all ticket info of created ticket instances

method: resolve\_ticket = to add response and close ticket

instance variable to change the ticket status to closed

= to change class variables (decrement the number of open ticket and

increment the number of resolved ticket)

method: reopen\_ticket = to reopen closed ticket

instance variable to change status to reopened

= to change class variables (increment the number of open ticket and

decrement closed ticket)

method: get\_ticket\_stats = to return ticket stats ( The number of tickets submitted, resolved tickets

open tickets )

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class name = Main

Use ticket class to store tickets object and use them to show and change ticket information.

ticket\_counter = 2000

all\_tickets = {}

method: print\_menu

1. Submit New Ticket
2. Show All Ticket
3. Respond to Ticket by Number
4. Reopen Closed Tickets
5. Display Ticket Statistics
6. Exit

method: add\_ticket = to input ticket details and submit ticket

instance variables for user to input = staff\_id , creator\_name, contact\_email

display instruction for “Password Change”

instance variables for user to input = issue\_description

create ticket number

initiate ticket instance with above instance variables including ticket number

= to call resolve\_password\_change method of ticket instance, if Password Change

= to display ticket number

= to call ticket\_stats method of ticket instance

method: show\_all\_tickets = to display information of all tickets ( Ticket number, staffID, Name of the

ticket’s creator, Email address, Description of the issue, Response from the

IT department, ticket status (open, closed or reopened)) by calling ticket\_info

method of ticket insatance

method: respond\_ticket = to respond an open ticket with ticket number by calling resolve\_ticket method of

ticket instance

instance variable for user to input = responses

method: reopen\_ticket = to reopen a closed ticket with ticket number by calling reopen\_ticket method of

ticket instance

method: show\_ticket\_stats = to display ticket statistics (the number of submitted tickets, resolved tickets,

and open tickets) by calling get\_ticket\_stats method of ticket instance

method: exit = to close the system

method: main = to display menu by calling print\_menu and ask user to input choice, then execute actions

by calling above methods in Main class accordingly.

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**(\*2) Test cases**:  to be ticked upon success

Test case 1:

Required input to submit a ticket. Display stats after the tickets are created. Display ticket statistics Information with Default response.

Enter your choice 1 - 6: 1

Enter your staff ID: T3456

Enter your name: Taro

Enter contact Email: taro@gmail.com

Enter description of issue. To change password, enter 'Password Change': PC does not start

Ticket Number: 2002

Ticket Submitted Successfully!

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Submitted Tickets: 2

Resolved Tickets: 1

Open Tickets: 1

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Ticket Number: 2002

Ticket Creator Name: Taro

Staff ID: T3456

Contact Email: taro@gmail.com

Description: PC does not start

Response: Not Yet Provided

Status: Open

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Test case 2: Password Generation. Ticket status and the stats updated.

Enter your choice 1 - 6: 1

Enter your staff ID: K1234

Enter your name: Kaoru

Enter contact Email: kaoru@gmail.com

Enter description of issue. To change password, enter 'Password Change': Password Change

Ticket Number: 2001

Password Generated: K1Kao

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Ticket Number: 2001

Ticket Creator Name: Kaoru

Staff ID: K1234

Contact Email: kaoru@gmail.com

Description: Password Change

Response: New Password Generated: K1Kao

Status: Closed

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Submitted Tickets: 1

Resolved Tickets: 1

Open Tickets: 0

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Test case 3: Respond and change ticket status and stats.

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Enter your choice 1 - 6: 3

Enter Ticket Number to Respond: 2002

Enter Response: Your PC issue resolved

Response added to the ticket.

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Ticket Number: 2002

Ticket Creator Name: Taro

Staff ID: T3456

Contact Email: taro@gmail.com

Description: PC does not start

Response: Your PC issue resolved

Status: Closed

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Submitted Tickets: 2

Resolved Tickets: 2

Open Tickets: 0

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Test case 4: Reopen a closed ticket and change status.

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Enter your choice 1 - 6: 4

Enter Ticket Number to Reopen: 2001

Ticket reopened.

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Ticket Number: 2001

Ticket Creator Name: Kaoru

Staff ID: K1234

Contact Email: kaoru@gmail.com

Description: Password Change

Response: New Password Generated: K1Kao

Status: Reopened

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Test case 5: Display all ticket information

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Enter your choice 1 - 6: 2

Ticket Number: 2001

Ticket Creator Name: Kaoru

Staff ID: K1234

Contact Email: kaoru@gmail.com

Description: Password Change

Response: New Password Generated: K1Kao

Status: Reopened

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Ticket Number: 2002

Ticket Creator Name: Taro

Staff ID: T3456

Contact Email: taro@gmail.com

Description: PC does not start

Response: Your PC issue resolved

Status: Closed

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Test case 6: Display ticket stats.

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Enter your choice 1 - 6: 5

Submitted Tickets: 2

Resolved Tickets: 1

Open Tickets: 1

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Test case 7: User input strings to choose options.

assertion -output “Wrong input. Please enter a number…”

Test case 8: Display all ticket selected when there is no tickets.

assertion -output “No Tickets to show”

Test case 9: Exception handling when responding or reopening tickets

assertion – User input closed ticket number, output “Ticket not found or already closed.”

assertion – User input other than number, output “Wrong input. Please enter a number…”

assertion – User input non existing ticket number, output ”Ticket number not found. Please check again.”