# 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** | 02/09/23 | **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 |
| **Construction** | 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 |
| Deployment | 12/09/23 | Deployment Folder Created |
| Operation | 12/09/23 | Commenced |
| Maintenance | 12/09/23 | To be carried out, will be revised when needed |

**Submission Checklist**

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| **Task** | **Evidence Required** |
| 1 | *Software\_Project*Python Code file |
| 2 | *ReadMe* file with instructions |
| 3 | Word/PDF file with the details of Software Development Lifecycle stages during the development of the project |
| 4 | Instructions required to display your software project |

**Detailed Design:**

Class name: Ticket

Attributes: ticket\_number (int)

staff\_id (str)

creater\_name (str)

email\_address (str)

issue\_description (str)

response (str)

status (str) - Submitted, resolved, closed

method: \_\_init\_\_ = to create a new ticket

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

instance variables for user to input = staff\_id , creater\_name, email\_address

display instruction for “Password Change”

instance variables for user to input = issue\_description

if Password Change, call change\_password method

if not, instance variables to set as default = response (Not Yet Provided.), status (open)

and change class variables (increment the number of open ticket and total

number of ticket)

= to create ticket number

= to display ticket number

= to call ticket\_stats to display

method: change\_password = to resolve password change requests, call the generate\_password

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 closed ticket and the

Number of total ticket)

= to create ticket number

= to display ticket number

= to call tiket\_stats to display

method: generate\_password = to generate a new password (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)

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

instance variable for user to input = responses (append response to a list)

instance variable to change the ticket status to closed

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

increment the number of closed ticket)

method: reopen\_ticket = to reopen closed ticket

instance variable to change status to reopened

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

Decrement closed ticket)

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

open tickets )

method: display\_ticket = to display information of a ticket ( 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))

**Design Main Class**

Main class will use ticket class to store tickets object and use them to show and change ticket information. So main class is just a class but as it is using ticket class so it is named as main class.

class name = Main

Welcome message

Display menu

1. Submit Ticket
2. Display All Ticket
3. Respond Ticket
4. Reopen Tickets
5. Display Ticket Statistics
6. Exit

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Test cases:

\*\*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 Submitted Successfully!

Ticket Number: 2002

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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

New Password Generated: K1Kao

Ticket Number: 2001

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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.”