

**VIETNAM NATIONAL UNIVERSITY - HO CHI MINH CITY**

**UNIVERSITY OF SCIENCE**

Faculty of Information Technology



# **CHAT BOT - PA5**

## **TEST PLAN**

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**<Chat Bot Application>  
Test Plan**

**Version <1.0>**

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## Revision History

Date	Version	Description	Author

Chat Bot	Version: <1.0>
Test Plan	Date: 19/12/2024

# Table of contents

- Revision History..... 3
- 1. Introduction.....5
- 2. Target Test Items..... 6
  - 2.1 Authentication and Authorization.....6
  - 2.2 Chat with AI Agents..... 7
  - 2.3 Create and Manage AI BOT..... 8
  - 2.4 Knowledge Data Management..... 9
  - 2.5 Prompt Management..... 10
  - 2.6 Account Management.....12
  - 2.7 Photo Chatting..... 12
  - 2.8 Email with AI Agents.....13
- 3. Environmental Needs..... 14
  - 3.1 Hardware Requirements..... 14
  - 3.2 Software in the Test Environment..... 14
  - 3.3 Productivity and Support Tools..... 14
- 4. Responsibilities, Staffing, and Training Needs.....15
  - 4.1 People and Roles ///..... 15

Chat Bot	Version: <1.0>
Test Plan	Date: 19/12/2024

# 1. Introduction

This document outlines the **Test Plan** for the AI Chat Software. It provides an overview of the testing process, including the scope, objectives, test environment, and related aspects necessary for a comprehensive evaluation.

The document covers the specific functionalities to be tested, as detailed in **Section 2: Target Test Items**, as well as key testing areas such as performance and usability of these functionalities. **Section 3: Environmental Needs** elaborates on the required hardware configurations, resources, and software platforms, such as operating systems and tools, for conducting the tests. Additionally, **Section 4: Responsibilities, Staffing, and Training Needs** defines the roles, responsibilities, and involvement of relevant participants in the testing process.

This document is intended to be used by project managers, clients, and development teams to understand the testing objectives, evaluate the software's performance, and gain insights into the testing process.

The key features of this document include providing a comprehensive and detailed testing plan, outlining the performance and results of the test items, and highlighting related aspects essential to ensure the software's quality and effectiveness.

Chat Bot	Version: <1.0>
Test Plan	Date: 19/12/2024

## 2. Target Test Items

Feature	Area to Test
2.1 Authentication and Authorization	
Register an account	<ul style="list-style-type: none"><li>· Data Validation: Ensure input fields (email, password) are validated for correct formats.</li><li>· User Experience: Check for clear error messages and intuitive prompts for missing or incorrect information.</li><li>· Scalability: Evaluate system behavior under multiple simultaneous account registrations.</li></ul>
Login with Google account	<ul style="list-style-type: none"><li>· API Integration: Check for seamless and reliable interaction with Google's OAuth 2.0 API.</li><li>· Data Security: Ensure no sensitive data leaks during token exchange.</li><li>· Error Handling: Validate system behavior for failed third-party authentication scenarios.</li></ul>
Recover Password	<ul style="list-style-type: none"><li>· Email Delivery: Ensure password recovery emails are sent promptly and reach the user's inbox.</li><li>· Token Expiry: Validate the expiration of reset links after a specific duration.</li></ul>

Chat Bot	Version: <1.0>
Test Plan	Date: 19/12/2024

	<ul style="list-style-type: none"><li>· Security: Confirm that only valid users can trigger and use password recovery.</li></ul>
Log out	<ul style="list-style-type: none"><li>· Session Termination: Validate that user sessions are invalidated immediately after logout.</li><li>· User Notifications: Provide clear feedback confirming successful logout.</li><li>· Concurrent Sessions: Test the behavior when logging out from multiple devices.</li></ul>
2.2 Chat with AI Agents	
Chat with AI Agents	<ul style="list-style-type: none"><li>· Response Accuracy: Validate the correctness and relevance of AI responses to various inputs.</li><li>· Latency: Measure the time taken for the AI to generate and deliver responses.</li><li>· Error Recovery: Test how the system handles invalid or ambiguous user inputs.</li></ul>
Create New Thread Chat	<ul style="list-style-type: none"><li>· Data Isolation: Ensure threads maintain separate histories and do not overlap.</li><li>· User Interface: Validate ease of starting and naming new threads.</li><li>· Concurrency: Test multiple users creating threads simultaneously.</li></ul>

Chat Bot	Version: <1.0>
Test Plan	Date: 19/12/2024

History Browsing	<ul style="list-style-type: none"><li>· Search Functionality: Verify efficient and accurate retrieval of past conversations.</li><li>· Load Performance: Ensure quick loading of long chat histories.</li><li>· Privacy: Confirm secure access to user-specific histories.</li></ul>
2.3 Create and Manage AI BOT	
Create AI BOT	<ul style="list-style-type: none"><li>· Template Flexibility: Validate the variety and customization of bot creation templates.</li><li>· Error Handling: Ensure descriptive error messages for invalid inputs.</li><li>· Automation: Test integration with pre-built bot models for quicker deployment.</li></ul>
Display/Find AI BOT	<ul style="list-style-type: none"><li>· Search Efficiency: Validate accurate and fast searching by name or keywords.</li><li>· Sorting and Filtering: Ensure proper sorting and filtering capabilities based on bot metadata.</li></ul>
Update/Delete AI BOT	<ul style="list-style-type: none"><li>· Access Control: Verify that only authorized users can update or delete bots.</li><li>· Audit Trails: Ensure logs are maintained for all updates and deletions.</li></ul>



Chat Bot	Version: <1.0>
Test Plan	Date: 19/12/2024

Update prompt for AI BOT	<ul style="list-style-type: none"> <li>· Prompt Accuracy: Ensure that updated prompts reflect changes during interactions.</li> <li>· Live Updates: Validate prompt updates in real-time without requiring bot re-deployment.</li> </ul>
Communicate with created AI BOT through Chat widget	<ul style="list-style-type: none"> <li>· Widget Usability: Ensure that the chat widget is intuitive and responsive.</li> <li>· Compatibility: Verify that the widget works on various platforms and browsers.</li> </ul>
Add/Remove Knowledge Data	<ul style="list-style-type: none"> <li>· Data Integrity: Validate correct addition and deletion of knowledge entries.</li> <li>· Impact Testing: Assess how adding or removing knowledge affects AI performance.</li> </ul>
Preview and Chat with AI BOT	<ul style="list-style-type: none"> <li>· Accuracy: Test how well the bot responds in the preview compared to deployment.</li> <li>· Simulation Fidelity: Validate that the preview matches actual user experience.</li> </ul>
Publish AI Chat to Slack, Telegram, Messenger	<ul style="list-style-type: none"> <li>· Integration: Validate smooth API communication with the respective platforms.</li> <li>· Channel-Specific Behavior: Test unique behaviors or restrictions for each platform.</li> </ul>
2.4 Knowledge Data Management	

Chat Bot	Version: <1.0>
Test Plan	Date: 19/12/2024

Manage Data	<ul style="list-style-type: none"> <li>· Data Consistency: Verify that all modifications (additions, edits) reflect accurately across the system.</li> <li>· Bulk Operations: Test handling large datasets efficiently during import, export, or updates.</li> <li>· Search and Filtering: Validate the accuracy and speed of search functionality for knowledge data.</li> </ul>
Disable/Delete Data	<ul style="list-style-type: none"> <li>· Data Persistence: Confirm that disabled data is retained but inaccessible, while deleted data is permanently removed.</li> <li>· Error Handling: Test system responses to attempts to access disabled or deleted data.</li> <li>· Access Control: Ensure only authorized users can disable or delete data.</li> </ul>
2.5 Prompt Management	
Display and Find Public Prompt	<ul style="list-style-type: none"> <li>· Search Efficiency: Test the speed and accuracy of searching public prompts.</li> <li>· Pagination: Validate that large numbers of prompts load efficiently with proper pagination.</li> </ul>
Filter Prompts by Category	<ul style="list-style-type: none"> <li>· Filter Accuracy: Verify that category filters return correct results.</li> <li>· User Experience: Ensure filters are intuitive and easily accessible.</li> </ul>

Chat Bot	Version: <1.0>
Test Plan	Date: 19/12/2024

Insert Prompt to Favorite and Watch List of Favorites	<ul style="list-style-type: none"> <li>· Persistence: Confirm that favorite prompts remain saved across sessions.</li> <li>· Notifications: Validate notifications for updates to prompts in the watch list.</li> </ul>
Create a Private Prompt	<ul style="list-style-type: none"> <li>· Customization: Ensure users can fully personalize private prompts.</li> <li>· Access Control: Verify that private prompts are visible only to their creators.</li> </ul>
Show and Find Private Prompt	<ul style="list-style-type: none"> <li>· Search Efficiency: Validate prompt retrieval accuracy for private prompts.</li> <li>· Error Handling: Ensure smooth handling of attempts to access non-existent or unauthorized prompts.</li> </ul>
Update and Delete Private Prompt	<ul style="list-style-type: none"> <li>· Version Control: Confirm the system tracks updates to private prompts.</li> <li>· Data Cleanup: Ensure deleted prompts are removed from all related indexes.</li> </ul>
Use Prompt in Library	<ul style="list-style-type: none"> <li>· Compatibility: Test that library prompts integrate smoothly into various chat sessions.</li> <li>· Ease of Use: Ensure users can easily add and remove prompts from the library.</li> </ul>
Use Quick Prompt in Chat with Slash	<ul style="list-style-type: none"> <li>· Shortcut Execution: Verify that slash commands trigger the correct prompts.</li> <li>· Latency: Ensure quick prompts execute without noticeable delay.</li> </ul>

Chat Bot	Version: <1.0>
Test Plan	Date: 19/12/2024

2.6 Account Management	
Upgrade Account to Pro	<ul style="list-style-type: none"> <li>Payment Processing: Test integration with payment gateways for smooth transactions.</li> <li>Feature Access: Confirm Pro users gain access to additional functionalities immediately.</li> <li>Error Handling: Validate system behavior for failed or incomplete payment attempts.</li> </ul>
Monetization	<ul style="list-style-type: none"> <li>Transaction Logging: Ensure all monetary activities are accurately logged for auditing.</li> <li>Analytics: Validate reporting of revenue and user upgrades.</li> </ul>
2.7 Photo Chatting	
Upload a Picture to Chat, Chat with Screenshot	<ul style="list-style-type: none"> <li>Image Processing: Test system handling of various image formats and sizes.</li> <li>Accuracy: Validate the AI's ability to extract and respond to information from uploaded images.</li> <li>Error Handling: Ensure proper feedback for unsupported formats or oversized files.</li> </ul>
Take a Picture and Chat with the Taken Picture	<ul style="list-style-type: none"> <li>Camera Integration: Verify compatibility with built-in and external cameras.</li> <li>Latency: Test the time taken to process and respond to images in real-time.</li> </ul>

Chat Bot	Version: <1.0>
Test Plan	Date: 19/12/2024

Special Requirements for Photo Chatting	<ul style="list-style-type: none"><li>· Accessibility: Ensure photo chatting features work seamlessly across devices and platforms.</li><li>· Image Security: Confirm that uploaded and processed images are securely stored and transmitted.</li></ul>
2.8 Email with AI Agents	
Email with AI Agents	<ul style="list-style-type: none"><li>· Email Delivery: Validate the AI's ability to generate and send emails accurately.</li><li>· Response Handling: Test the AI's capability to process replies and adjust accordingly.</li><li>· Formatting: Ensure emails maintain proper structure and formatting across different email clients.</li></ul>

Chat Bot	Version: <1.0>
Test Plan	Date: 19/12/2024

### 3. Environmental Needs

#### 3.1 Hardware Requirements

- **Processor:** Intel Core i5 (or AMD Ryzen 5 equivalent)
- **RAM:** 8GB (sufficient for standard tasks)
- **Storage:** SSD with at least 128GB of free space
- **Graphics Card:** Nvidia GTX 1650 or equivalent (only required for testing graphical performance, if necessary)

#### 3.2 Software in the Test Environment

The following base software elements are required in the test environment for this *Test Plan*.

Software Name	Purpose	Version	Type and Other Notes
Google Chrome	Internet Browser	Latest	For web application testing
Windows 10, 64 bit	Operating System	21H2	Primary test environment
Ubuntu Linux	Operating System	22.04	Server environment
Postman	API Testing Tool	Latest	For functional API testing
Docker	Containerization Platform	Latest	For testing microservices
Mac OS X 13	Operating System	Ventura	For Mac-specific testing
Slack	Communication Tool	Latest	For team collaboration
MySQL Workbench	Database Management Tool	Latest	For database query testing

#### 3.3 Productivity and Support Tools

Tool Category or Type	Tool Brand Name	Vendor or In-house	Version
Defect Tracking	Jira	Atlassian	Latest
Test Automation	Selenium	Open Source	4.1.0
API Testing	Postman	Postman, Inc.	Latest
Performance Testing	JMeter	Apache	5.5
Code Quality Analysis	SonarQube	SonarSource	Latest

Chat Bot	Version: <1.0>
Test Plan	Date: 19/12/2024

Version Control	GitHub	GitHub	Latest
Collaboration and Planning	Microsoft Teams	Microsoft	Latest
Knowledge Management	Confluence	Atlassian	Latest

## 4. Responsibilities, Staffing, and Training Needs

### 4.1 People and Roles ///

Human Resources		
Role	Minimum Resources Recommended (number of full-time roles allocated)	Specific Responsibilities or Comments
Test Manager	1 full-time	Provides management oversight. Responsibilities include: <ul style="list-style-type: none"> <li>• planning and logistics</li> <li>• Agreeing on test objectives and strategy</li> <li>• Identifying and managing risks</li> <li>• Allocating resources effectively</li> <li>• Reporting on testing progress and metrics</li> </ul>
Tester	2 full-time	Implements and executes the tests. Responsibilities include: <ul style="list-style-type: none"> <li>• Writing and executing test cases</li> <li>• Running manual and automated tests</li> <li>• Logging and analyzing results</li> <li>• Reporting and tracking defects</li> <li>• Ensuring functionality meets requirements</li> </ul>

Chat Bot	Version: <1.0>
Test Plan	Date: 19/12/2024

Human Resources		
Role	Minimum Resources Recommended (number of full-time roles allocated)	Specific Responsibilities or Comments
Test System Administrator	1 full-time	Ensures the test environment and assets are managed and maintained. Responsibilities include: <ul style="list-style-type: none"><li>• Setting up and configuring test environments</li><li>• Managing access to testing tools and resources</li><li>• Monitoring system performance during tests</li><li>• Troubleshooting technical issues</li></ul>
Automation Engineer	1 full-time	Develops and maintains automation frameworks. Responsibilities include: <ul style="list-style-type: none"><li>• Writing test scripts for automated testing</li><li>• Optimizing automation processes</li><li>• Ensuring coverage of all critical functionality</li></ul>
Business Analyst	1 part-time	Aligns test objectives with business needs. Responsibilities include: <ul style="list-style-type: none"><li>• Defining acceptance criteria</li><li>• Bridging the gap between testers and stakeholders</li><li>• Validating chatbot use cases and scenarios</li></ul>