

Project Name:	Python Translator App - CS50 Final	Version: 1
Written By:	Victoria Lee; VictoriaRaven(GitHub name)	Description: Test Case Documentaion
Tester:	Victoria Lee; VictoriaRaven(GitHub name)	Written On: 11/26/2025
Tested In:	Mac/Windows/Ubuntu(Linux)	Tested On: 11/26/2025 - 11/30/2025

Note: Each sheet within the Excel document contains the manual test cases for a specific component of the Python Translator App. The component under test is clearly labeled above its corresponding sheet. Use the sheet navigation tabs or page buttons to switch between components for easy access to their respective testing documentation. Under Test Case, MT represents a manual test, while all automated Test conducted in tests folder. The tests using pytest in the test folder, require no input from the tester besides running the .py test files in that folder, and observing results for any failure.

Rerun Tests on: 11/2025 to 12/2025

Test Name(all auto tests github actions)	Test File (Github)	Description	Status	
test_selection_sort_basic	test_algorithms.py	Selection sort sorts unsorted list	passed	
test_selection_sort_empty	test_algorithms.py	Selection sort handles empty list	passed	
test_selection_sort_duplicates	test_algorithms.py	Selection sort handles duplicates	passed	
test_binary_search_found	test_algorithms.py	Binary search returns index when found	passed	
test_binary_search_not_found	test_algorithms.py	Binary search returns -1 when not found	passed	
test_init_db_creates_tables	test_database.py	Database initializes dictionary + history tables	passed	
test_insert_dictionary_row	test_database.py	Insert row stores lowercase + correct fields	passed	
test_update_dictionary_row	test_database.py	Update row replaces existing values	passed	
test_delete_dictionary_row	test_database.py	Delete row removes entry	passed	
test_query_dictionary	test_database.py	Query returns correct filtered results	passed	
test_save_history_and_query_history	test_database.py	Save and query history returns expected row	passed	
test_send_email_outlook_success	test_email.py	Email sending returns True when Outlook available	passed	
test_send_email_fallback_mailto	test_email.py	Fallback mailto returns False and opens browser	passed	
test_export_history_json	test_export_json.py	JSON export writes correct structure	passed	
test_export_history_pdf_file_and_return	test_export_pdf.py	PDF exporter writes file and returns ok=True	passed	
test_online_translation_success	test_gui.py	GUI uses online translation when enabled	passed	
test_full_database_flow	test_integration.py	Database + SQL translation integrated flow	passed	
test_autocorrect_returns_string	test_spelling.py	auto_correct returns a string	passed	
test_autocorrect_empty_string	test_spelling.py	auto_correct handles empty string	passed	
test_autocorrect_no_crash	test_spelling.py	auto_correct never crashes on typos	passed	
test_languagetool_correction_english	test_spelling.py	LanguageTool corrects English (if available)	passed	
test_languagetool_no_change_for_correct_word	test_spelling.py	LanguageTool leaves correct words unchanged	passed	
test_ukrainian_detection	test_spelling.py	Detects Ukrainian characters	passed	
test_symspell_ukrainian_correction	test_spelling.py	SymSpell corrects Ukrainian word	passed	
test_symspell_not_used_for_english	test_spelling.py	SymSpell bypassed for English words	passed	
test_dictionary_search_uses_corrected_word	test_spelling.py	Dictionary search uses corrected word before querying	passed	
test_lang_options_structure	test_system.py	LANG_OPTIONS formatted correctly	passed	
test_txt_files_exist_or_are_valid_paths	test_system.py	TXT_FILES contain valid data paths	passed	
test_deep_translator_flag	test_system.py	DEEP_TRANSLATOR_AVAILABLE is boolean	passed	
test_db_name_is_inside_data_folder	test_system.py	DB_NAME located inside data/ folder	passed	
test_system_translate_and_save	test_system.py	System translation triggers SQL + save_history	passed	
test_online_translation_toggle	test_system.py	User can toggle online translation	on/off	passed
test_online_translation_call	test_system.py	Online translation function is called when enabled	passed	
test_sql_translate_found	test_translation.py	sql_translate finds word in database	passed	
test_sql_translate_not_found	test_translation.py	sql_translate returns (None, False) if missing	passed	
test_online_translate_success	test_translation.py	online_translate returns translation	passed	
test_online_translate_failure	test_translation.py	online_translate returns None on error	passed	
test_validate_input_word_valid	test_validation.py	validate_input_word accepts valid words	passed	
test_validate_input_word_accented	test_validation.py	Accented valid words accepted	passed	
test_validate_input_word_empty	test_validation.py	Empty input rejected	passed	
test_validate_input_word_too_long	test_validation.py	Too-long word rejected	passed	
test_validate_input_word_invalid_chars	test_validation.py	Words with invalid characters rejected	passed	
test_validate_input_word_emoji	test_validation.py	Emoji-containing words rejected	passed	

Component:main.py

Tester: Victoria Lee; VictoriaRaven(GitHub name)

Test Case #	Date	Test Description	Input / Action	Expected Result	Pass/Fail
MT #1	11/28/2025	Verify main.py launches without runtime errors	Run python main.py	Program starts normally; no errors printed	Pass
MT #2	11/28/2025	Validate GUI window loads successfully	Observe startup	Main application window appears with full UI	Pass
MT #3	11/28/2025	Confirm window title loads correctly	Launch program	Title shows "Translator Application" (or correct name)	Pass
MT #4	11/28/2025	Confirm required files/modules are imported	Run program	No ImportError or missing dependency errors	Pass
MT #5	11/28/2025	Ensure clicking in main window does not crash program	Click empty window areas	App stays stable; no exceptions	Pass
MT #6	11/28/2025	Check responsiveness upon launch	Try interacting immediately after launch	UI responds without freezing	Pass
MT #7	11/28/2025	Ensure the root Tkinter window is correctly configured	Inspect window	Window size, placement, and theme load correctly	Pass
MT #8	11/28/2025	Confirm GUI event loop starts properly	Observe top bar	Window stays responsive (minimize/maximize works)	Pass
MT #9	11/28/2025	Test quitting program via GUI close button	Click window "X"	Program closes cleanly without errors	Pass
MT #10	11/28/2025	Validate main.py handles multiple launches in a row	Open → Close → Open → Close	No memory leak, crashes, or residual processes	Pass

Component:gui.py

Tester: Victoria Lee; VictoriaRaven(GitHub name)

Test Case #	Date	Test Description	Input / Action	Expected Result	Pass/Fail
MT #1	11/28/2025	Verify GUI loads all widgets (buttons, labels, search bar)	Launch program	All GUI elements appear correctly	Pass
MT #2	11/28/2025	Test search bar accepts input	Type into search bar	Text appears with no delay or error	Pass
MT #3	11/28/2025	Verify clicking search button performs search	Enter word → click Search	Results list updates	Pass
MT #4	11/28/2025	Confirm required dictionary is imported when user goes to settings tab and inserts .txt if not there	Open Admin panel → Settings → Import .txt files for .db	Dicitonary .txt data loads sucessfully .db created, dictionary list appears	Pass
MT #5	11/28/2025	Ensure scrollable results list responds	Use scroll wheel or scrollbar	List scrolls smoothly	Pass
MT #6	11/28/2025	Verify clicking a result shows translation panel update	Click a result row	Translation appears in output area	Pass
MT #7	11/28/2025	Validate clear/reset button clears the UI	At main Press "Clear" button after close admin panel with "X"	Input + results reset to blank	Pass
MT #8	11/28/2025	Ensure GUI gracefully handles empty search	Click SQL Search / Algo Search with blank input	Error message or "no input" warning displays	Pass
MT #9	11/28/2025	Test resize behavior	Resize window	GUI adapts without visual distortion	Pass
MT #10	11/28/2025	Validate exporting buttons appear and work from GUI	Click "Export PDF/JSON/XLSX"	Export dialog opens or file is saved	Pass
MT #11	11/28/2025	Confirm status bar messages update correctly	Perform actions like searching	Status bar displays proper feedback	Pass
MT #12	11/28/2025	Check error dialogs display on invalid actions	Enter invalid characters → SQL Search / Algo Search	Proper error popup appears	Pass
MT #13	11/28/2025	Validate spell-check / grammar populate	Type misspelled word	Suggestions appear in suggestion panel	Pass
MT #14	11/28/2025	Ensure "Dictionary" "History" and "Settings" button or view works	Click Dictionary, History, and Settings options.	Past translations display correctly	Pass
MT #15	11/28/2025	Confirm GUI closes cleanly via menu/exit button	Click exit from GUI	Application window closes without errors	Pass
Test Version 2:					
Case #	Date	Test Case Description	Input/Action	Expected Result	Pass/Fail?
MT #1	11/28/2025	Verify GUI loads and displays main translation interface	Run the program	GUI launches successfully with all widgets visible	Pass
MT #2	11/28/2025	Search for a word using input field	Type a word and press SQL Search / Algo Search	Search results correctly appear in list	Pass
MT #3	11/28/2025	Test pagination for large result sets	Search a multi-match word; click Next/Prev buttons	Pages change correctly; no errors	Pass
MT #4	11/28/2025	Validate language dropdown selection	Choose French, Russian, etc.	Language updates; searches use selected language	Pass
MT #5	11/28/2025	Test empty search behavior	Click Search with no text	Error message shown; no crash	Pass
MT #6	11/28/2025	Test extremely long input	Paste 1000+ characters	Input sanitizes safely; UI remains responsive	Pass
MT #7	11/28/2025	Click on a displayed search result	Click an item in results	Result opens details or fills text box	Pass
MT #8	11/28/2025	Verify button and result hover behavior	Hover mouse over buttons or list items	Elements highlight visually	Pass
MT #9	11/28/2025	Test Clear Search functionality	Click Clear button	Input and results reset completely	Pass
MT #10	11/28/2025	Simulate missing database file	Rename or remove dicitionary/history data	UI shows error; application stays running	Pass
MT #11	11/28/2025	Test UI resizing	Resize window	Layout adjusts with no overlapping elements	Pass
MT #12	11/28/2025	Ensure GUI responsiveness during heavy search	SQL Search / Algo Search a word pops up most matches 20+	UI stays responsive or shows loading state	Pass

Component:algorithms.py

Tester: Victoria Lee; VictoriaRaven(GitHub name)

Test Case #	Date	Test Case Description	Input/Action	Expected Result	Pass/Fail?
MT #1	11/28/2025	Verify admin panel launches correctly	Start the program and open Admin Panel	Admin interface opens with all fields and buttons visible	Pass
MT #2	11/28/2025	Add a new dictionary entry	Enter word + translation, click “Add Entry”	Entry appears in list and is stored in database	Pass
MT #3	11/28/2025	Edit an existing dictionary entry	Select entry, modify text, click “Update Entry”	Updated word/translation is saved and UI refreshes	Pass
MT #4	11/28/2025	Delete an existing entry	Select entry, click “Delete Entry”	Entry is removed from list and database	Pass
MT #5	11/28/2025	Verify search filtering in admin panel	Type substring in search bar	List shows only matching entries	Pass
MT #6	11/28/2025	Attempt to add empty entry fields	Click “Add Entry” with blank fields	Error message displayed; nothing added	Pass
MT #7	11/28/2025	Try editing with no selection	Click “Update Entry” without selecting an item	Error message shown; no changes made	Pass
MT #8	11/28/2025	Verify database reload button	Click “Reload Data”	List refreshes and matches database	Pass
MT #9	11/28/2025	Test scrolling through large entry list	Add 50+ entries then scroll	List scrolls smoothly; no freezing or lag	Pass
MT #10	11/28/2025	Ensure closing admin panel returns to main GUI	Click the (X) button or “Back to Main”	Main GUI screen reappears correctly	Pass

Component:algorithms.py

Tester: Victoria Lee; VictoriaRaven(GitHub name)

Test Case #	Date	Test Case Description	Input/Action	Expected Result	Pass/Fail?
MT #1	11/28/2025	Test binary search on sorted word list	Input sorted list + search term	Function returns correct index or -1	Pass
MT #2	11/28/2025	Test binary search with missing item	Input list + missing term	Returns -1	Pass
MT #3	11/28/2025	Validate sorting algorithm with mixed characters	Input list containing accented characters	List returns properly sorted	Pass
MT #4	11/28/2025	Test algorithm performance on large dataset	Process 900+ words	Returns results within acceptable speed	Pass
MT #5	11/28/2025	Check correct filtering of dictionary entries	Run filter algorithm	Only matching entries returned	Pass
MT #6	11/28/2025	Test case-insensitive search	Input mixed-case terms	Correct match found regardless of case	Pass
MT #7	11/28/2025	Verify empty search edge-case	Input empty string	Returns empty results, no error	Pass

Component TicTacToe.py

Tester: Victoria Lee; VictoriaRaven(GitHub name)

Test Case #	Date	Test Case Description	Input/Action	Expected Result	Pass/Fail?
MT #1	11/28/2025	Test connection to database	Run initialization	DB connects without error	Pass
MT #2	11/28/2025	Test inserting new translation	Insert new entry	Entry stored in DB	Pass
MT #3	11/28/2025	Retrieve translation history	Query history page	Correct rows returned	Pass
MT #4	11/28/2025	Test update functionality	Update an existing entry	Updated data appears in DB	Pass
MT #5	11/28/2025	Test deletion of entry	Delete entry	Entry removed from DB	Pass
MT #6	11/28/2025	Handle invalid query safely	Input malformed SQL	Query fails gracefully with error message	Pass
MT #7	11/28/2025	Test search filtering	Run search query	Correct subset returned	Pass

ComponTrivia.py

Tester: Victoria Lee; VictoriaRaven(GitHub name)

Test Case #	Date	Test Case Description	Input/Action	Expected Result	Pass/Fail?
MT #1	11/28/2025	Test sending test email	Send sample email	Email received successfully	Pass
MT #2	11/28/2025	Validate SMTP login with wrong credentials	Input wrong password	Error returned, no crash	Pass
MT #3	11/28/2025	Test attachment sending	Send email with user to add a PDF	email opned correctly and user can add Attachment	Pass
MT #4	11/28/2025	Verify unicode subject line	Send email with emoji in subject	Email delivered with correct title	Pass
MT #5	11/28/2025	Check large message body	Send long text email	Email still sends successfully	Pass
MT #6	11/28/2025	Test graceful handling of no internet	Disable network	Function returns connection error cleanly	Pass

Component exports.py

Tester: Victoria Lee; VictoriaRaven(GitHub name)

Test Case #	Date	Test Case Description	Input/Action	Expected Result	Pass/Fail?
MT #1	11/28/2025	Export translation history to PDF	Click Export PDF	PDF generated successfully	Pass
MT #2	11/28/2025	Export to JSON	Click Export JSON	Valid JSON file produced	Pass
MT #3	11/28/2025	Export to XLSX	Click Export XLSX	Valid XLSX file produced only in UTF-8	Pass
MT #4	11/28/2025	Test handling of missing font file	Remove font temporarily	Graceful error or fallback font used	Pass
MT #5	11/28/2025	Test unicode characters in PDF	Export text with accents - .ttf file	PDF displays characters correctly with .ttf file	Pass
MT #6	11/28/2025	Test export when DB is empty	Export with no history	Empty but valid file generated	Pass

Component:settings.py

Tester: Victoria Lee; VictoriaRaven(GitHub name)

Test Case #	Date	Test Case Description	Input/Action	Expected Result	Pass/Fail?
MT #1	11/28/2025	Verify deep_translator availability detection	Disable internet or uninstall deep_translator	DEEP_TRANSLATOR_AVAILABLE = False without crashing	Pass
MT #2	11/28/2025	Check LANG_OPTIONS list contains all supported languages	Print or load LANG_OPTIONS	List includes French, Russian, Ukrainian, Spanish, etc. in correct order	Pass
MT #3	11/28/2025	Validate TXT_FILES mapping for correct file paths	Access TXT_FILES["ru"], TXT_FILES["fr"], etc.	Paths map to correct dictionary files in /data	Pass
MT #4	11/28/2025	Test DB_NAME resolves to correct absolute path	Print DB_NAME	Points to /translator_app/data/translations.db or correct folder	Pass
MT #5	11/28/2025	Verify PAGE_SIZE used in pagination	Load settings.PAGE_SIZE	Returns 20 as default value	Pass
MT #6	11/28/2025	Check existence of dictionary files	Check each file in TXT_FILES	All mapped files exist in /data folder	Pass
MT #7	11/28/2025	Test fallback when a dictionary file is missing	Delete or rename one TXT_FILES entry	Component using settings handles missing file gracefully	Pass
MT #8	11/28/2025	Validate BASE_DIR resolves correctly	Print BASE_DIR	Path matches directory of settings.py	Pass
MT #9	11/28/2025	Test system behavior if LANG_OPTIONS is extended	Add a new language entry	Application loads new language without errors	Pass
MT #10	11/28/2025	Verify English dictionary is included	Check "en" in TXT_FILES	Key "en" exists and file path is valid	Pass

Component:spelling.py

Tester: Victoria Lee; VictoriaRaven(GitHub name)

Test Case #	Date	Test Case Description	Input/Action	Expected Result	Pass/Fail?
MT #1	11/28/2025	Test spell checker detects simple misspellings	Input “hel0”	Suggestions include “hello”	Pass
MT #2	11/28/2025	Validate auto-detection of input language	Input Russian or Spanish text	Correct language detected	Pass
MT #3	11/28/2025	Test cache reduces repeated processing	Correct same word twice	Second call is faster	Pass
MT #4	11/28/2025	Check handling of special characters	Input with punctuation	Spell check ignores supported punctuation safely	Pass
MT #5	11/28/2025	Verify no crash on numeric-only input	Input “12345”	Returns unchanged or empty suggestions	Pass
MT #6	11/28/2025	Test long input paragraph	Paste long text	Spell checker completes without freezing	Pass

Component:translation.py

Tester: Victoria Lee; VictoriaRaven(GitHub name)

Test Case #	Date	Test Case Description	Input/Action	Expected Result	Pass/Fail?
MT #1	11/28/2025	Test online translation for English→Spanish	Input simple phrase	Correct Spanish translation returned	Pass
MT #2	11/28/2025	Test local dictionary fallback	Disable internet	Local translation used without crashing	Pass
MT #3	11/28/2025	Check setting source and target languages	Select different languages	Function uses chosen languages correctly	Pass
MT #4	11/28/2025	Verify translation of unicode text	Input emoji or accents	Valid translated output returned	Pass
MT #5	11/28/2025	Test error handling for API failure	Force network failure	User-friendly error returned	Pass
MT #6	11/28/2025	Check long text translation	Input large paragraph	Returns complete translation	Pass

Component TicTacToe.py

Tester: Victoria Lee; VictoriaRaven(GitHub name)

Test Case #	Date	Test Case Description	Input/Action	Expected Result	Pass/Fail?
MT #1	11/28/2025	Test validation of empty input	Input ""	Error or invalid status returned	Pass
MT #2	11/28/2025	Validate accepted character ranges	Input multilingual text	Correctly validated as safe	Pass
MT #3	11/28/2025	Test rejection of unsupported characters	Input control chars	Error raised or returned	Pass
MT #4	11/28/2025	Test numeric-only content	Input "98765"	Returns valid or ignored depending on rules	Pass
MT #5	11/28/2025	Check long input length enforcement	Input 20+ characters	Proper validation response returned	Pass