**Implementation (with Code Explanations):**  
Below is the main code used in the application with key sections explained.

import tkinter as tk

from tkinter import ttk, messagebox

from googletrans import Translator, LANGUAGES

translator = Translator()

# Function to perform translation

def translate\_text():

try:

src\_text = input\_text.get("1.0", tk.END).strip()

if not src\_text:

messagebox.showwarning("Input Required", "Please enter text to translate.")

return

src\_lang = lang\_from.get()

dest\_lang = lang\_to.get()

src\_lang\_code = [code for code, lang in LANGUAGES.items() if lang == src\_lang.lower()]

dest\_lang\_code = [code for code, lang in LANGUAGES.items() if lang == dest\_lang.lower()]

if not src\_lang\_code or not dest\_lang\_code:

messagebox.showerror("Language Error", "Invalid source or target language.")

return

result = translator.translate(src\_text, src=src\_lang\_code[0], dest=dest\_lang\_code[0])

output\_text.delete("1.0", tk.END)

output\_text.insert(tk.END, result.text)

except Exception as e:

messagebox.showerror("Translation Error", f"An error occurred:\n{e}")



**Explanation:**

When the application is launched, a window opens where the user can input text that they want to translate. Just below the text input area, there are two drop-down menus. The first one allows the user to select the source language (the language of the text entered), and the second one is for selecting the target language (the language into which the text should be translated). By default, English is set as the source language, and Spanish is set as the target, but the user can choose from many other languages supported by Google Translate.

After entering the text and selecting the languages, the user simply needs to click the "Translate" button. Behind the scenes, the application captures the entered text and the selected languages, and then sends this information to Google's translation engine using the googletrans library. Google processes this information using its powerful neural network-based translation system and returns the translated version of the text.

The translated text is then displayed in a separate text box below the Translate button. If the user forgets to enter text or selects an invalid language, the application displays a warning or error message, making it user-friendly and interactive. The app also handles any errors that might occur during the translation process—such as internet issues or internal failures—by showing a proper error message instead of crashing.