# AI Multilanguage Translator

## Project Report

**Submitted by:** Nikhil Kumar Singh

**Under the guidance of:** Gaurav Singh

▼ Scroll to explore ▼

# Objective

To build an AI-powered multilingual desktop translator that:

- Instantly translates across 12+ languages
- Preserves personal names using a custom name-masking algorithm
- Offers a modern, theme-aware graphical interface
- Saves user preferences (theme, last used languages, etc.) for a seamless experience

# Technologies Used

### Python 3.8+

Core programming language

### Tkinter / TK

GUI framework from Python Standard Library

### deep-translator

Google Translate API wrapper

### JSON

Theme persistence and config management

# Key Features

- Multilingual support (12+ languages)
- Auto-detection of source language
- Name-masking algorithm for privacy
- Light/Dark theme toggle (auto-saved)
- Swap button to flip source ⇔ target
- UI state saved via .theme config file

12+ Languages

Theme Support

Smart Algorithm

# Name-Masking Algorithm

## Steps:

1. Tokenize the input sentence
2. Mask capitalized words (likely names) with unique tokens
3. Translate the masked sentence using GoogleTranslator
4. Unmask the tokens back to original names

**Time Complexity:** O(n) (linear, based on number of words)

# UI Design Highlights

- **Font:** Segoe UI (clean & modern)
- **Window Size:** 900x600 px (minimum 850x500)
- **Themes:**

  🟦 ⬜ Light Mode

  🟦 ⬛ Dark Mode
- **Buttons:** Indigo #3151b5, bold with hover effect
- **Items:** Emoji-based controls (✓, 🟧) for intuitive UX

# Translation Workflow

[UserInput]

▼

[Name-Masking Algorithm]

▼

[Auto Language Detection + Google Translate API]

▼

[Unmask Names]

▼

[Output Display]

# How to Run

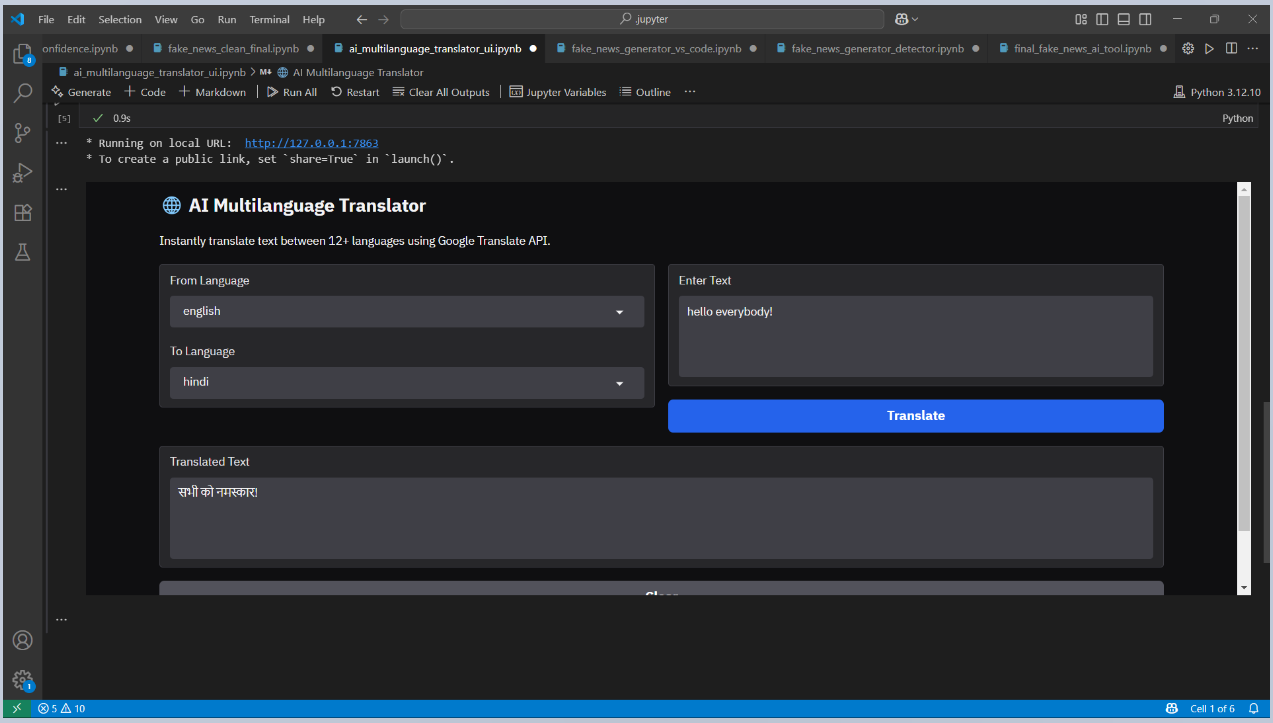
1. Ensure Python 3.8+ is installed
2. Install the required package:

   ```
   pip install deep-translator
   ```

3. Run the Translator GUI:

   ```
   python translator_gui.py
   ```

# Final Output


File Edit Selection View Go Run Terminal Help
jupyter
onfidence.ipynb
fake_news_clean_final.ipynb
ai_multilanguage_translator_ui.ipynb
fake_news_generator_vs_code.ipynb
fake_news_generator_detector.ipynb
final_fake_news_ai_tool.ipynb
ai_multilanguage_translator_ui.ipynb > M↓ 🌐 AI Multilanguage Translator
Generate
+ Code
+ Markdown
Run All
Restart
Clear All Outputs
Jupyter Variables
Outline
Python 3.12.10
[5]
✓ 0.9s
Python
Cell 1 of 6
⊗ 5 ⚠ 10

```
* Running on local URL:  http://127.0.0.1:7863
* To create a public link, set `share=True` in `launch()`.
```

### 🌐 AI Multilanguage Translator

Instantly translate text between 12+ languages using Google Translate API.

From Language: english

To Language: hindi

Enter Text: hello everybody!

Translated Text: सभी को नमस्कार!

# Future Enhancements

## Copy-to-Clipboard Functionality

Add a dedicated button to copy translated text to clipboard for easy sharing and reuse.

## Text-to-Speech Integration

Implement audio output capability to hear pronunciation of translated text.

## OCR Translation

Add optical character recognition to translate text from images and scanned documents.

## Standalone Executable

Package the application as a single executable file using PyInstaller for easier distribution.