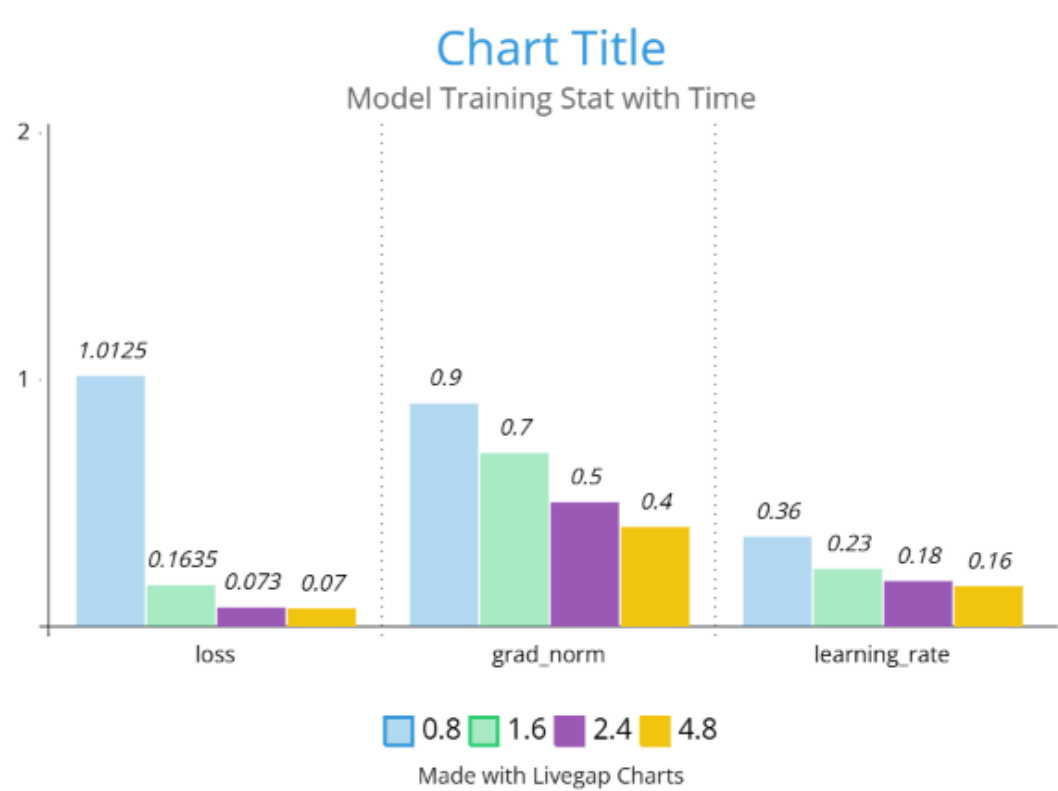


# Introduction

This document outlines the architecture, components, and workflow for a project designed to translate Hindi idioms into English using a fine-tuned MarianMT model. The system integrates with a Django-based web application for end-user interaction.

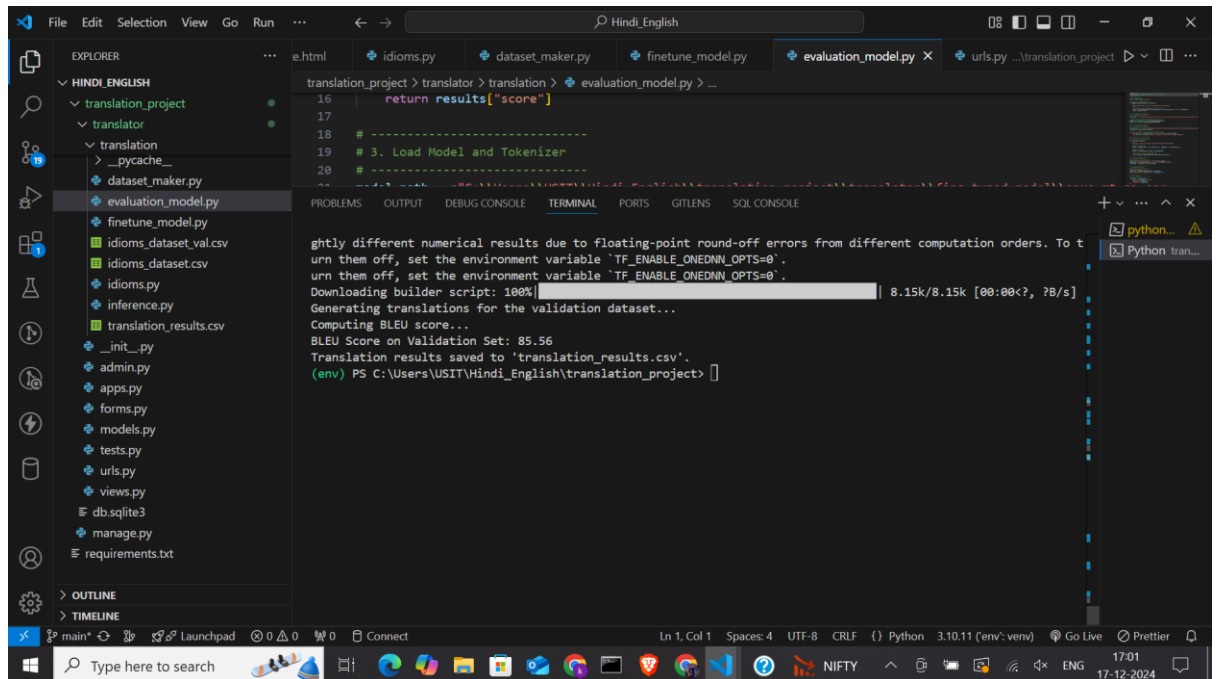
## Model Overview

- 1. Model Performance:



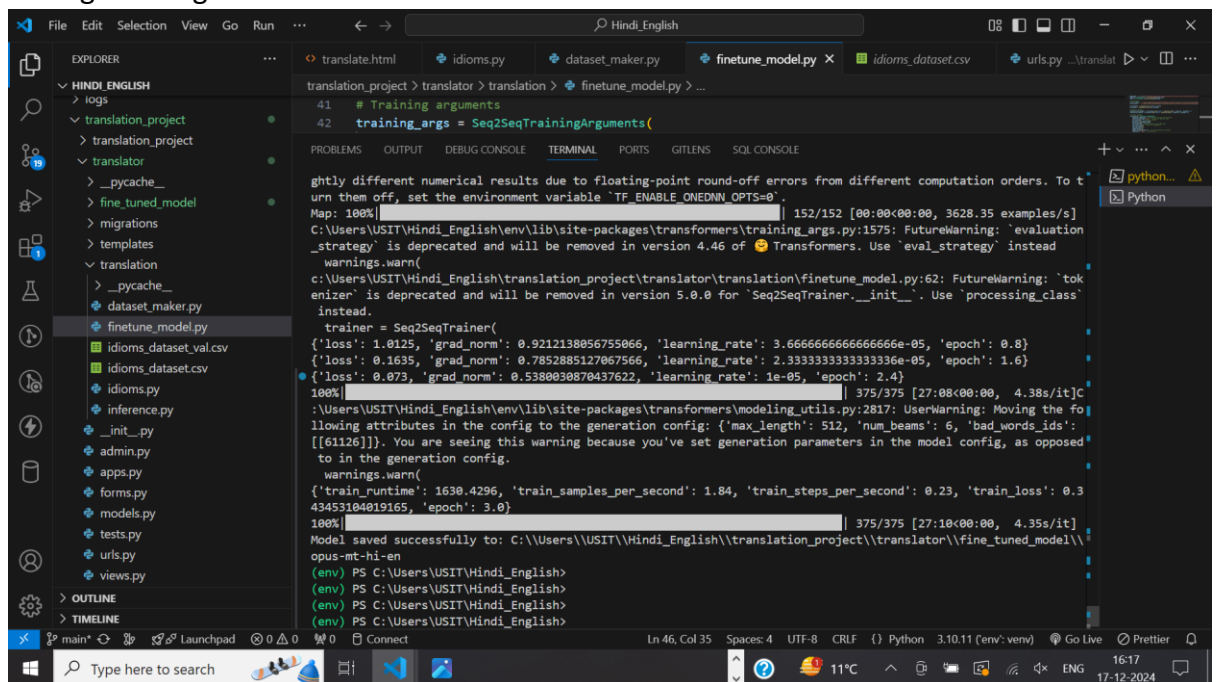
0.8, 1.6, 2.4 4.8 are the epochs

## 2. BLEU SCORE: 85.56



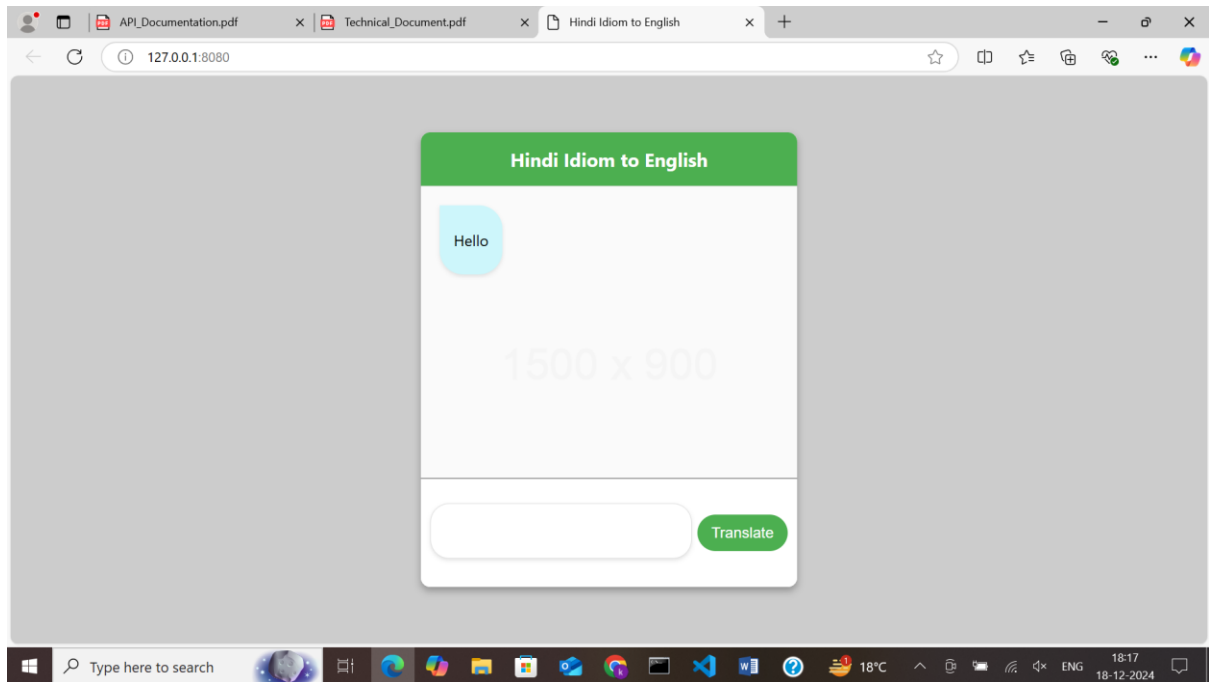
```
translation_project > translator > translation > evaluation_model.py > ...
16 | return results["score"]
17 |
18 | # -----
19 | # 3. Load Model and Tokenizer
20 | # -----
...
ghtly different numerical results due to floating-point round-off errors from different computation orders. To t
urn them off, set the environment variable 'TF_ENABLE_ONEDNN_OPTS=0'.
urn them off, set the environment variable 'TF_ENABLE_ONEDNN_OPTS=0'.
Downloading builder script: 100%|██████████| 8.15k/8.15k [00:00<?, ?B/s]
Generating translations for the validation dataset...
Computing BLEU score...
BLEU Score on Validation Set: 85.56
Translation results saved to 'translation_results.csv'.
(env) PS C:\Users\USIT\Hindi_English\translation_project> |
```

## 3. During Training:

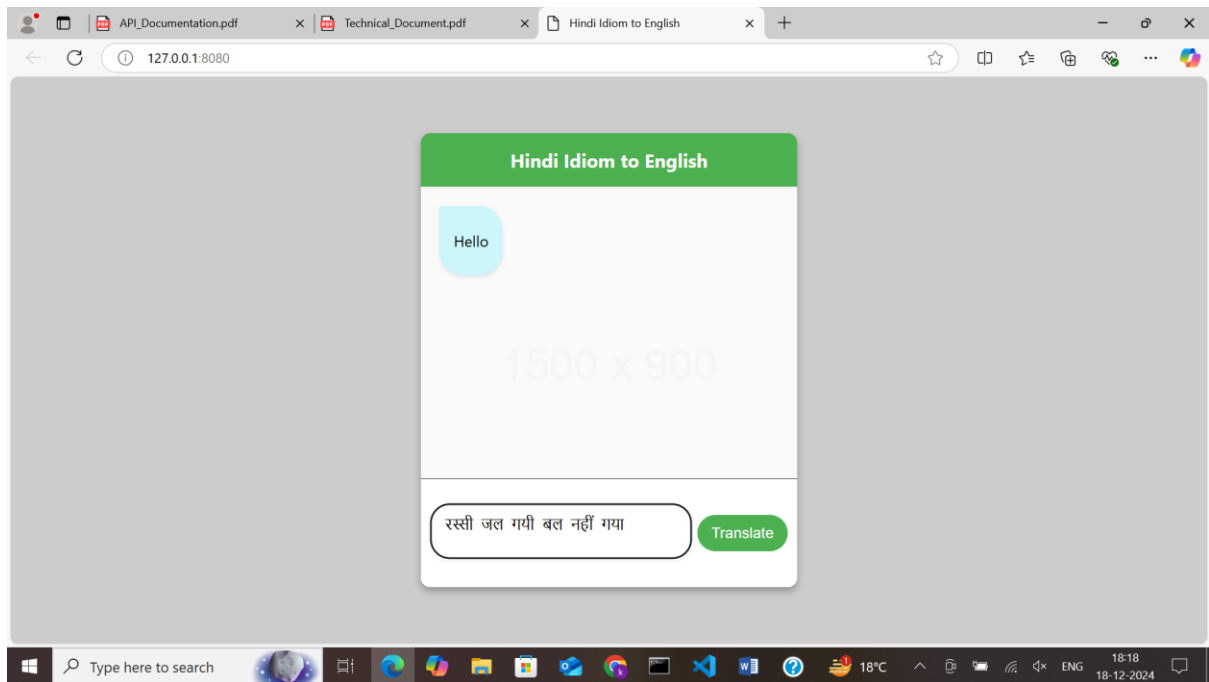


```
translation_project > translator > translation > finetune_model.py > ...
41 | # Training arguments
42 | training_args = Seq2SeqTrainingArguments(
...
ghtly different numerical results due to floating-point round-off errors from different computation orders. To t
urn them off, set the environment variable 'TF_ENABLE_ONEDNN_OPTS=0'.
Map: 100%|██████████| 152/152 [00:00:00, 3628.35 examples/s]
C:\Users\USIT\Hindi_English\env\lib\site-packages\transformers\training_args.py:1575: FutureWarning: 'evaluation
_strategy' is deprecated and will be removed in version 4.46 of 🤗 Transformers. Use 'eval_strategy' instead
warnings.warn(
c:\Users\USIT\Hindi_English\translation_project\translator\translation\finetune_model.py:62: FutureWarning: 'tok
enizer' is deprecated and will be removed in version 5.0.0 for 'Seq2SeqTrainer.__init__'. Use 'processing_class'
instead.
trainer = Seq2SeqTrainer(
{'loss': 1.0125, 'grad_norm': 0.9212138056755066, 'learning_rate': 3.666666666666666e-05, 'epoch': 0.8}
{'loss': 0.1635, 'grad_norm': 0.7852885127067566, 'learning_rate': 2.333333333333333e-05, 'epoch': 1.6}
{'loss': 0.073, 'grad_norm': 0.5380030870437622, 'learning_rate': 1e-05, 'epoch': 2.4}
100%|██████████| 375/375 [27:08:00:00, 4.38s/it]C
:Users\USIT\Hindi_English\env\lib\site-packages\transformers\modeling_utils.py:2817: UserWarning: Moving the fo
llowing attributes in the config to the generation config: {'max_length': 512, 'num_beams': 6, 'bad_words_ids':
[[[61126]]]}. You are seeing this warning because you've set generation parameters in the model config, as opposed
to in the generation config.
warnings.warn(
{'train_runtime': 1630.4296, 'train_samples_per_second': 1.84, 'train_steps_per_second': 0.23, 'train_loss': 0.3
43453104019165, 'epoch': 3.0}
100%|██████████| 375/375 [27:10:00:00, 4.35s/it]
Model saved successfully to: C:\Users\USIT\Hindi_English\translation_project\translator\fine_tuned_model\
opus-mt-hi-en
(env) PS C:\Users\USIT\Hindi_English>
(env) PS C:\Users\USIT\Hindi_English>
(env) PS C:\Users\USIT\Hindi_English>
(env) PS C:\Users\USIT\Hindi_English>
```

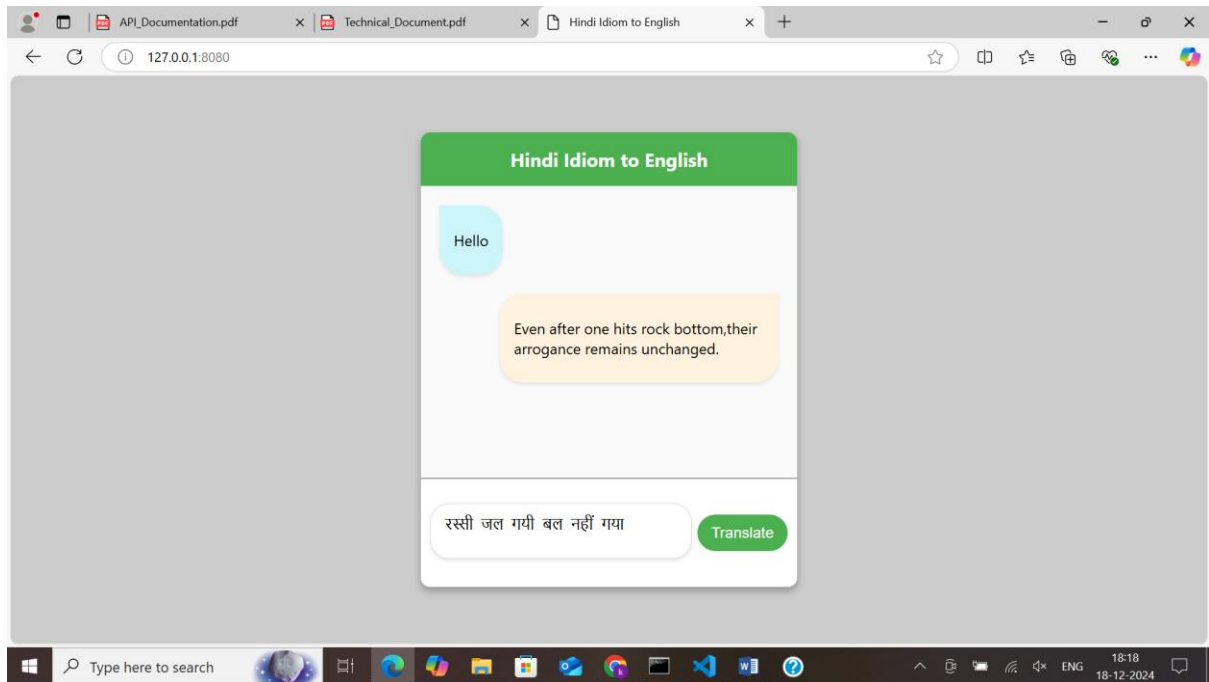
# User Interface (UI) Walkthrough



## Input:



## Output:



## Conclusion/Future Work

This project integrates machine translation capabilities with a web-based interface to provide accurate and user-friendly translations of Hindi idioms into English. The modular design ensures easy maintenance and scalability for future enhancements.