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# PROMPT BASED ESSAY WRITING

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# INTRODUCTION

## Essay editing help

1. Put in rough essay
2. AI puts out an outline
3. Look over/edit outline and give back to AI
4. Get out a new, less-rough essay

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ARTIFICIAL  
INTELLIGENCE  
(AI)

# INTRODUCTION/GOAL

- **Writing support** for those without a human proofreader
- Start with **already written essays**

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ARTIFICIAL  
INTELLIGENCE  
(AI)



# APPROACH

**Our approach:** Compare human-generated essays with model-generated essays(given different contexts), focusing on improving quality by selecting the most optimal tokens

## **Context Options Explored**

- No Context
- Model-Generated Outline from Human Essay
- Human-Generated Outline
- Etc

## **Objective**

- Provide insights into model's adaptability under various conditions
- Assist in revision process



# TECHNICAL DETAILS

Used Google's **Gemma 2B**, version 1.1, Instruction Tuned

## Utilized **Prompt Engineering**

- Contextual Prompt
  - Includes Essay Context
- Structural Prompt
  - Given Outline to specify key themes and structure

```
doc = f"""
Generate an introduction paragraph leveraging the provided essay context and outline.

**Essay Context:** {p1_essay_first_paragraph}

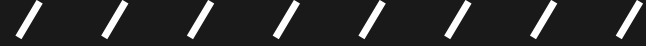
**Outline for Introduction:**
{p1_outline_first_paragraph}

"""

model_out = model.generate(
    **tokenizer(doc, return_tensors='pt').to(model.device),
    max_new_tokens=500,
    do_sample=False,
    streamer=streamer
)
```



# EVALUATION



## Measures

- BLEU Score
- Flesch Reading Ease Score
- Loss

## Documents

- Personal Essays from previous college courses



## RESULTS (QUANTITATIVE)

### **No Context** (most\_likely\_token chosen)

- BLEU: 0.1311
- Flesch: 68.5

### **Generate Outline from Human Essay & Revise it to create new paragraph**

- BLEU: 0.1902
- Flesch: 16.02

### **Using Desired Human Outline**

- BLEU: 0.1860
- Flesch: 19.4

### **Given Human Essay & Outline**

- BLEU: 0.1930
- Flesch: 14.12



# RESULTS (QUALITATIVE)

## **No Context** (most\_likely\_token chosen)

- Nonsensical Output

## **Generate Outline from Human Essay & Revise it to create new paragraph**

- Coherent
- Understandable
- Enhanced Overall Quality

## **Using Desired Human Outline**

- Understandable
- Enhanced Overall Quality

## **Given Human Essay & Outline**

- Did not perform as well as other approaches



# LEARNED & TAKEAWAYS



## **Data Limitation**

- Human factor in data collection and training

## **Content Selection**

- Human-revision and quality of generated essay

# LEARNED & TAKEAWAYS



## **Evaluate the Quality of Essay**

- Difficult to evaluate the quality of essay based on numerical standards
- The importance of human involvement in the model's output

**THANK YOU**