

# SLAY YAS QUEEN

A tarot-reading app that envisions you a happy life

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Natural Language Processing Final Project

what does slay mean



"Slay" is a slang term that has evolved significantly in modern usage. Here are a few contexts in which "slay" is commonly used today:

1. **Excelling or Performing Exceptionally Well:** When someone "slays," it means they are performing exceptionally well or impressively in a particular task or situation. For example, "She slayed her performance at the concert last night."
2. **Fashion and Appearance:** It can also refer to looking exceptionally good or fashionable. For instance, "You slay in that outfit!"
3. **Overcoming a Challenge:** "Slay" can imply defeating or overcoming a significant challenge or opponent. For example, "He slayed his fears and gave an amazing speech."

The term originally means to kill or destroy violently but has taken on these more figurative and positive connotations in contemporary slang.

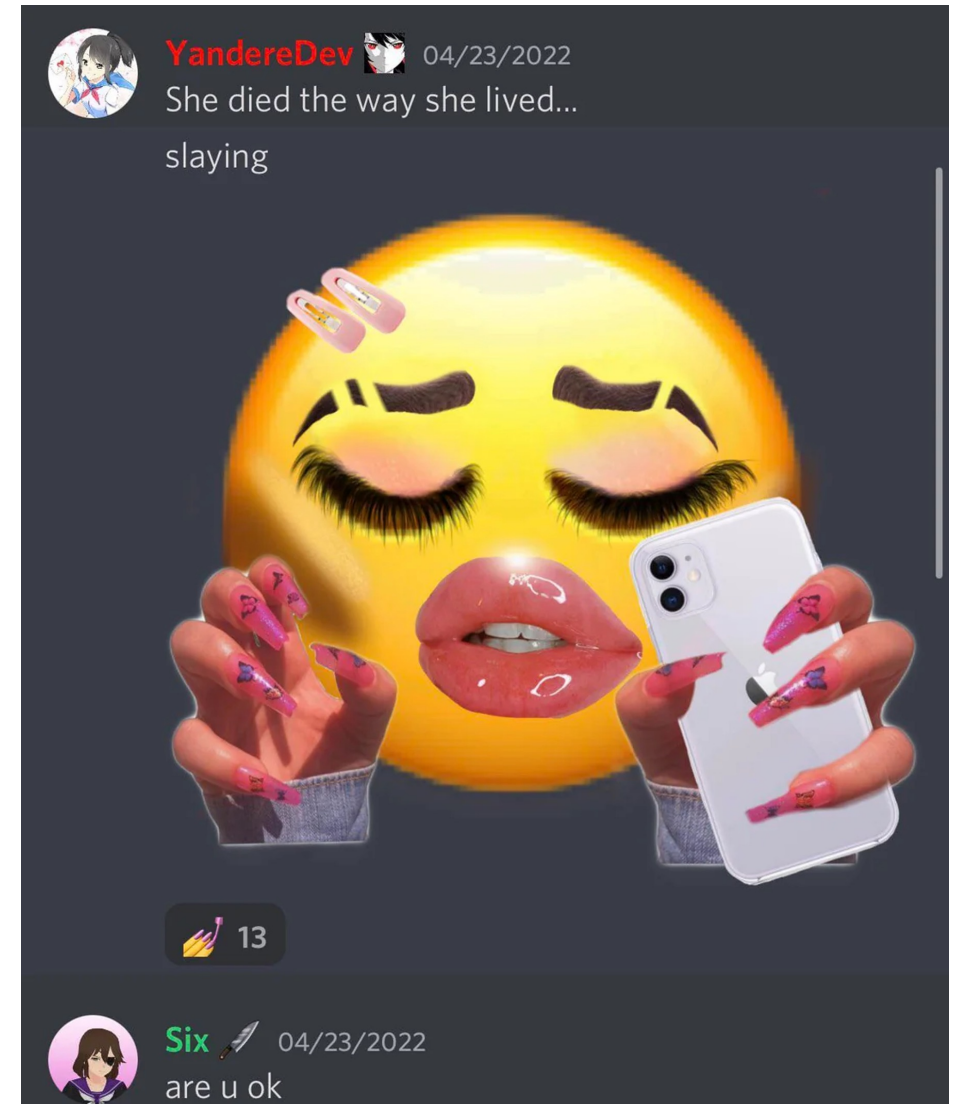


# SLAY – Excelling, Performing Exceptionally Well

# App that Helps You

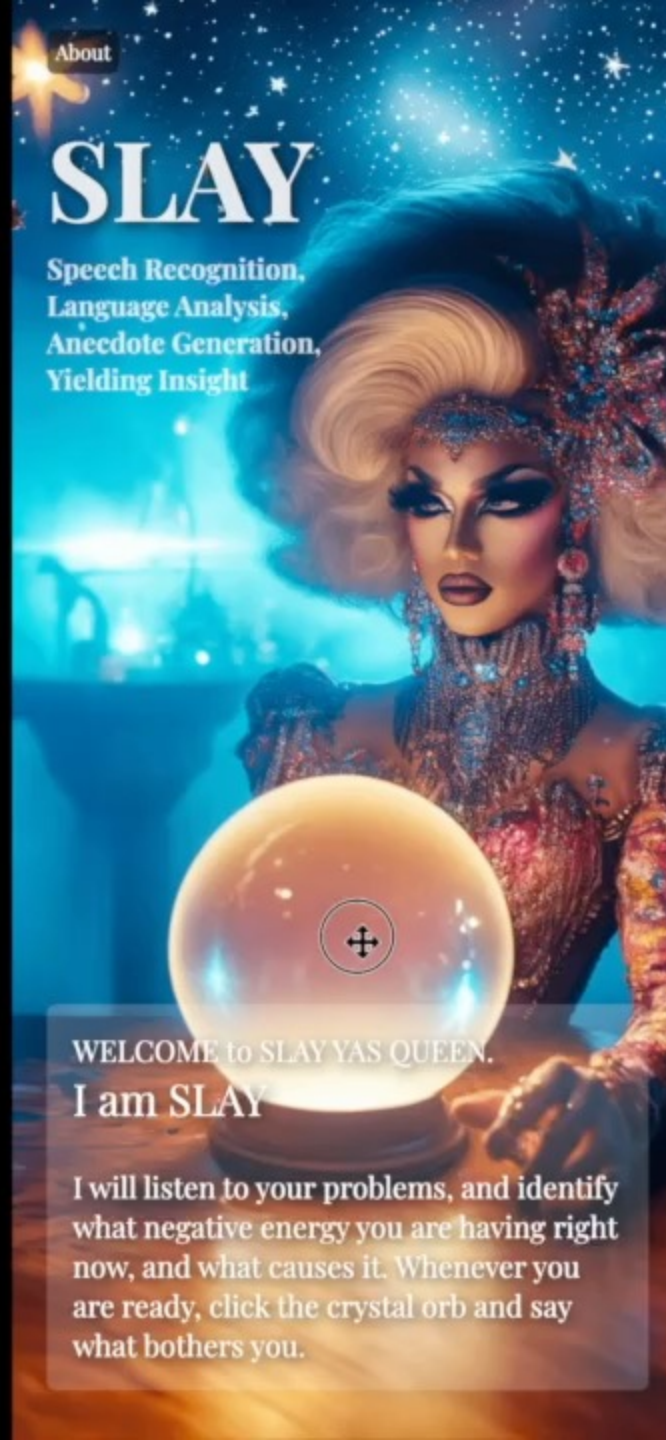


- Tarot reading app that uses classification, analysis and generation
- More engaging because it also envisions you a life in which such problems do not exist anymore
- Uses Drag Queens as visuals because they are perfect examples of people who SLAY
- Wanted to SLAY in this project



# Demo Video

[link](#)



About

## SLAY

Speech Recognition,  
Language Analysis,  
Anecdote Generation,  
Yielding Insight

WELCOME to SLAY YAS QUEEN.

I am SLAY

I will listen to your problems, and identify what negative energy you are having right now, and what causes it. Whenever you are ready, click the crystal orb and say what bothers you.



SLAY

Speech recognition  
Language  
Analysis  
Yielding insight



# Overview

- SLAY Model(s)/Component has three main parts:
  - BERT for sentiment analysis
  - BERT for category classification
  - BERT for cause extraction
  - Whisper in local for STT

“I am so tired because of the heavy project for the difficult coding class I am taking right now.”

=> Fatigue, Academic, project

# SLAY - BERT Classifier: Training

- Sentiment Classification
  - Anxiety, Fatigue, Fear, Regret, Stress, Expectation, Worry
- Categorization
  - Academic, Employment/Career, Workplace, Family, Human Relationships, Financial Matters, Partner/Romantic Relationships
- Dataset – has Text, Emotion and Cause

text	emotion	cause
I am stressed out because of the	Fatigue	Employment/Career
I regret not choosing a different	Expectation	Academic
I am really anxious about my job	Fear	Employment/Career
I am exhausted after working late	Worry	Workplace
I am stressed about the ongoing	Fear	Family
I am stressed about managing my	Anxiety	Financial Matters
I am exhausted after working late	Expectation	Workplace

# SLAY - BERT: Training Result - Before

- Sentiment Classification  
(0.43)

Epoch 1, Train Loss: 1.9234451945622761, Validation Accuracy: 0.43

	precision	recall	f1-score	support
Anxiety	0.00	0.00	0.00	50
Fatigue	0.31	0.85	0.46	40
Fear	0.00	0.00	0.00	39
Regret	0.31	0.77	0.44	52
Stress	0.78	0.70	0.74	30
Expectation	0.00	0.00	0.00	38
Worry	1.00	0.67	0.80	51
accuracy			0.43	300
macro avg	0.34	0.43	0.35	300
weighted avg	0.34	0.43	0.35	300

- Categorization  
(0.173)

Epoch 1, Train Loss: 1.971989606221517, Validation Accuracy: 0.1733333333333334

	precision	recall	f1-score	support
Academic	0.00	0.00	0.00	50
Employment/Career	0.00	0.00	0.00	40
Workplace	0.00	0.00	0.00	39
Family	0.17	1.00	0.30	52
Human Relationships	0.00	0.00	0.00	30
Financial Matters	0.00	0.00	0.00	38
Partner/Romantic Relationships	0.00	0.00	0.00	51
accuracy			0.17	300
macro avg	0.02	0.14	0.04	300
weighted avg	0.03	0.17	0.05	300



# SLAY - BERT: Training Result - After

- Sentiment Classification (0.88)
- Categorization (0.71)

Epoch 3, Train Loss: 1.554334174791972, Validation Accuracy: 0.88

	precision	recall	f1-score	support
Anxiety	1.00	0.56	0.72	50
Fatigue	0.91	1.00	0.95	40
Fear	1.00	0.90	0.95	39
Regret	0.84	1.00	0.91	52
Stress	0.79	1.00	0.88	30
Expectation	1.00	0.74	0.85	38
Worry	0.78	1.00	0.88	51
accuracy			0.88	300
macro avg	0.90	0.88	0.88	300
weighted avg	0.90	0.88	0.87	300

Epoch 3, Train Loss: 1.5246544313430785, Validation Accuracy: 0.71

	precision	recall	f1-score	support
Academic	0.85	1.00	0.92	50
Employment/Career	0.62	0.78	0.69	40
Workplace	0.46	1.00	0.63	39
Family	1.00	0.63	0.78	52
Human Relationships	1.00	0.53	0.70	30
Financial Matters	0.79	1.00	0.88	38
Partner/Romantic Relationships	0.60	0.12	0.20	51
accuracy			0.71	300
macro avg	0.76	0.72	0.68	300
weighted avg	0.76	0.71	0.68	300

Still high loss, diversity of data would help

# SLAY - BERT: Two jobs at once?

- After training the model through adequate process, wondered if combining two models to do one job at once will be better or not
- Showed very poor performance for Emotion(0.09), and overfitted to cause(1.00)

Emotion classification report:

	precision	recall	f1-score	support
Anxiety	0.10	0.17	0.12	24
Fatigue	0.00	0.00	0.00	34
Fear	0.00	0.00	0.00	36
Regret	0.15	0.15	0.15	34
Stress	0.00	0.00	0.00	24
Expectation	0.13	0.21	0.16	24
Worry	0.11	0.25	0.15	24
accuracy			0.10	200
macro avg	0.07	0.11	0.08	200
weighted avg	0.07	0.10	0.08	200

Cause classification report:

	precision	recall	f1-score	support
Academic	1.00	1.00	1.00	30
Employment/Career	1.00	1.00	1.00	34
Workplace	1.00	1.00	1.00	29
Family	1.00	1.00	1.00	21
Human Relationships	1.00	1.00	1.00	34
Financial Matters	1.00	1.00	1.00	29
Partner/Romantic Relationships	1.00	1.00	1.00	23
accuracy			1.00	200
macro avg	1.00	1.00	1.00	200
weighted avg	1.00	1.00	1.00	200

# SLAY - BERT Extractor: Training

- Dataset – text and direct cause (direct\_word)

emotion	cause	text	direct_word
Fear	Partner/Romantic Relationships	I fear my partner leaving me.	leaving
Fear	Family	I fear disappointing my family.	disappointing
Anxiety	Family	Family expectations are making me anxious.	expectations
Stress	Workplace	Workplace politics cause me a lot of stress.	politics
Regret	Partner/Romantic Relationships	I regret breaking up with my partner.	breaking
Regret	Financial Matters	I regret not saving money earlier.	saving
Expectation	Family	Family expectations can be overwhelming.	overwhelming
Stress	Human Relationships	Maintaining friendships can be stressful.	Maintaining
Fatigue	Academic	Studying for long hours leaves me fatigued.	Studying
Expectation	Human Relationships	I have expectations for how my friends should behave.	behave
Fatigue	Family	Taking care of family responsibilities fatigues me.	responsibilities

# SLAY - BERT Extractor: Training

100%  75/75 [02:47<00:00, 2.19s/it]

100%  19/19 [00:13<00:00, 1.59it/s]

Epoch 1/3

Train Loss: 0.0060, Validation Loss: 0.0026

Start Position Accuracy: 0.9997, End Position Accuracy: 0.9996

100%  75/75 [02:47<00:00, 2.30s/it]

100%  19/19 [00:13<00:00, 1.38it/s]

Epoch 2/3

Train Loss: 0.0034, Validation Loss: 0.0017

Start Position Accuracy: 0.9998, End Position Accuracy: 0.9996

100%  75/75 [02:46<00:00, 2.24s/it]

100%  19/19 [00:13<00:00, 1.56it/s]

Epoch 3/3

Train Loss: 0.0025, Validation Loss: 0.0013

Start Position Accuracy: 1.0000, End Position Accuracy: 0.9998

Only one sentence given.

Extracting a keyword from a whole paragraph, which is likely to happen, will be more challenging.

Maybe overfitting?

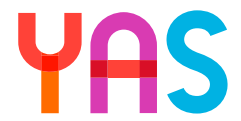
## SLAY - Results

“I am so tired because of the heavy project for the difficult coding class I am taking right now.”

Desired: Fatigue, Academic, project

Result: Fatigue, Academic, class

- Also used Whisper
  - STT framework that could be deployed in local servers
  - Open source, by OpenAI



Yearn

Analyze

Solution envisioning







Yearning  
Analysis  
Augmented  
Solutions





# YAAAAAAS

Yearning  
Analysis  
Augmented  
Assistive  
Adaptive  
Advanced  
Solutions



# YAS - Fine-tuned GPT 3.5 Turbo

- Tarot reading app that are fine-tuned to be called a special formatted prompts to get specific kinds of tarot readings (structured)
- Corresponding Flask website: randomly draws three tarot cards, tell the orders of the cards and emotions summarized by SLAY model to YAS

# YAS - Fine-tuning Process

- GPT 3.5 requires .jsonl file that looks like chat, even when it comes to learning basic knowledge.
- Tried filling in the content of the user, then leaving the content of the assistant(GPT) as “” to induce learning, didn’t go as planned.
- Created dataset that has every \*details of each tarot cards, and some tarot reading that had desirable structure.

\* extracted & preprocessed from [Kaggle](#)

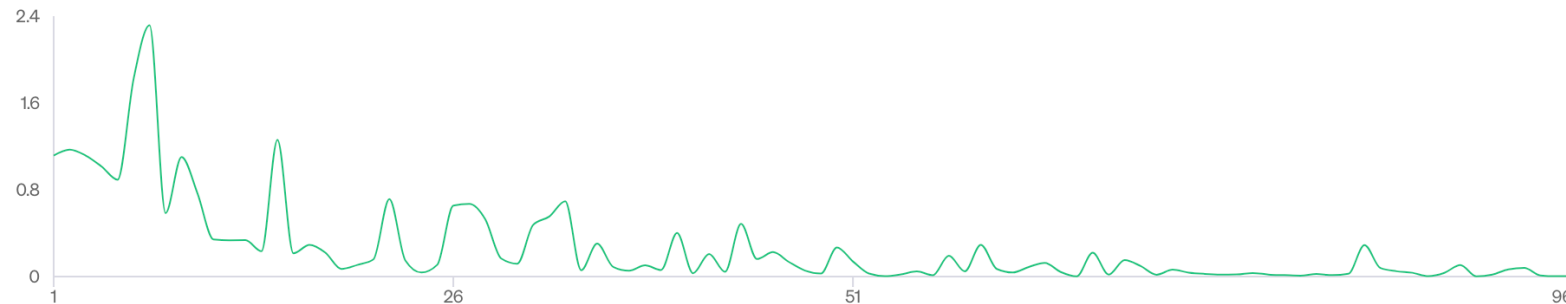
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1 {"messages": [{"role": "user", "content": "Explain the meaning of the Tarot card The Fool."}, {"role": "assistant", "content": "The Fool – Light: Freeing your\n2 {"messages": [{"role": "user", "content": "Explain the meaning of the Tarot card The Magician."}, {"role": "assistant", "content": "The Magician – Light: Taki\n3 {"messages": [{"role": "user", "content": "Explain the meaning of the Tarot card The High Priestess."}, {"role": "assistant", "content": "The High Priestess –\n4 {"messages": [{"role": "user", "content": "Explain the meaning of the Tarot card The Empress."}, {"role": "assistant", "content": "The Empress – Light: Nurtur\n5 {"messages": [{"role": "user", "content": "Explain the meaning of the Tarot card The Emperor."}, {"role": "assistant", "content": "The Emperor – Light: Exerci\n6 {"messages": [{"role": "user", "content": "Explain the meaning of the Tarot card The Hierophant."}, {"role": "assistant", "content": "The Hierophant – Light:\n7 {"messages": [{"role": "user", "content": "Explain the meaning of the Tarot card The Lovers."}, {"role": "assistant", "content": "The Lovers – Light: Being in\n8 {"messages": [{"role": "user", "content": "Explain the meaning of the Tarot card The Chariot."}, {"role": "assistant", "content": "The Chariot – Light: Breaki\n9 {"messages": [{"role": "user", "content": "Explain the meaning of the Tarot card Strength."}, {"role": "assistant", "content": "Strength – Light: Imposing res\n10 {"messages": [{"role": "user", "content": "Explain the meaning of the Tarot card The Hermit."}, {"role": "assistant", "content": "The Hermit – Light: Becoming\n11 {"messages": [{"role": "user", "content": "Problem: I am feeling anxious about my career.\nCards: The Fool, The Magician, The High Priestess"}, {"role": "assi\n12 {"messages": [{"role": "user", "content": "Problem: I am feeling anxious about my career.\nCards: The Fool, The Magician, The Empress"}, {"role": "assistant",\n13 {"messages": [{"role": "user", "content": "Problem: I am feeling anxious about my career.\nCards: The Fool, The Magician, The Emperor"}, {"role": "assistant",\n14 {"messages": [{"role": "user", "content": "Problem: I am feeling anxious about my career.\nCards: The Fool, The Magician, The Hierophant"}, {"role": "assistan\n15 {"messages": [{"role": "user", "content": "Problem: I am feeling anxious about my career.\nCards: The Fool, The Magician, The Lovers"}, {"role": "assistant",
```

# YAS - Fine-tuning Process

- GPT 3.5 requires .jsonl file that looks like chat, even when it comes to learning basic knowledge.
- Tried filling in the content of the user, then leaving the content of the assistant(GPT) as “” to induce learning, didn’t go as planned.
- Created dataset that has every \*details of each tarot cards, and some tarot reading that had desirable structure.

\* extracted & preprocessed from [Kaggle](#)

Training loss 0.0033



# YAS - Fine-tuning Result

- Can generate tarot reading based on user's concerns and tarot drawing results
- More desirable result and structure

gpt-4o ↕

...

⚙️

✕

USER

I am feeling stressed about my work/career. I applied to lots of jobs, but got to interview with only one of them. I drew the Hanged Man, The Lovers and the chariot. make a tarot reading including these three cards and my emotions

ASSISTANT

I'm sorry to hear that you're feeling stressed about your work and career. Let's take a look at the three tarot cards you drew and see if we can derive some insights that might help you navigate your current emotions and situation.

1. **The Hanged Man**: This card often signifies a period of suspension, waiting, or surrender. It suggests that you might be feeling stuck or in limbo when it comes to your job search or career progression. The Hanged Man can also encourage a change in perspective—seeing things from a different angle. It might be urging you to take this time to reflect, reassess your goals and strategies, and perhaps embrace this pause as an opportunity for growth and introspection. It's a reminder that sometimes, letting go of control and allowing things to unfold naturally can lead to new insights.

2. **The Lovers**: This card is typically associated with relationships and choices. In the context of your career, it might be highlighting the importance of aligning your work with your core values and desires. It could be suggesting that you contemplate what truly matters to you in a job or career and to seek alignment between your inner self and your professional life. The Lovers can also signify a decision or choice that needs to be made and encourages you to follow your heart

Latency 17018ms · 319 tokens

ft:gpt-3.5-turbo-0125:personal::9ZtycAR1 ↕

...

⚙️

✕

SYSTEM

Enter system instructions

USER

I am feeling stressed about my work/career. I applied to lots of jobs, but got to interview with only one of them. I drew the Hanged Man, The Lovers and the chariot. make a tarot reading including these three cards and my emotions

ASSISTANT

Card 1 - The Hanged Man: Pause, Surrender, Letting Go, New Perspectives

Card 2 - The Lovers: Love, Union, Relationships, Values Alignment, Choices

Card 3 - The Chariot: Control, Willpower, Victory, Assertion, Determination

Reading: It seems like you are currently grappling with feelings of surrendering to the situation at hand, while also attempting to make difficult choices. You may be facing a decision that requires you to be aligned with your values and to navigate your relationship with others carefully. Drawing the Chariot card signifies that you have the determination and willpower to face any challenges, and that ultimately, you have the ability to achieve victory.

Latency 3224ms · 211 tokens



QU3EN

Q<sup>U</sup>est  
ENvisioning  
with Llama-3



# QUEEN - Positive Envisionment through Llama-3

- Generate a detailed and positive depiction of a resolved situation based on the user's concerns.
- Act as a self-fulfilling prophecy, fostering positive outcomes through optimistic storytelling.
- **User Input:** Capture user's concerns and current situation.
- **Positive Narrative Generation:** Use a pre-trained Llama-3 model to create a detailed description of a resolved scenario. Fine-tune the generated text for added personalization and occupation-specific details. (Added more empowering words, including SLAY, YAS, QUEEN, etc.)

# Implementation - Flask and Colab

- Flask(local)
  - Whisper
  - Fine-tuned GPT
- Colab
  - BERT
  - Llama-3
- Flask(Colab)
  - Gradio
  - Hosts Models

# Reflection

- Implementing a theme that involves various functions
- Having more data both in terms of quantity and diversity would be helpful
- Wanna include TTS as well.

Hope You Slay This Summer!