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Generative AI : Poem Generator

PROJECT TITLE:

Generative AI :
Poem Generator

AGENDA:

- Project Definition and Scope
- Research and Background
- Data Collection and Preprocessing
- Model Training and Fine-Tuning
- Development
- Testing and Evaluation
- Optimization and Refinement

PROBLEM STATEMENT:

Text generation has been an intriguing field in natural language processing, with applications ranging from creative writing to automated content generation. However, generating coherent and aesthetically pleasing poetry remains a challenging task for artificial intelligence models. This project aims to develop a poetry generation system using the GPT-2 language model, capable of producing high-quality poems given starting and ending lines.

PROJECT OVERVIEW:

This project aims to develop a poetry generation system using the GPT-2 language model. It involves fine-tuning the model on a poetry dataset and implementing a user-friendly interface for generating poems based on user-defined prompts. The methodology includes data collection, model training, and system design. Evaluation involves assessing the quality of generated poems. The project concludes with findings, implications, and potential future extensions

WHO ARE THE END USERS?

- **Writers and Poets**
- **Educators and Students**
- **Creative Professionals**
- **Literature Enthusiasts**
- **Researchers and Developers**
- **Artists and Musicians**

SOLUTION AND ITS VALUE PROPOSITION

1. **Import Libraries:** Import necessary libraries including torch and classes from the transfromers library.
2. **Load Pre-trained Model and Tokenizer:** Load the pre-trained GPT-2 model (gpt2-medium) and its corresponding tokenizer.
3. **Set up Device:** Determine and set the device to be used for computation (either GPU if available, otherwise CPU) and move the model to the selected device.
4. **Define Poem Generation Function:** Define the generate_poem() function, which takes starting and ending lines as input, generates a poem using the loaded GPT-2 model, and returns the generated poem.
5. **Generate Poem Example:** Provide an example usage of the generate_poem() function by specifying starting and ending lines, calling the function, and printing the generated poem.
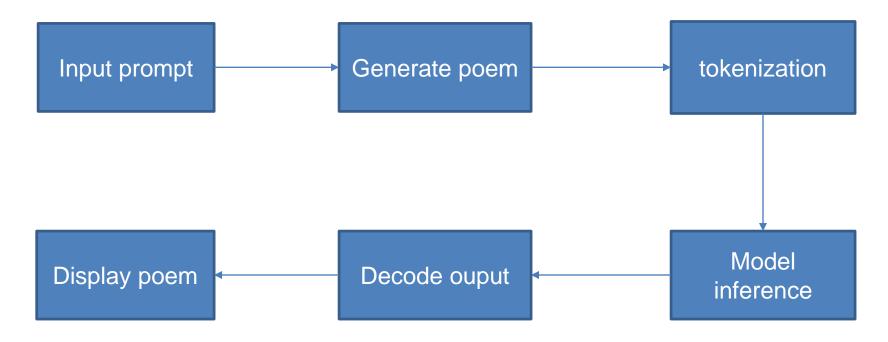
THE WOW IN YOUR SOLUTION:

The wow factor in the poetry generation system lies in its remarkable ability to produce high-quality poems based on user-defined prompts, showcasing the potential of advanced AI technology in creative endeavors. Its user-friendly interface, versatility in addressing various user needs, and innovative approach leveraging the GPT-2 language model contribute to its overall impressiveness and impact in the field of computational creativity.

MODELLING:

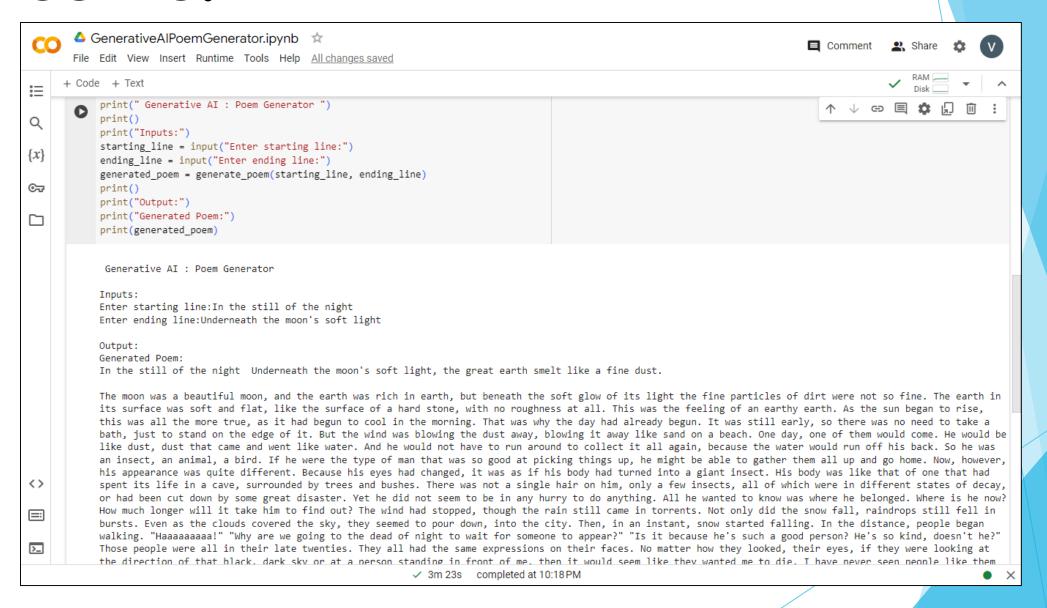Teams cam add wireframes

```
┌──────────────┐      ┌──────────────┐      ┌──────────────┐
│ Input prompt │─────▶│ Generate poem│─────▶│ tokenization │
└──────────────┘      └──────────────┘      └──────────────┘
                                                    │
                                                    ▼
┌──────────────┐      ┌──────────────┐      ┌──────────────┐
│ Display poem │◀─────│ Decode ouput │◀─────│    Model     │
└──────────────┘      └──────────────┘      │  inference   │
                                            └──────────────┘
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RESULTS:

RESULTS cont..

- Ability of the poetry generation system to produce high-quality poems based on user-defined prompts showcases the potential of AI in augmenting human creativity and expression.
- User-friendly interface enhances accessibility, democratizing the creative process and fostering broader appreciation for literature.
- Valuable tool for language learning and education, providing authentic examples of poetry in the target language to aid language learners in improving language skills, vocabulary, and cultural understanding.
- Exemplifies the fusion of art and technology, pushing the boundaries of creative expression and computational creativity.
- Continues to inspire future endeavors and has a profound impact on poetry, language learning, and AI-driven creative applications

Demo Link   https://github.com/rohithvignesh25/TNSDC-Generative-AI.git