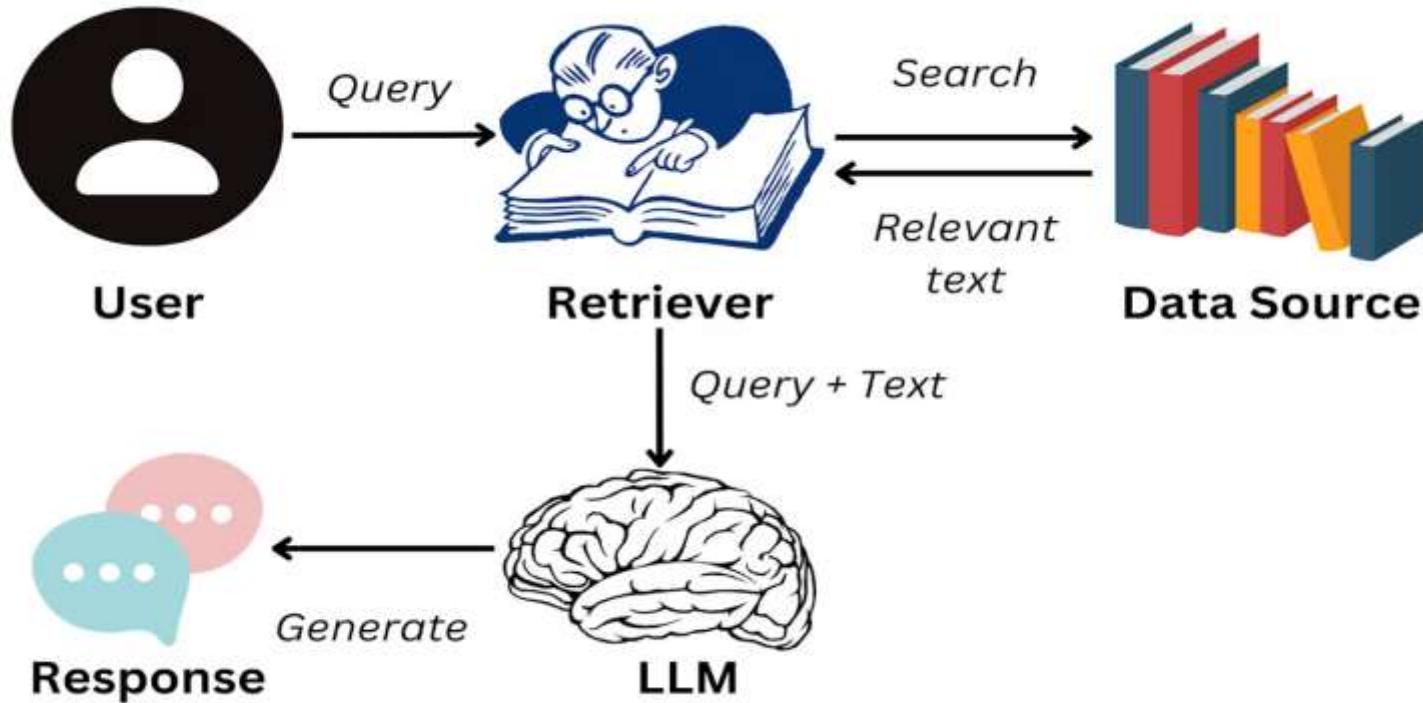


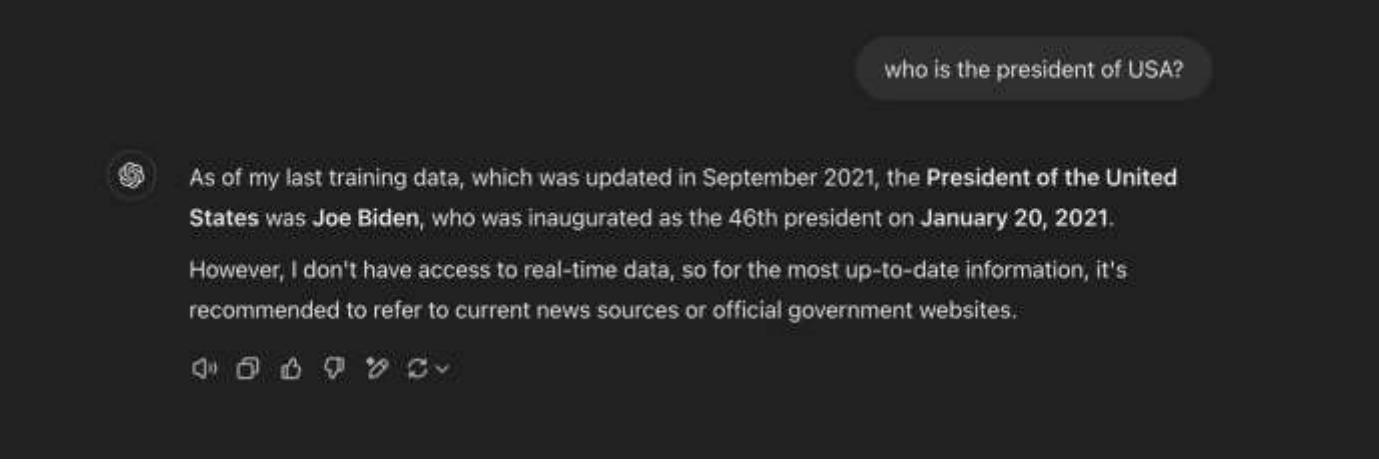
# RAG LLM and NN

Presented By Akshit Jain

# Retrieval Augmented Generation



# Without RAG & Hallucination



A screenshot of a conversational AI interface. At the top right, there is a text input field containing the question "who is the president of USA?". Below the input field, a response is provided by a bot icon (a circular logo with a stylized 'g'). The bot's message reads: "As of my last training data, which was updated in September 2021, the President of the United States was Joe Biden, who was inaugurated as the 46th president on January 20, 2021. However, I don't have access to real-time data, so for the most up-to-date information, it's recommended to refer to current news sources or official government websites." At the bottom of the message, there are several small, light-colored icons typically used for message reactions like thumbs up, thumbs down, and other communication symbols.

who is the president of USA?

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The answer is from the trained data

# With RAG and Citations

please search from the latest news and tell me who is the president of USA?

 As of January 20, 2025, Donald J. Trump is the President of the United States, having been inaugurated as the 47th president. THE TIMES & THE SUNDAY TIMES

This marks his return to the presidency after serving as the 45th president from 2017 to 2021.

In his first full day back in office, President Trump signed several executive orders, including halting the TikTok ban, allowing federal aid for wildfire-ravaged California, and announcing a plan to invest \$500 billion in AI infrastructure in Texas. THE TIMES & THE SUNDAY TIMES

Additionally, he revoked a Biden-era policy limiting ICE and CBP arrests at sensitive locations and declared a national emergency at the southern border, deploying the military to stop illegal crossings.

These actions reflect a significant shift in policy direction from the previous administration.

**President Trump's First Day in Office**

 The Times & The Sunday Times

[Trump's first full day back in office - as it happened](#)

Yesterday

Sources  T



# Loan Decision Predictor

- **Input Variables (X):** Sex, Age, Time\_at\_address, Res\_status, Telephone, Occupation, Job\_status, Time\_employed, Time\_bank, Liab\_ref, Acc\_ref, Home\_exp, Balance
- **Output Variables (Y):** Decision
- Data Set: 247 rows (reject: 74.90%, accept: 25.10%)
- Remove duplicates, Outliers and Null values
- Incorporated one hot encoding for the categorical data

# Neural Network Model

- **Layers:** Dense (32, 16, 8, 1)
- **Activation:** ReLU & Sigmoid
- **Optimizer:** Adam (LR: 0.0001)
- **Loss:** Binary Crossentropy
- **Metric:** Accuracy
- **Early Stopping:** Val Loss (Patience: 10)
- **Epochs:** 175, Batch: 10
- **Evaluation:** Test Accuracy

# Evaluation

- **Dataset Size:** 247 rows.
- **Class Distribution:** 74.90% reject, 25.10% accept.
- **Validation Accuracy:** 87.8%.
- **Test Accuracy:** 74.0%.
- **Final Loss:** 0.61.

# Conclusion

- **High Test Accuracy:** Model effectively predicts loan decisions.
- **Balanced Performance:** Reliable results across training, validation, and testing.
- **Actionable Insights:** Useful for automating loan application evaluations.
- **Next Steps:** Fine-tuning and adding more data for further improvements.