**GENERATIVE AI FOR DEVOPS**

**Why AI is booming these days?**

AI was introduced or born in 1950s but due to high Computational Power and so much of data produced in the time of covid days or data collected since 1950s the machine got trained now and this AI is booming.

**AGENDA**

1. AI, ML, GENERATVE AI
2. DevOps use cases
3. Gen AI cloud

Let’s understand **HUMAN INTELLIGENCE with Artificial intelligence**.

1. Predictions (ex: planning a week)
2. Analysis (ex: how much money will I spent in this week)
3. Decision (ex: if it will rain this week, then I have to carry umbrella or not)

Now, Artificial Intelligence is same as Human Intelligence or we can say using algorithms, data, some kind of models; the ability to act like a human which can replicate humans’ intelligence is called as artificial intelligence.

We as a human can learn things as an INPUT. Ex: Bollywood, songs, languages. same way machine leans as an input. **So, machine learning (ML) comes inside AI.**

* **AI (Artificial intelligence)** 🡪 **Ability to replicate like human.**
* **ML (Machine Learning)** 🡪 **Ability to learn like human.**
* **DL (Deep Learning)** 🡪 **Ability to think like human.**

Ex: ChatGPT is thinking like human so it comes under deep learning.

**Understanding Deep Learning --**

1. **ANN: Artificial neural network** 🡪helps to learn things
2. **RNN: Recursion neural network** 🡪 information repetition. Ex: one song repeating again &again in your mind; even when not required.
3. **LLM: Large Language model** 🡪 It contains NLP, Texts, Chatbots.

Ex: if we say HI, HOW RE YOU to bot, it replies back Hi, I am good. How are you. So, its general human nature which was understood by scientist can under deep learning model they added LLM. ChatGPT is based on LLM.

CHATGPT 🡪 GPT stands for Generative Pre-trained Transform; means user have given the words, bot was given ability to think. It will replicate output.

1. **GAN: Generative Adversarial Network** 🡪 Image generation. Generating photos like humans.

Now, Gen AI is a branch of AI where we can generate stuffs with the help of human intelligence.

**Generative AI for DevOps:**

**We as a DevOps engineer how can we take output from Gen AI?**

1. **PROBLEM: -** This problem statement will be given by manager, clients.
2. **GENERATE: -** We can generate pipeline for that AI, prepare module.
3. **APPLY: -** Try to apply in AI if problem can be fixed or improved.

**Let’s understand using AI generative problems.**

If we have to interact with AI, we have to use **PROMPTS**.

Suppose, using ChatGPT we have to find solution for our problem in real tie project.

**Ex:** In ChatGPT we enter - create CI/CD pipeline. Press ENTER.

ChatGPT will give you solution.

But here problem is can you identify ChatGPT solution is based on git, Jenkins, docker or ansible???

So, ***we as human made a mistake of giving him to output, we desire in spite of giving him the prompt about our requirements.***

**PROMT** can be: (enter in ChatGPT)

act as a DevOps engineer , \*\* role given to ChatGPT\*\*

and understand the severity of security, build, automation and continuous integration and deployment for a python application. \*\*context given\*\*

Create a Jenkins declarative pipeline that has stages to clone the code from GitHub, built the code using docker, test the code, and deploy. \*\*task given\*\*

\*\*\*This is also called as PROMT ENGINERRING 🡪 Means the art of interacting with AI. \*\*\*

**FUN FACT**

We also while searching prompts or solution of our questions try to always open a new window / screen to clear everything and start a fresh/ new chat with ChatGPT.

Now, we know how to interact with ChatGPT irrespective of opening new window again to start fresh.

**Popular ChatGPT is GPT 4**

Now, suppose developer gave us .py file and .txt file to deploy in the environment, coping that file to ChatGPT4,

**PROMPT**:

Act as a senior DevOps engineer,

Make sure to understand the code, environment variables and the requirements to follow the best security practices

Create a docker file and a docker compose file keeping in mind that that code will use mysql database.

**GPTs 🡪 Generative Pre trained transformers.**

ChatGPT 3 has less features then ChatGPT4, that’s y now a dates CHatGPT4 is preferred as it contains most of the parameters among all versions of ChatGPT.

Now, you might be wondering that if we use ChatGPT in office, it will take you job or security breach.

**Generative AI in Cloud**

1. Google Vertex AI
2. Azure AI
3. AWS Bedrock

These provide some security features if you are using cloud for your data.

DEMO:

On amazon bedrock and Google Vertex AI 🡪 images 🡪 creating AI generated images by giving prompts.