

India Edu Program:

Tech Talks for Educators

Introduction to Generative AI with Google Cloud

goo.gle/techtalksforedu



Keep your mic muted



This session will be recorded



Guidelines for the Session

Be excellent to each other.

Treat everyone with respect. Participate while acknowledging that everyone deserves to be here — and each of us has the right to enjoy our experience without fear of harassment, discrimination, or condescension, whether blatant or via micro-aggressions. Jokes shouldn't demean others. Consider what you are saying and how you would feel if it were said to or about you.

Speak up if you see or hear something.

Harassment is not tolerated, and you are empowered to politely engage when you or others are disrespected. The person making you feel uncomfortable may not be aware of what they are doing, and politely bringing their behavior to their attention is encouraged.

Practice saying "Yes and" to each other.

It's a theatre improv technique to build on each other's ideas. We all benefit when we create together.

We have a ZERO-TOLERANCE POLICY for harassment of any kind

Email : educator-support-in@google.com

Program Introduction

Mission

The India Edu Program aims to provide **universities, edu organisations & educators** with [learning resources, skilling opportunities and ecosystem support](#) to train the next generation of developers & bring the latest Google tech (like Android, AI/ Machine Learning) into their classrooms.



Website : goo.gl/in-edu



 TensorFlow



Firebase

Google AI

Discover Curriculum Resources & ecosystem events

Discover the latest learning resources, courses
and teaching aids for your curriculum.

Browse : goo.gle/edu-catalog

Subscribe to our newsletter to stay informed
about events from the India Dev Ecosystem !

Follow: goo.gle/edu-linkedln



Welcome to the Google for Developers : Edu India Newsletter July edition!

This newsletter features resources to support educators interested in learning and bringing the latest of Google technology like Android, TensorFlow into their classrooms!

Faculty Development

Engage in Tech Talks & Bootcamps



Tech Talks for Educators

Sessions on the emerging tech delivered by Industry Experts on topics curated by Google.

Sign Up : goo.gle/techtalksforedu

Faculty Training Bootcamps

Request bootcamps on Modern Android development and Machine Learning.

Request Here : goo.gle/edu-support

Industry Academia Connect

Inspire your students !

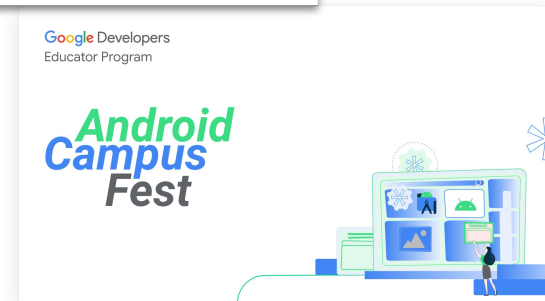
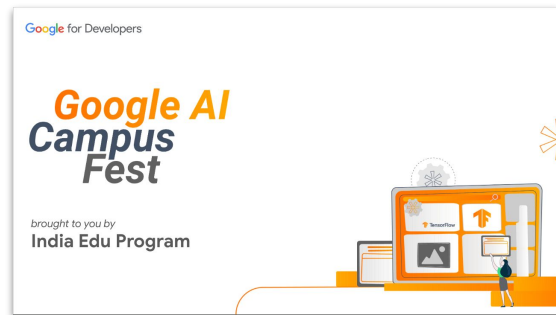
Android Campus Track/ Fest Support

Request branding, organiser guide to host [Android Campus fest/ track](#) or [Google AI Campus Fest/ Track](#) in your campus and showcase your students projects.

Sign Request Industry Speaker

Request for an Expert / GDE to share industry experience with your learners.

Sign up Here: goo.gle/edu-support



Checkout more : [Android Campus Fest 2022 Highlights](#)

Introduction to Generative AI with Google Cloud



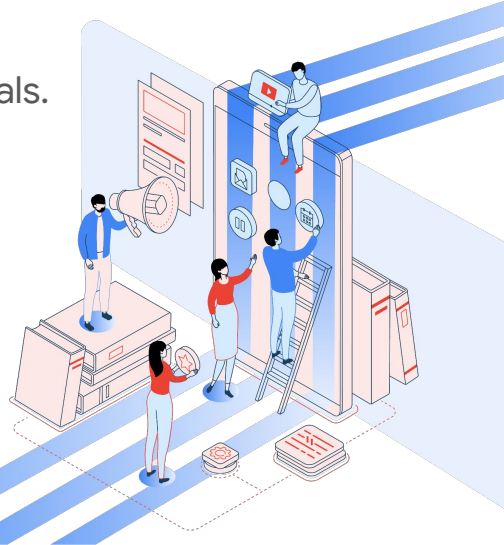
Dr. Yogesh Haribhau Kulkarni

Google Developer Expert (Machine Learning)
AI Coach, Teacher, Speaker

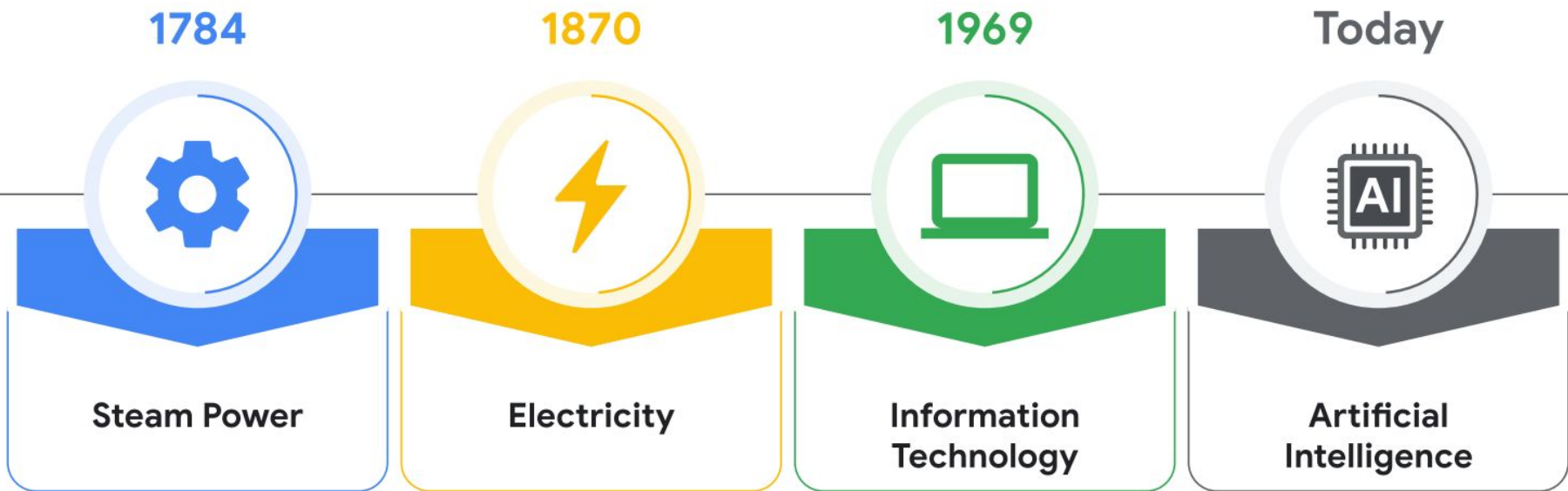


Era of Generative AI

- Generative AI: Branch of AI for creating original content based on existing data patterns.
- Applications: Images, videos, text generation.
- Examples:
 - Text Generation: PaLM - articles, stories, poetry.
 - Image Generation: StableDiffusion - realistic images of people, animals.
 - Music Generation: MuseNet - original music in various genres.



Where we came from ...



Classical ML Approach

- Data Collection: Obtain training and evaluation data for a specific use case (e.g., customer churn prediction).
- Train ML Model: Train a model from scratch for the identified use case.
- Deployment: Deploy the trained model to address the specific business problem.
- 1:1 Relationship: Each trained model corresponds to a single use case.

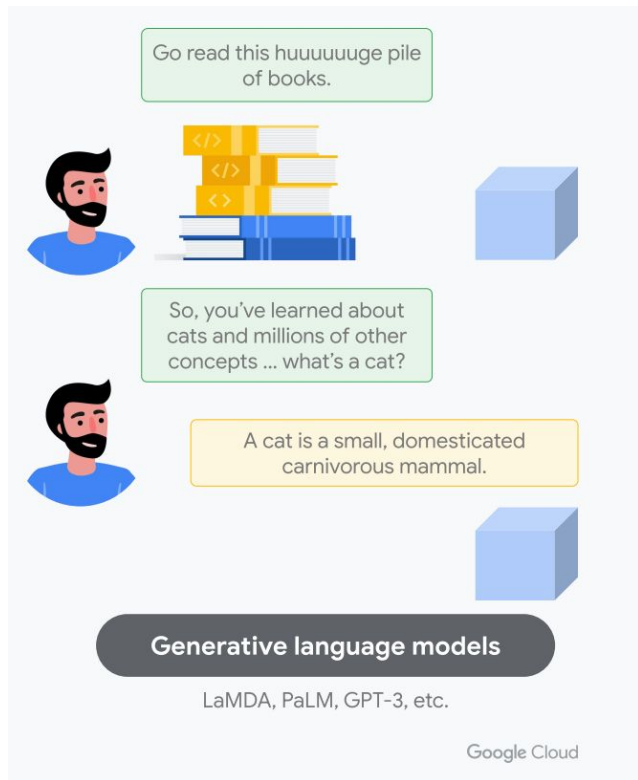


Foundation Models in Generative AI

- Paradigm Shift: Foundation Models (FMs) revolutionize AI work.
- One-to-Many Relationship: Foundation Models allow addressing multiple use cases without training or fine-tuning separate models.
- Versatility: A single Foundation Model can be used for various tasks like summarization, sentiment extraction, translation, etc.
- Simplified Development: Develop a single application to achieve multiple tasks instead of separate applications for each task.

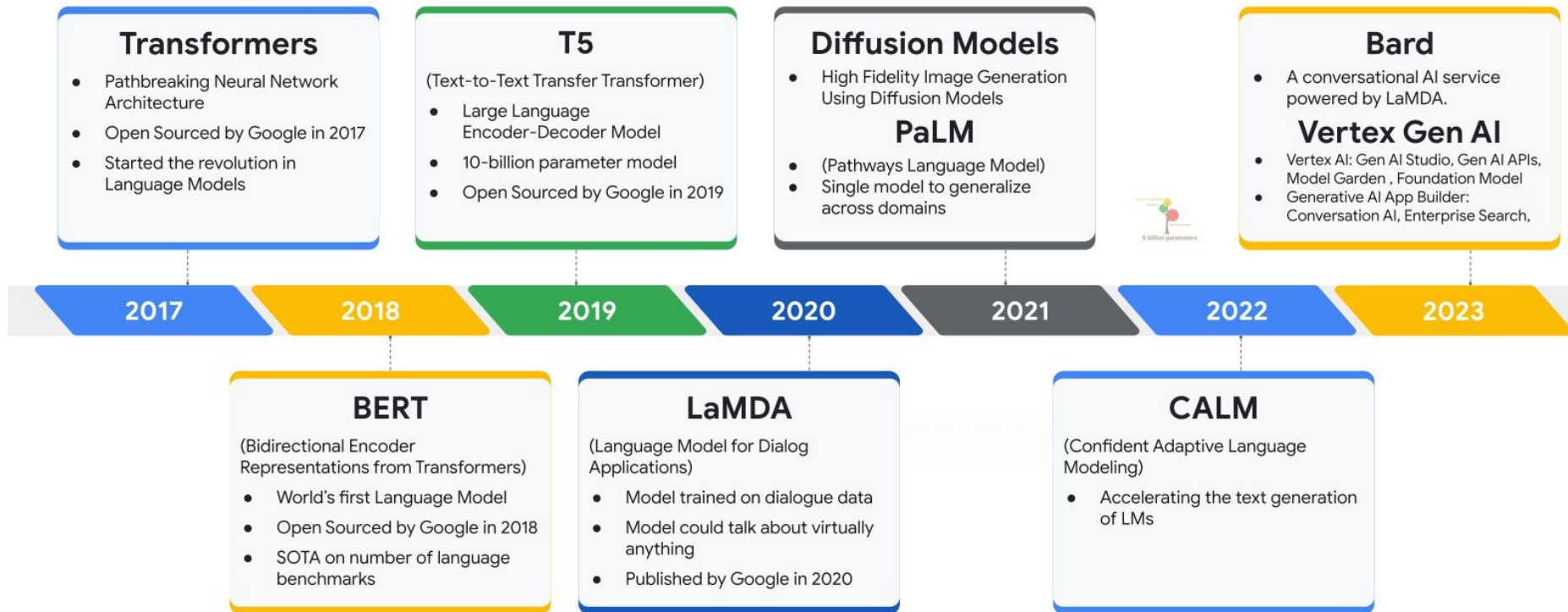


What are large language models?



- ML algorithms that can recognize, predict, and generate human languages
- Pre-trained on petabyte scale text-based datasets resulting in large models with 10s to 100s of billions of parameters
- LLMs are normally pre-trained on a large corpus of text

This revolution started at Google ...



New Programming Language: English

- **Prompt:** The prompt is your text input that you pass to the model.
- **Prompt Design:** The art and science of figuring out what text to feed your language model to get it to take on the behavior you want.



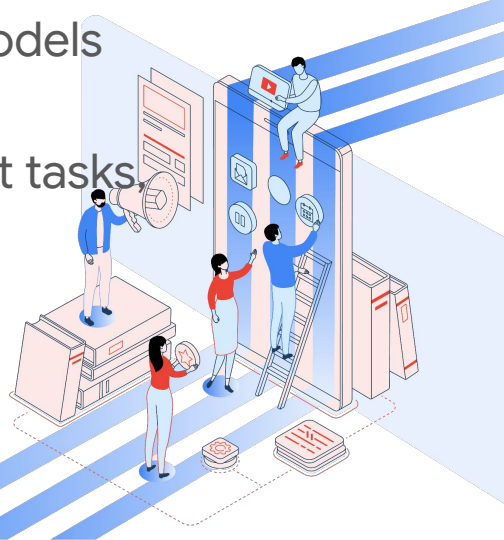
Shots

- **Zero-shot prompt:** The model is provided with no example when prompting for response.
- **One-shot prompt:** The model is provided with one example to the LLM within the prompt to give some guidance on what type of response you want.
- **Few-shot prompt:** Few-shot prompts are similar to one-shot prompts, but the model is given multiple labeled examples of the task.



Evolution of Cloud ML APIs

- Previous Cloud ML APIs: Limited to specific applications, tied to one task per API.
- Example: Separate APIs for summarization, sentiment analysis, translation, etc.
- Foundation Models' Impact: Multi-purpose Foundation Models replace the need for task-specific APIs.
- Flexibility: Use the same Foundation Model for various text tasks, making development more efficient.



Reduced Barrier of Entry

- Drastic Reduction: Foundation Models lower the barrier of entry for AI applications in business.
- Focus on Applications: Companies concentrate on building applications, not training models.
- Prompt Engineering: An approach to tailor the model for specific tasks.



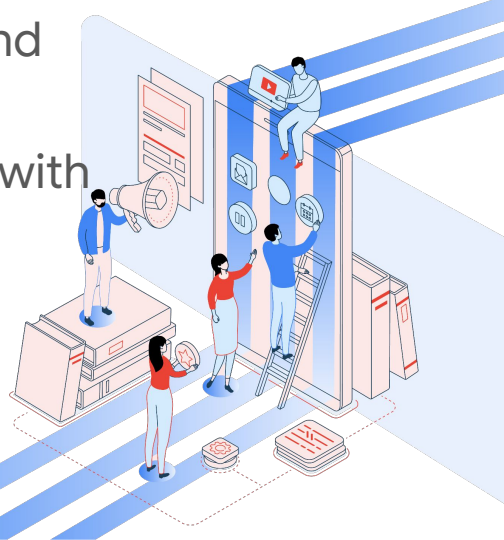
Gen AI on Google Cloud

- Google Cloud's new GenAI products for enterprise adoption.
- Google Cloud Solution: Secure environment for data with Generative AI capabilities.
- Customer Data Protection: Google doesn't use customer data to improve FMs, nor access or store it.



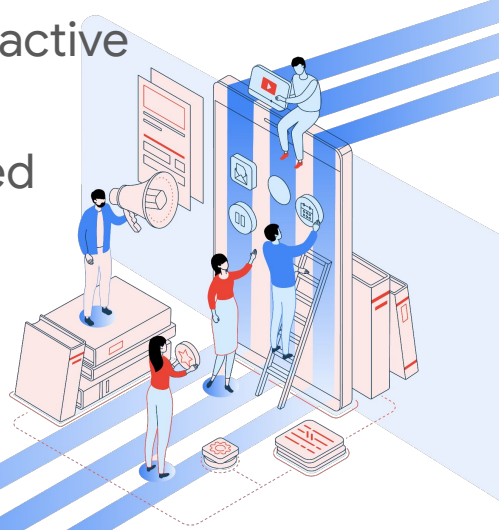
Gen AI Products/Services

- Generative App Builder: Offers out-of-the-box solutions for search and conversational experiences.
- Vertex AI Integration: GenAI services integrated with Vertex AI for end-to-end ML platform usage.
- Secure Development: Developers can securely develop and deploy models in production-ready environments.
- State-of-the-art Models: Access to cutting-edge models with enterprise security and deployment support.



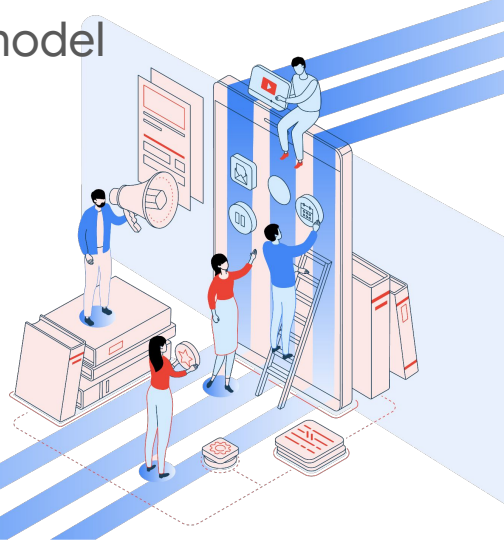
Gen AI App Builder

- Purpose: Empowers companies with ready-to-use solutions for search and conversational experiences.
- Benefits: Simplifies application development by leveraging GenAI capabilities.
- Use Cases: Enables efficient search experiences and interactive conversational interfaces.
- Instant Solutions: Quick implementation of GenAI-powered features without extensive development.

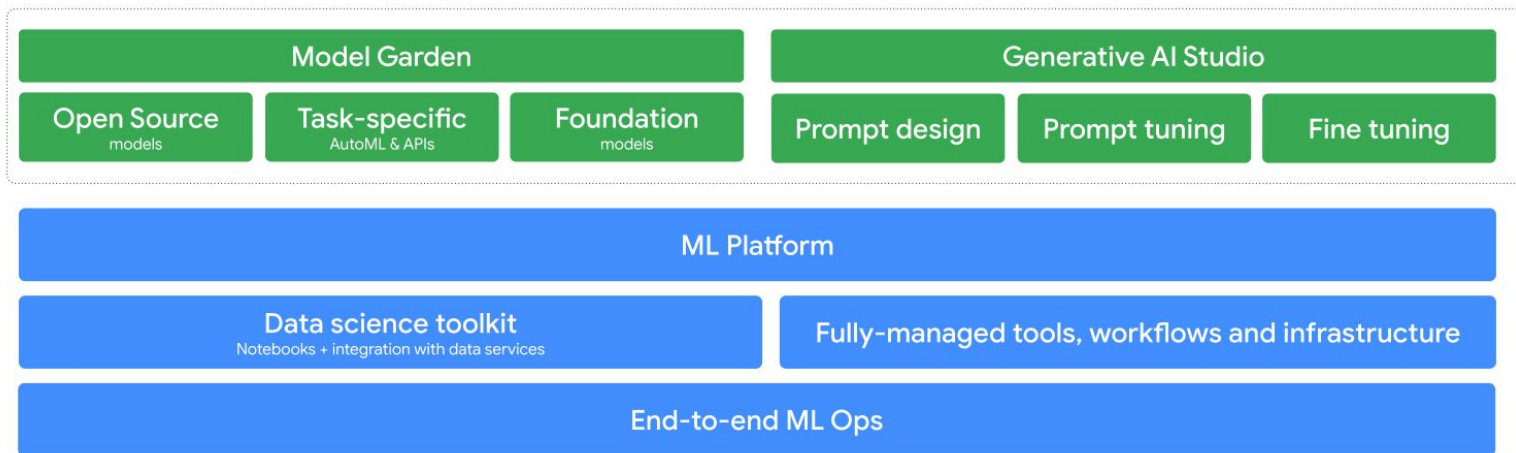


Vertex AI Integration

- Vertex AI Platform: Google's comprehensive end-to-end Machine Learning platform.
- GenAI Services Integration: Allows developers to leverage GenAI within Vertex AI.
- Secure Development: Ensures a secure environment for model development and deployment.
- Production-Ready: Enables deploying GenAI models in enterprise-grade production environments.



Vertex AI



Generative AI GitHub Repository

Sample code and notebooks for GenAI on Google Cloud



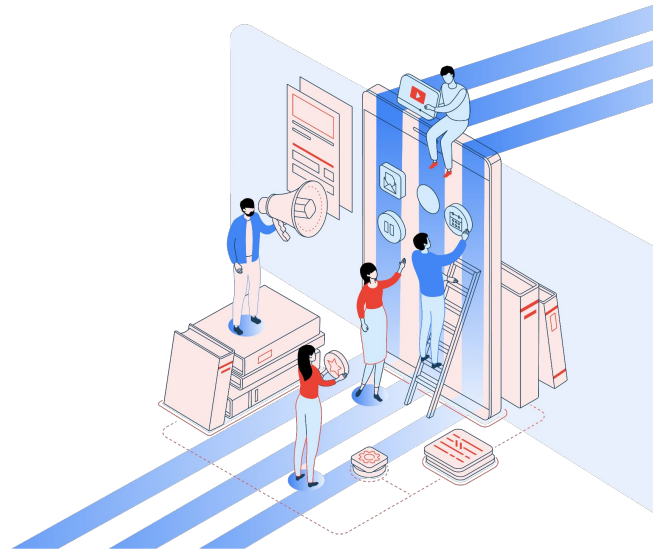
goo.gle/gen-ai-github

Table of Contents

- [Language/](#)
 - [Getting Started with Generative AI Studio without code](#)
 - [Intro to Vertex AI PaLM API](#)
 - [Intro to Prompt Design](#)
- [Examples/](#)
 - [Prompt Design/](#)
 - [Ideation](#)
 - [Question & Answering](#)
 - [Text Classification](#)
 - [Text Extraction](#)
 - [Text Summarization](#)
 - [Reference-architectures/ *NEW*](#)
 - [Product Description Generator from Image](#)
 - [Document Q&A/ *NEW*](#)
 - [Question Answering with Large Documents with LangChain](#)
 - [Question Answering with Large Documents \(without LangChain\)](#)
 - [Document Summarization/ *NEW*](#)
 - [Summarization with Large Documents with LangChain](#)
 - [Summarization with Large Documents \(without LangChain\)](#)
 - [LangChain-intro/ *NEW*](#)
 - [Getting Started with LangChain 🦜️🔗 + Vertex AI PaLM API](#)
 - [Tuning/](#)
 - [Tuning a Foundational Model, Deploying, and Making Predictions](#)

Google Cloud

Learn more about Generative AI at
goo.gle/generativeai



Introduction to Generative AI with Google Cloud

Questions ?

Tech Talks:

What's Next ?

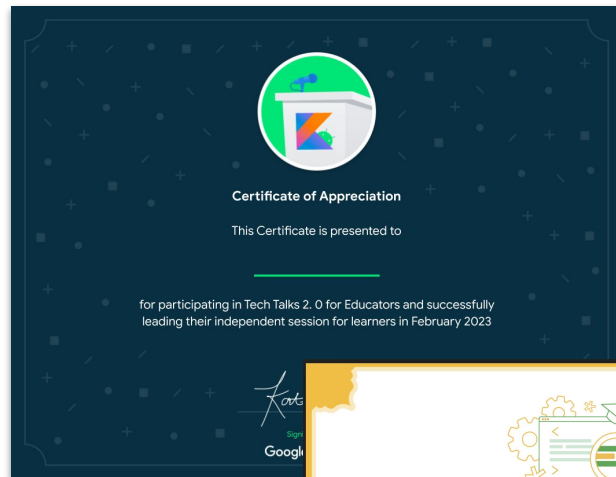
- Host a Session
- Share your feedback
- App Tech Labs



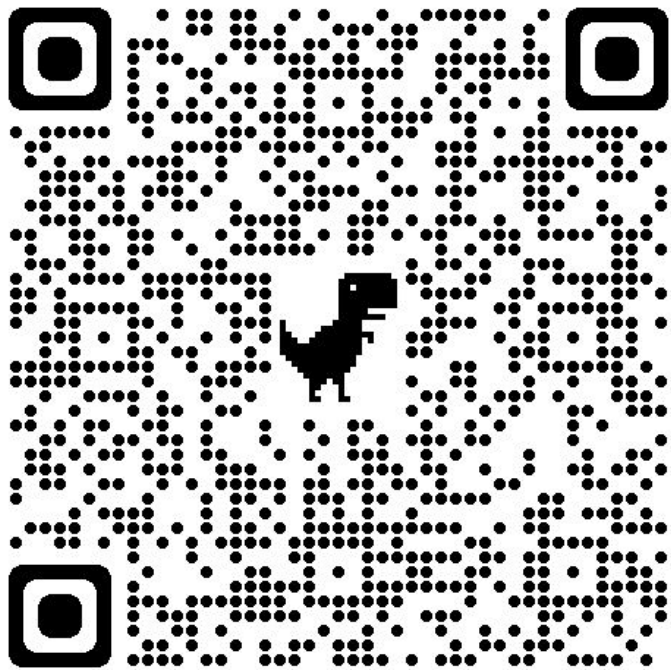
1. Host a Session for your Students

- Share what you learnt with your learners by hosting a Tech Talk on your campus!
- Ready to use resources available - slides, posters, etc.
- Timelines to conduct the session : **Sep 15th, 2023.**
- Earn **Certificate of Appreciation** from Google for Developers Edu team

Note: Expect updates from Edler Hub, our outreach partner.



2. Share your feedback



- Share your feedback for the session.
- Leave your coordinates here if you plan to host a session for students !

Tech Talks for Educators :

Deploy your Android App to Play Store

Sign up here: goo.gle/techtalksforedu



For Student : AppTech Labs

Nominate your students for AppTECH Labs starting in July !



Thank You!

