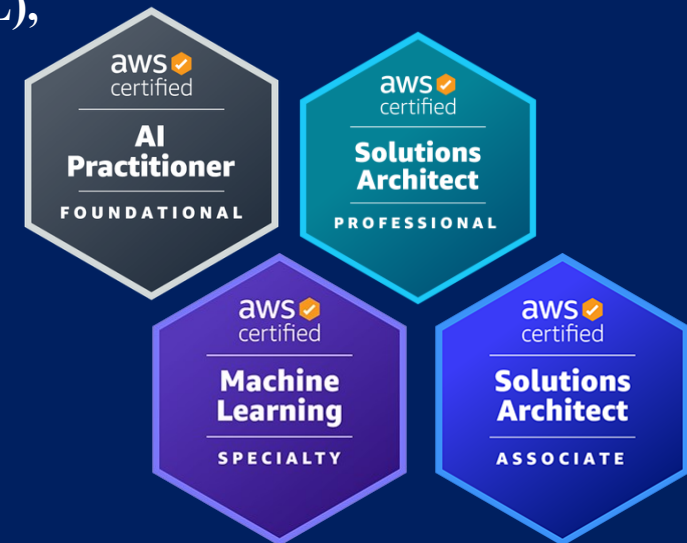# FROM IDEA TO PROTOTYPE:

BUILDING A PERSONAL EXPENSE TRACKER WITH GITHUB, VS CODE, AND AI TOOLS

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MCS(SL), MSLAAS, ACPM(SL), (LM)BASL

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BCAS CAMPUS
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KALMUNAI

BITS
PLATFORM FOR INNOVATORS

OVERALL LEARNING OUTCOMES

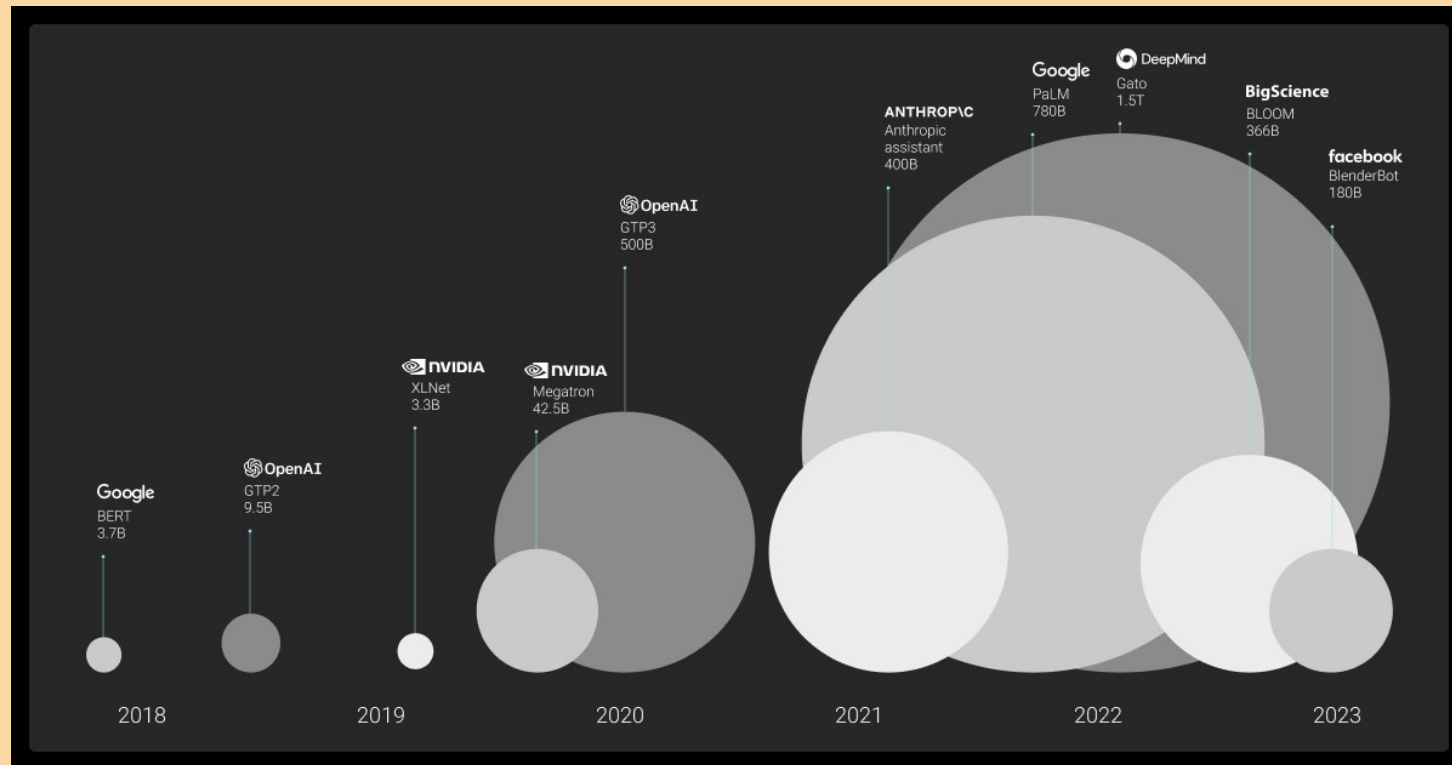**BY THE END OF THE SESSION, YOU WILL:**

- **Understand what LLMs are and how they power AI assistants like ChatGPT, GitHub Copilot, and Kiro.Dev AI.**

- **Understand GitHub fundamentals – repositories, commits, branches, pull requests, and README files.**

- **Learn to use VS Code efficiently for Python & MySQL-based app development.**

- **Explore AI-assisted prototyping with Kiro.Dev AI to speed up idea generation and coding.**

- **Build a working personal income & expense tracker with MySQL backend.**

- **Follow best practices in version control and collaborative coding.**

MODULE 1: UNDERSTANDING LLMs

WHAT IS AN LLM

- **An LLM is a machine learning model trained on massive amounts of text to understand and generate human-like language.**

BASICS OF PROMPT ENGINEERING

- **Simple Prompt:**

  Teach me how to connect php with mysql

  ?

WHY PROMPT ENGINEERING IS IMPORTANT?

- **Prompt engineering is how you translate your human intent into a machine-understandable instruction so that the LLM produces useful, accurate, and relevant output**

- **Think of the LLM as a hyper-intelligent intern:**
  - If you give vague or ambiguous instructions, the output will be wrong or incomplete.
  - If you give structured, precise guidance, the results will be professional and on-target.
- **So *prompt engineering* = communication skill between human and AI.**

BASICS OF PROMPT ENGINEERING

Teach me how to connect php with mysql ?

- ✅ **It's understandable, but… ❌ It lacks clarity**

  - What level is the learner?
  - Should it include code or explanation?
  - Which environment (XAMPP? Linux? cloud?)
  - What format should the answer be in?
  - So, the AI could respond in many ways — sometimes too brief, sometimes overly complex.
  - **Let's now rewrite it step by step using structured prompting.**

1) ROLE, TASK, CONTEXT & OUTPUT BASED TECHNIQUE

- **PROMPT:** You are a web development instructor. Explain step-by-step how to connect PHP with MySQL on a local XAMPP server for a beginner who has never used databases before. Include explanations of each line of code.

- **Role:**   You are a web development instructor

- **Task:**   Explain step-by-step how to connect PHP with MySQL on a local XAMPP server

- **Context:**   for a beginner who has never used databases before

- **Output:**   Include explanations of each line of code

2) ONE / FEW-SHOT EXAMPLE

- **PROMPT:**

Provide me list of companies I can do internship in Sri Lanka for the role of Web Development once I complete my BTEC HND in Software Engineering. I want you to give the output as follows

Name of the Company
- **Name of the Contact Person 01**

- **Contact Number: <contact_number>**

- **E-Mail: <email address>**

- **Website: <url>**

- **Employees: <number_of_employees>**

3) CHAIN-OF-THOUGHT (COT) / ITERATIVE PROMPTING

- **Prompt:**
  - List out the opportunities after completing HND in Computing at British College of Applied Studies in Sri Lanka.
  - Review each opportunities in terms of cost benefits or return on investment.
  - Assuming I am in financial needs, regenerate your answer in priority order