Python & AI Summer Camp

Designed specifically for IGSCE Students (O/A Levels)

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Introduction

This workshop series is a practical introduction to computer programming and Artificial Intelligence (AI), designed especially for school students aged 13 to 18. Over five weeks, students will learn how to write code using Python and use modern AI tools like ChatGPT (based on GPT-4.1) and Gemini (version 2.5).

The sessions are built to be friendly for beginners. By the end of the course, each student will have made their own AI chatbot, learned how to talk to PDFs, and even tried out simple AI image generation.

Python Fundamentals

01 Setup & "Hello, Python" with Data Structures

Jun 18

In this session, students set up their Google Colab environment and wrote their first Python code using print() and variables. They explored basic data types such as integers, floats, and strings, and learned how to convert between them. The session introduced four core data structures—lists, tuples, dictionaries, and sets—with clear differences and real-world examples. We wrapped up by building a basic calculator and hands-on activities using list operations and dictionary lookups.

02 Control Flow & Loops

Jun 19

This session dives into how Python makes decisions using if, elif, and else statements. We covered logical operators (and, or, not) to write more complex conditions. Students then explored loops: for loops for repeating tasks over lists, and while loops for conditions-based repetition. We emphasized practical use-cases like checking grades, filtering data, and using nested loops. The session ends with a fun interactive number guessing game, applying everything they've learned so far.

Week# 02

Python Intermediate

03

Functions & Modules

Students learn how to break big problems into smaller chunks using functions in Python. We explore how to define and call functions, use parameters, and return values. Next, we introduce modules—built-in tools like math, random, and datetime. By the end, students create their own mini toolbox of functions they can reuse in projects.

04

File Handling & Error Management

This session covers how to make Python interact with real-world files like .txt and .csv. Students learn how to read from and write to files, and how to handle problems using try-except blocks. The day wraps up with building a simple to-do list app that saves and loads data from a file, just like real programs.

Week# 03

LLM & GenAI Foundations

05

Introduction to AI & LLMs

What is AI? How do tools like ChatGPT and Gemini actually work? This session explains large language models (LLMs) in a way that's easy to understand. We talk about ideas like tokens, embeddings, and how these models "predict words." Students will also get to chat with real AI tools and see them in action.

06

Prompt Engineering & Talking to AI with Code

Students learn how to craft better inputs—called prompts—to get smarter responses from AI. Then they write real Python code to connect to OpenAI's API using the SDK. By the end, each student creates a working chatbot script that can answer questions using AI just like ChatGPT.

Week# 04

Fine-Tuning & Deployment

07   **Fine-Tuning Concepts & Dataset Preparation**

Jul 9

What if AI could be trained to act like you? This session explains the concept of fine-tuning a language model using your own examples. Students learn how to create a dataset in the correct format (.jsonl), and prepare it for uploading. We explain use-cases and limitations in an easy-to-follow way.

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08   **Hands-On Fine-Tuning**

Jul 10

It's time to fine-tune! Students upload their dataset to OpenAI or Gemini and create their own custom AI model. They'll monitor training logs, check results, and compare how their model performs. This session builds confidence and makes AI feel like something they can truly shape and control.

Week# 05

Capstone Projects

09	**Build Your Own Chatbot App with Streamlit**	Students learn to turn their chatbot into a real web app using Streamlit, a tool for building apps with just Python. They'll design a user interface with text boxes, sliders, and buttons—no HTML needed. Their fine-tuned model is now part of a full product they can show and share.
	Jul 16	

10	**Chat with PDF + AI Images & Ethics Wrap-Up**	Students build a tool where AI reads and answers questions about a PDF file, using LangChain and PyPDF2. Then we explore AI image generation using DALL·E and image editing with Pillow. We finish the course by talking about AI ethics, fairness, and how to use these tools responsibly.
	Jul 17	

We hope this summer camp becomes your launchpad into the world of Programming and Artificial Intelligence. Whether you're dreaming of building apps, exploring AI research, or just curious about how modern technology works.

This journey will give you a strong foundation.

Keep building.
Keep exploring.

The world of AI is just getting started — and **so are you.**

Additionally, rising talent students will be awarded with remote 2 month internship at Swift Dynamics, LLC

Think.
Create.
Solve.