

Design with Python (Intermediate)

Virtual Camp

Monday, August 17 to Friday, August 21 (5-days)
1:00 PM to 3:00 PM daily

Daily Schedule

1:00 PM	Virtual Room Opens
1:00 PM - 1:05 PM	Attendance
1:05 PM - 1:55 PM	Lesson and Activity Time
1:55 PM - 2:00 PM	Break
2:00 PM - 2:55 PM	Activity Time
2:55 PM - 3:00 PM	Wrap Up

Daily Summary

Day 1 | Spilling the Tea on Programming Relationships

Monday, August 17 | 1:00 PM to 3:00 PM

Campers will explore Object-Oriented Programming (OOP) concepts and inheritance. They will develop a game, game characters, and a map to discuss how inheritance works in coding. This exciting hands-on experience will help them understand the relationships between different parts of a program.

Day 2 | It's a Piece of Cake to Bake a Pretty Cake

Tuesday, August 18 | 1:00 PM to 3:00 PM

On the second day, campers will dive into algorithms and AI. They will develop an AI for a boss character based on the previous day's work, exploring how AI can influence the way we design game mechanics and character behavior.

Day 3 | It's time to deliver the cake

Wednesday, August 19 | 1:00 PM to 3:00 PM

On the third day, campers will learn how to deploy and share their games using Streamlit. They will transform their projects into interactive web applications, exploring how developers bring their creations online for others to play and enjoy. This hands-on experience will introduce the basics of web deployment and help campers showcase their games to friends and family.

Day 4 | Bro I'm LAGGING

Thursday, August 20 | 1:00 PM to 3:00 PM

This day is all about cybersecurity vulnerabilities and concerns. Campers will learn about cyberattacks, how to prevent them, and dive into image recognition techniques. They'll also be introduced to ORB (Oriented FAST and Rotated BRIEF) and develop a fingerprint scanner in Python, putting their newfound cybersecurity knowledge to the test!

Day 5 | With Great AI Comes Great Cyber Responsibility

Friday, August 21 | 1:00 PM to 3:00 PM

Campers will explore general AI, Machine Learning, Recommender Systems, and the basics of DeepFakes. They'll learn about the role of AI in cybersecurity and how to spot fake news with AI-powered systems. As a final project, campers will develop an AI fake news detector to sharpen their understanding of both AI and the ethical responsibilities it brings.

Information for Parents: Accounts and Software

Throughout this camp, students will learn Python programming using Google Colab (<https://colab.research.google.com/>) , a free, browser-based coding environment. Google Colab allows students to write and run Python code directly in their web browser without needing to install any software on their personal computers. This helps us ensure that all campers have access to the same tools and can start coding right away.

To use Google Colab, students will need access to a Google account. In some cases, school-managed Google accounts may have restrictions that prevent students from accessing Google Colab or saving their work properly. For this reason, **we recommend that parents help their child create or use a personal Google account before the camp begins if possible.**

While Google Colab will be our primary programming environment, students who wish to continue coding after camp may also explore other Python development tools, including:

- IDLE (included with many Python installations)
- Thonny (a beginner-friendly Python editor)
- Visual Studio Code (a professional coding environment)
- PyCharm Community Edition (a popular Python development tool)

If creating a google account ahead of time is not possible, camp staff will do their best to provide alternative options and assistance during the program.