AI-First Software Development for 10X Productivity

2-Day Hands-On Workshop

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Workshop Philosophy

Tools change. Principles don't. This workshop teaches both.

This workshop is designed for rapidly scaling up your development ability using the power of AI and agentic coding tools. AI coding tools are evolving rapidly. However, the underlying principles of how LLMs process context, why certain prompting strategies work, what makes agentic workflows effective, etc., remain stable. This workshop prioritizes these transferable concepts alongside hands-on practice.

What this workshop is NOT:

- A marketing overview of AI capabilities
- A superficial tour of multiple tools
- A collection of "magic prompts" to memorize

What this workshop IS:

- A deep AI-driven software development enablement program
- Focused on building mental models that transfer across tools
- Practical, hands-on skill development with real codebases
- Designed to deliver measurable productivity improvement

By the end of this workshop, participants will not just know how to use their chosen tool — they will understand how it works, why certain approaches succeed or fail, and how to adapt their techniques as tools evolve.

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Audience

This workshop is designed for software developers, solution architects, technical architects, and other IT professionals who wish to rapidly scale up their software development productivity using AI-powered coding tools and agentic workflows.

Prerequisites

- Knowledge of writing software programs in at least one programming language
- Ability to work with command-line tools on Windows, Mac, or Linux
- Basic understanding of using JSON and YAML files for configuration

Pre-Workshop Preparation

Participants must complete all software installation **before** the workshop begins. No setup time is allocated during sessions. Installation guides will be provided prior to the workshop date.

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Learning Outcomes

Upon completing this 2-day workshop, participants will be able to:

Conceptual Understanding

- Explain how LLMs process code and why context management matters
- Articulate the difference between autocomplete, chat, and agentic modes
- Identify when AI assistance adds value vs. when it introduces risk

Practical Skills

- Implement effective techniques for code generation, refactoring, and debugging
- Apply the ACTS framework for consistent AI-assisted development
- Build full-stack applications with AI assistance
- Use agent mode and Copilot coding agent for autonomous task execution
- Work effectively with existing codebases using AI tools
- Generate comprehensive tests with AI assistance
- Connect and utilize MCP servers for enhanced context

Personal Productivity

- Create a personal AI-first development playbook with templates and checklists
- Establish a systematic workflow for AI-assisted development
- Identify which development tasks benefit most from AI assistance

Participant Equipment and Software

Hardware

64-bit CPU PC/Mac with minimum 16GB RAM, 20GB free disk space

Operating System

- Windows 11, macOS Ventura or higher, or Ubuntu 22.04+

AI Coding Tool

- GitHub Copilot subscription
- GitHub Copilot Extension for VS Code

Required Software

Software	Purpose	Download
Visual Studio Code	Primary IDE	https://code.visualstudio.com/
Git	Version control	https://git-scm.com/downloads
GitHub Desktop	Git GUI	https://desktop.github.com/
Node.js 24 LTS	Runtime for exercises	https://nodejs.org/
Python 3.11+	Runtime for exercises	https://www.python.org/

Note: This workshop may require additional software. Final requirements will be shared on workshop registration confirmation.

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Program Schedule Overview

Day	Focus Area	Key Outcomes
Day 1	Foundations and Full-Stack Development	Understand how AI coding tools work; ACTS framework; prompting patterns; build full-stack web app
Day 2	Agentic Workflows and Practical Application	Master agentic workflows; brownfield development; testing; MCP; personal development playbook

Daily Structure:

- Sessions run approximately 8 hours including breaks
- **The entire workshop is hands-on** — each topic includes conceptual explanation immediately followed by practical exercises
- Pace is designed for solid skill absorption and measurable productivity improvement

DAY 1

Session 1.1: Building Your AI Mental Model

Objective:

Build accurate mental models of LLM-based coding assistance

Topics:

- Understand tokens, context windows, and how models process code
- AI coding with autocomplete, chat, and agent mode
- Context management

Session 1.2: Effective Prompting Patterns for Code Generation

Objective:

Master effective communication with AI coding tools for generating production-quality code

Topics:

- Anatomy of an effective coding prompt
- Prompt patterns that work well for code generation tasks
- Common anti-patterns and iterative refinement
- Code review checklist for AI-generated output

DAY 1

Session 1.3: ACTS Framework

Objective:

Establish systematic practices for AI-assisted development

Topics:

- ACTS Framework: Analyse, Create, Test, Standardize
- Define best practices for coding, linting, naming, documentation etc.
- Create prompt templates and checklists

Session 1.4: Full-Stack Application Development with AI

Objective:

Apply AI assistance to build a complete application

Topics:

- Generating code from specifications
- Database schema design and migrations
- Building API endpoints
- Integrating frontend, backend, and database layers

Session 1.5: Refactoring and Debugging with AI

Objective:

Improve and fix code systematically with AI assistance

Topics:

- AI-assisted refactoring techniques
- Debugging workflows with AI
- Root cause analysis patterns

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DAY 2

Session 2.1: Mastering Agentic Workflows

Objective:

Use autonomous agent capabilities for rapid development

Topics:

- Agent mode for multi-step task execution in VS Code
- Copilot Coding Agent for asynchronous background tasks
- Agent Skills: creating and using custom skills
- Custom instructions and configuration files
- Multi-model selection and when to use different models

Session 2.2: AI Driven Brownfield Development

Objective:

Apply AI assistance effectively in existing codebases

Topics:

- Using AI to understand unfamiliar code
- Effective context selection strategies
- Project rules and configuration files
- Working with legacy code and technical debt

DAY 2

Session 2.3: AI-Assisted Testing

Objective:

Generate comprehensive tests with AI assistance

Topics:

- Generating unit and integration tests
- Test coverage analysis and gap identification
- E2E Testing with AI

Session 2.4: Working with Model Context Protocol (MCP)

Objective:

Extend AI capabilities by connecting to external tools and data sources

Topics:

- Understanding MCP in depth
- Working with pre-built MCP servers
- Using MCP servers for coding
- Building a custom MCP server

Session 2.5: Build Your AI-First Development Playbook

Objective:

Create a personal action plan for continued AI-assisted development

Topics:

- Building your personal workflow checklist
- Planning your continued AI-assisted development journey

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