Useful Prompts for Software Design and Development

Estimated time needed: **20** minutes

Objectives

After completing this reading, you will be able to:

- Describe legacy code modernization using generative
- Explain IBM watsonx Code Assistant for Z

Software Design Prompts

- Design a modernization plan for a legacy monolithic application to transition to a microservices architecture. Include considerations for scalability, resilience, and seamless deployment processes.

- Propose an architecture for a high-traffic social media application that can handle millions of concurrent users. Outline the database, server, and caching strategies that will ensure optimal performance.

- Generate a secure software architecture for an online trading system. Highlight how you would incorporate encryption, authentication, and audit logging to safeguard user transactions and data privacy.

- Create a blueprint for a cloud-native SaaS application tailored for the healthcare industry.

- Discuss how to utilize cloud services for compliance with health data regulations, data analytics, and interoperability with other systems.

- Draft an IoT-enabled smart home system architecture. Explain how various smart devices will communicate with each other and the cloud, ensuring low latency and high data throughput while maintaining user privacy

Coding Prompts

- I'm in the process of developing a JavaScript web application and need guidance on implementing a secure login function that utilizes JWT (JSON Web Tokens). Please include comments within the code for clarity.

- I have a dataset in CSV format that holds sales data from the past year. Using R, could you script an analysis to predict next month's sales? Provide a step-by-step explanation of the approach.

- I'm developing a mobile app using Flutter. Can you assist me in writing Dart code for a custom animated splash screen that aligns with my app's theme and smoothly transitions to the homepage?

- Please help me construct a SQL query to retrieve all records from a 'users' table where the 'last_login' is older than six months and elaborate on how indexes could optimize this query for a large database.

- "I'm getting a 'SyntaxError: invalid syntax' in my Python code. Can you help me figure out what's causing it?"

- "My Python script is giving me an 'IndexError: list index out of range'. What could be the issue here?"

- "I'm encountering a 'NameError: name 'some_variable' is not defined' in my Python code. How can I address this?"

- "My Python program is throwing a 'KeyError' when working with dictionaries. Any suggestions on how to fix this?"

- "I'm seeing a 'TypeError: unsupported operand type(s) for +: 'int' and 'str' while working with variables in Python. How can I resolve this?"