Module 2 Cheatsheet: Generative AI for DevSecOps and Testing

Estimated Time: 30 minutes

Description	Tools
CI/CD using AI	• Jenkins • IBM Watson Studio • Codefresh • Atlassian • GitLab CI/CD • PagerDuty AIOps • CircleCI • Travis CI • Harness • Snyk • Dynatrace's Davis AI • Qwiet AI preZero
Software security using AI (secure coding)	• Snyk Code • GitHub Advanced Security • Veracode Fix • Endor Labs • Microsoft Security Copilot • BurpGPT • EscalateGPT
Documentation using AI	• Doxygen • NaturalDocs
Code reviews using AI	• DeepCode • CodeClimate
Innovation using AI	• Lumen5 • Deep Nostalgia • Gen-1, Krisp • Legal Robot • Dall-E 2 • Castle • Stable Diffusion 2 • Soundraw • Lalal.ai • Cleanup.Pictures • Looka • Fireflies • Murf

Prompts:

Task	Prompts/Links
Setting up the development environment for Generative AI and ChatGPT	• Install Visual Studio Code (VS Code) • Link to download - https://code.visualstudio.com/ • How to get the OpenAI/ChatGPT API key • Follow this Link for OpenAI - https://platform.openai.com/signup/ **Download Node.js:** Visit the official Node.js website - https://nodejs.org/ **Installing OpenAI and Running Express** npm install express openai
Building a basic chatbot using ChatGPT	node server.js **Prompts**
Generating table design	• What is agile methodology? • What is the difference between a compiler and an interpreter? • What is the difference between a stack and a queue? • What is the difference between a linked list and an array? • Could you provide guidance on designing a database table for customers in a company, including fields like name, email, and location? I'm looking to understand the best practices and considerations for structuring such a table effectively. • Can you please give the above in table format? • Could you demonstrate the structure of a database table for customers in a company, outlining the fields like name, email, and location in a clear table format? • Could you advise on creating a separate table to store customer locations, specifically focusing on incorporating fields like state, country, and zip code? • Regarding the database structure, how should I design a separate 'Purchases' table to store information about customer purchases, such as the date of purchase, amount, and more? What would be the best approach to linking this 'Purchases' table to the main customer table for efficient data organization and retrieval?
Generating code with AI tools	**Code for finding the maximum and minimum elements in a list using Python:** 1. 1 2. 2 3. 3 4. 4 5. 5 6. 6 7. 7 8. 8 9. 9 10. 10 11. 11

```
12. 12
```

```
1. numbers = [5, 2, 9, 1, 7]
2. max_num = numbers[0]
3. min_num = numbers[0]
4.
5. for num in numbers[1:]:
6.     if num > max_num:
7.         max_num = num
8.     if num < min_num:
9.         min_num = num
10.
11. print("Maximum element:", max_num)
12. print("Minimum element:", min_num)
```

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Code for optimization

```
1. 1
2. 2
3. 3
4. 4
5. 5
6. 6
```

```
1.     def find_largest(arr):
2.         largest = arr[0]
3.         for num in arr:
4.             if num > largest:
5.                 largest = num
6.         return largest
```

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Prompt for function generation

Develop a Python function to eliminate duplicates and sort a list of 10 country names.

Prompt for using the append function

Create a Python function using ‘append’ to find and return duplicate elements in an integer list.

Creating a Dockerfile using generative AI

• What is a Dockerfile?

• What's the first crucial step when creating a Dockerfile for a Node.js application?

• Following the base image selection, set the working directory inside the container to /app.

• As selected working directory /app, bring package.json and package-lock.json to the working directory.

• Now, how can we install dependencies and copy the remaining application code to the working directory?

• The Node.js app needs to be accessible on a specific port, what Dockerfile instruction can we include for this purpose?

• How to specify the command to start the Node.js application using CMD?

• Combine all the steps to create a complete Dockerfile for a Node.js application.

Author(s)

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