

**Task7**

📎Clean Code 13 Principles

* **Follow the PEP 8 Style Guide**
* **Write self-explanatory code**
* **Keep functions small and focused**
* **Use meaningful comments**
* **Avoid duplication**
* **Write unit tests**
* **Use meaningful variable and function names**
* **Keep lines of code short**
* **Minimize the number of function arguments**
* **Use whitespace effectively**
* **Handle errors gracefully**
* **Avoid premature optimization**
* **Continuously refactor your code**

📎What types of problems Design pattern solves?

Creational Problems

Structural Problems

Behavioral Problems

**When to use Solid principles?**

is a popular set of design principles that are used in object

📎Design pattern vs Architecture pattern

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| **Design pattern** | **Architecture pattern** |
| Design patterns are reusable solutions to common problems that occur in software design. They provide guidelines for solving specific design issues and improving the structure and flexibility of software systems | Architecture patterns, on the other hand, focus on the overall structure and organization of a software system. They provide high-level guidelines for designing the entire system or its major components |
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**Two basic computer architecture Which one is better?**

* Complex Instruction Set Computer (CISC) and Reduced Instruction Set Computer (RISC) are the two major approaches to processor architecture.
* RISC architecture is better than CISC architecture,

📎RISC vs CISC

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| **RISC** | **CISC** |
| * A simple RISC takes one computer cycle to complete * RISC performance was improved by focusing attention on the software parts of the computer. * RISC does not contain its own memory unit and uses a separate memory unit to execute instructions | * CISC processor contains complex instructions that need from 2 to 15 cycles to complete. * CISC the performance improvement was by focusing on the physical parts of the computer * CISC contains its own memory unit to execute complex commands. |

ARM vs AVR

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| ARM | AVR |
| **ARM** (Advanced RISC Machine) is a family of microprocessor architectures developed by ARM Holdings. It is based on the Reduced Instruction Set Computing (RISC) design philosophy, which aims to simplify the instruction set and optimize performance. ARM processors are widely used in various applications ranging from mobile devices to high-performance computing systems | **AVR** (Alf and Vegard's RISC processor) is a family of microcontrollers developed by Atmel Corporation. It is also based on the RISC design philosophy but with a different instruction set architecture compared to ARM. AVR microcontrollers are commonly used in low-power applications such as consumer electronics, industrial automation, and Internet of Things (IoT) devices. |

What is Fragmentation when it occurs?

when processes are loaded and unloaded to and from the main memory (RAM), leaving a chunk of free space in the main memory

Semi structured database?

a semi-structured database is a type of database that provides flexibility in storing and managing data with varying structures. It combines elements of both structured and unstructured databases, allowing for efficient storage and retrieval of diverse data types. Semi-structured databases are particularly useful in scenarios where data structures are evolving or unpredictable, and where agility and scalability are important.