

LOG8430 - Revision - Architecture

1. Is this statement relevant to architecture or to design? Why? "We want a GUI layer, an analytics layer and a data storage layer."

☐ Architecture, because it refers to the "what".

☒ Architecture because it refers to non-functional requirements.

☐ Design, because it refers to specific components of the system.

☐ Design, because it mentions specific technologies.

2. Is this statement relevant to architecture or to design? Why? "All new applications need to extend the Application interface."

☐ Architecture, because it refers to the "how".

☐ Architecture, because it refers to specific components of the system.

☐ Design, because it refers to specific components of the system.

☐ Design, because it refers to the "what".

3. Is this statement relevant to architecture or to design? Why? "The application is available on a

design? Why? "The application is available as a service deployed on cloud."

- ☐ Architecture, because it refers to the "how".
- ☐ Architecture, because it refers to the execution/deployment environment of the system.
- ☐ Design, because it refers to specific technologies.
- ☐ Design, because it refers to specific components of the system.

4. Is this statement relevant to architecture or to design? Why? "We need a NoSQL database with a high availability rate."

- ☐ Architecture, because it refers to the "how".
- ☐ Architecture, because it refers to non-functional requirements.
- ☐ Design, because it refers to specific technologies.
- ☐ Design, because it refers to specific components of the system.

5. Is this statement relevant to architecture or to design? Why? "A method takes the type of an object as parameter and returns an instance of this type by calling the private constructor of the corresponding class."

- ☐ Architecture, because it refers to the "what".

- ☐ Architecture, because it describes an abstract design.
- ☐ Design, because it refers to the "how".
- ☐ Design, because it refers to specific technologies.

6. We search for a distributed data system with high fault tolerance and with high availability. The database contains numerous replicas and the nodes communicate with each other to identify errors. What architectural style would you use and why?

- ☐ Master-slave, because we have replicas.
- ☐ Peer-to-peer, because the replicas can communicate with each other to increase fault tolerance
- ☐ Client-server, because the nodes can communicate with each other.

7. We search for a data analytics system. An analytics task is submitted and it is replicated on multiple nodes. Each node works on a slice of the data. The results are assembled and aggregated before being returned. What architectural style would you use and why?

- ☐ Peer-to-peer, because we have replicas
- ☐ Client-server, because tasks are submitted for processing

- ☐ Master-slave, because tasks are replicated and operate on parts of the data.
- ☐ Blackboard, because nodes work on different problems.

8. We search for a system to store and analyse tax returns. The computation and storage capacity is not a problem and the number of tax returns is roughly predicted. What architectural style would you use and why?

- ☐ Master-slave, because this is a MapReduce architecture.
- ☐ Client-server, citizens are clients who submit tax returns and the revenue agency is the server that analyses them.
- ☐ Monolithic, because scalability is not an issue and security is most important.

9. We search for a data system to sell products of an e-store. Each product can be identified uniquely. The user can simply view a product, add a product, delete a product and update a product. What architectural style would you use and why?

- ☐ Client-server, to enable interactions with the database
- ☐ Multi-tier architecture, one tier for the interface, one for interacting with the database, and one for the database

- ☐ REST, because every product is a resource and it only allows CRUD operations

10. We search for a data analytics system. There are many algorithms to analyse the data. Each algorithm can change the data and prepare it for the following algorithm. What architectural style would you use and why?

- ☐ Master-slave, because we have many algorithms.
- ☐ Pipe-filter, because we have many algorithms executed in some order.
- ☐ Peer-to-peer, because we have many algorithms that communicate with each other.
- ☐ Blackboard, because we have many algorithms executed in no particular order.

Done

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