

Architectural Pattern Selection – Evaluation Values for User Input

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Date: 07.06.2023

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1 Application Domain

The user is asked to select an application domain. Evaluation values for each application domain:

ID	Domain	Layered	Event-driven	Micro-kernel	Micro-services	SOA	Space-based
1.1	Web-based systems	5	5	0	5	5	5
1.2	Web services	0	0	0	5	5	5
1.3	Service-based systems	0	0	0	5	5	0
1.4	Distributed systems	5	5	5	5	5	5
1.5	Cloud computing applications	0	0	0	5	5	0
1.6	Mobile applications	5	0	0	5	5	5
1.7	Compiler design	5	0	0	0	0	0
1.8	Case and related developer tools	5	5	5	5	0	0
1.9	Database systems	5	5	0	5	0	0
1.10	Context-aware systems	5	5	0	5	5	0
1.11	Adaptable systems	0	0	5	5	0	0
1.12	Enterprise application integration	0	5	0	5	5	0
1.13	Customer relationship management	5	5	0	5	5	0
1.14	Information management and decision support systems	5	5	0	0	5	0
1.15	Transaction Processing	5	5	0	5	5	5

2 Type of Application

Evaluation values for each application type:

ID	Description	Layered	Event-driven	Micro-kernel	Micro-services	SOA	Space-based
2.1	Web application / website with small components	0	0	0	5	5	0
2.2	Large scale web application like e-commerce or social website development	5	5	0	5	5	5
2.3	General desktop application	5	5	5	0	0	0
2.4	Application with a simple business logic that does not need to scale out	5	5	0	0	0	0
2.5	Enterprise or business application with traditional IT departments and processes	5	0	0	0	5	0
2.6	Application with a fixed set of core functionalities and a dynamic set of functionalities that need frequent updates	0	0	5	5	0	0
2.7	Large, complex, enterprise-wide systems that require integration with many heterogeneous applications and services	0	5	0	0	5	0
2.8	Application that has many shared components, particularly components across the enterprise	0	5	0	0	5	0
2.9	Application with immense and rapidly growing data systems	0	5	0	5	0	5
2.10	Application with different platforms	0	0	0	5	5	0
2.11	Application that requires strict standards of testability	5	0	0	5	0	0

3 Non-Functional Requirements

Evaluation values for non-functional requirements:

ID	NFR	Layered	Event-driven	Microkernel	Microservices	SOA	Space-based
3.1	Maintainability	5	5	5	5	5	5
3.2	Performance	2	3	1	4	4	4
3.3	Portability	5	4	5	1	5	5
3.4	Reliability	5	5	5	5	5	4
3.5	Security	5	5	5	5	4	3

Evaluation of specific NFRs regarding development and deployment:

ID	Description	Layered	Event-driven	Microkernel	Microservices	SOA	Space-based
4.1	High ease of development / quick development with fewer developers	5	0	0	5	0	0
4.2	Easy to rewrite and update parts of the application	0	0	5	5	0	0
4.3	Development teams that are spread out	0	0	0	5	0	0
4.4	Adding special functionality, modules or extensions without rewriting the original application	0	0	5	5	0	0
4.5	High ease of deployment	0	5	5	5	0	5
4.6	Rapid, frequent and independent deployment	0	0	0	5	0	0

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4.7	Quick response to a constantly changing environment	0	0	5	5	0	5
4.8	Reusability of integrations and component sharing	0	0	0	0	5	0

4 Architectural Features

The user is asked to choose the desired features of the architecture of her application.

Evaluation of architecture features:

ID	Description	Layered	Event-driven	Microkernel	Microservices	SOA	Space-based
5.1	Asynchronous communication / data flow	5	5	5	5	5	5
5.2	Synchronous communication / data flow	5	0	5	5	5	0
5.3	Loose coupling	0	5	5	5	5	0
5.4	Independent services	0	0	0	5	5	0
5.5	Separation of concerns	5	0	5	5	5	0
5.6	Plug-in components	0	0	5	0	0	0
5.7	Dynamic composition	0	5	5	5	5	0
5.8	High volume data	0	0	0	5	0	5