

Web Services

Web Programming and Testing



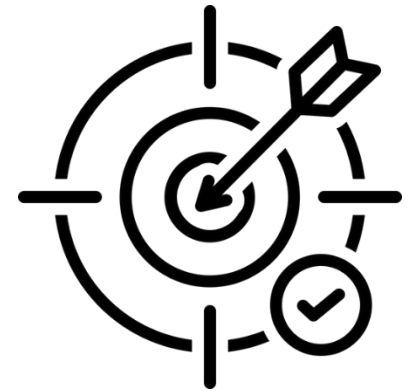
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Objectives

- The objective of this session is the following:
 - the students are able to elaborate the use of services and the motivation behind it.



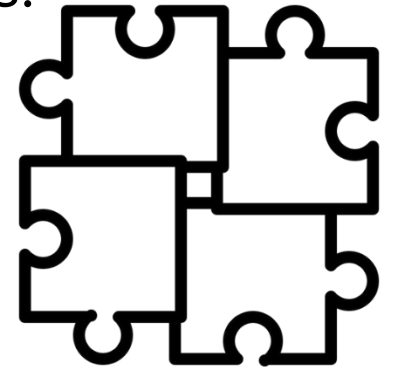
Outlines

1. Motivation
2. What is service?
3. When to use service?

Motivation

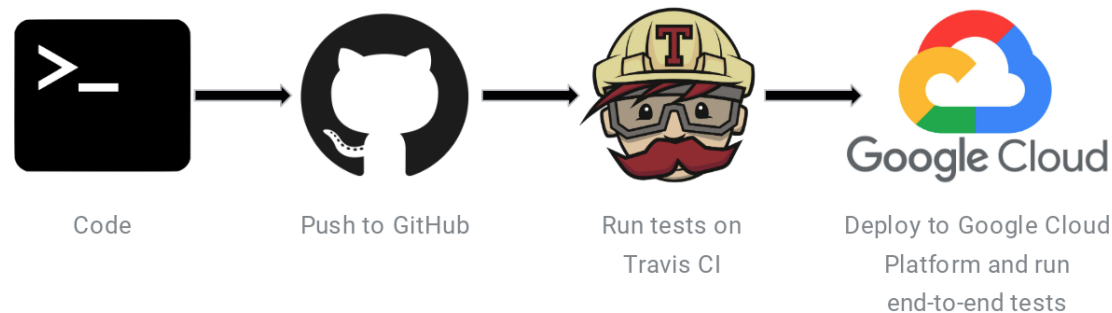
Distributed Data and Capabilities

- No super enterprise, no super-app.
 - An application must be focused on its own specific business.
 - Other functionalities, outside its domain expertise shouldn't be handled.
- Needs for data exchange and accessible capabilities.
 - for authentication → Google, GitHub OAuth services.
 - money exchange rate → central bank's services.



Distributed Data and Capabilities

- An illustration
 - Each individual has a specific responsibility in life.
 - These responsibilities are chained or orchestrated in a specific order to provide a greater, more complex service with higher value.
 - The individual, joined in the orchestration, must do his/her job properly to achieve the goal.



GO  FOOD



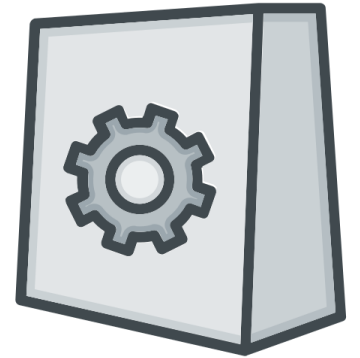
What is A (Web) Service?

What is A Service?

- A service is a functionality with a specific goal.
 - In our context, it is in the form of software that is available via an clearly defined API.
 - The definition is specified in a contract.

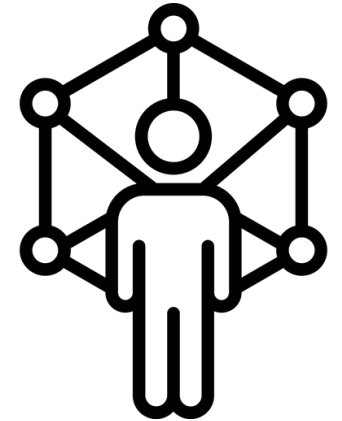
What is A Web Service?

- A web service is a service that is made available through web protocols.
 - Uses HTTP/S and its standards.
- Most of web services are implemented in the forms of
 - either SOAP or REST-based services.



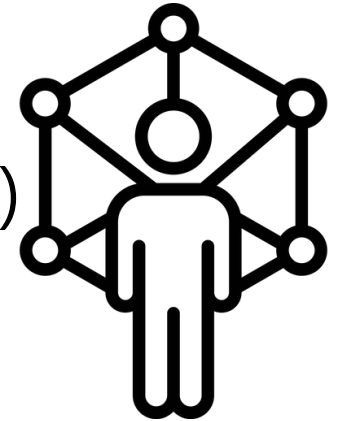
What is A Contract?

- A service is available for consumers via API.
- The API specification is explicitly defined in a contract. It contains:
 - How to consume the API,
 - The parameters specifications, and
 - What kind of output is expected.
- Both SOAP and REST-based services have a different way to expose its contract.



Transparent Business Logic

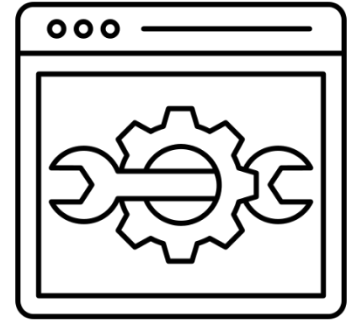
- A service contains a specific business logic inside it. It may be composed of multiple smaller services.
- The business logic of a service is not visible (transparent) to its consumers or agnostic.
- e.g. paying a bill via a mobile banking app, how does it work? Who cares :p



When to Use Services?

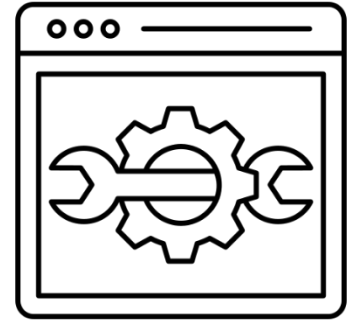
From A Consumer's Perspective

- A consumer is a party that uses a service.
- Decision to consume a services is taken when:
 - the required capability/data is not our main business or managed by another application.
 - by not making our-own capability is much cost-effective.



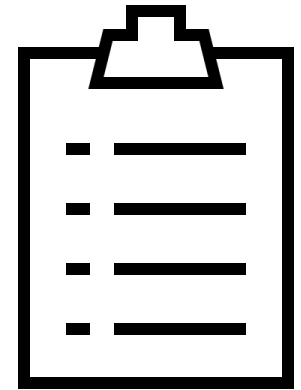
From A Provider's Perspective

- A provider is a party that makes a service available for others.
- Decision to consume a services is taken when:
 - the data/capability is in our domain.
 - we want to share it or make it accessible.



To-dos

1. In the next meeting we would discuss about SOAP and REST-based services.
 - Your project will go with REST-based services.
2. Some APIs will be designed and tested.



References

Srinivasan, M. (2012). Web Technology: Theory and Practice. Pearson.

Erl T. (2016). Service-Oriented Architecture: Analysis and Design for Services and Microservices. Pearson

Thank
you

