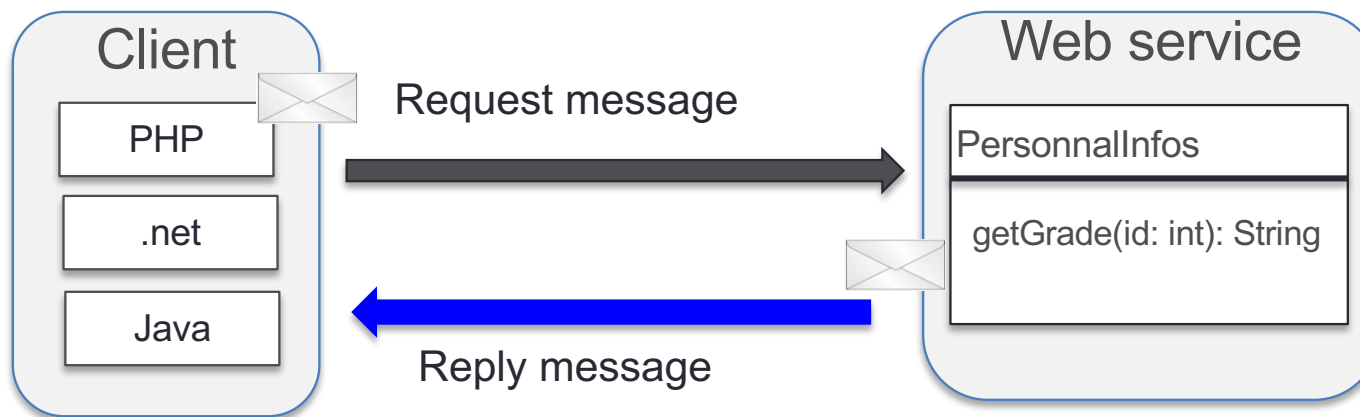


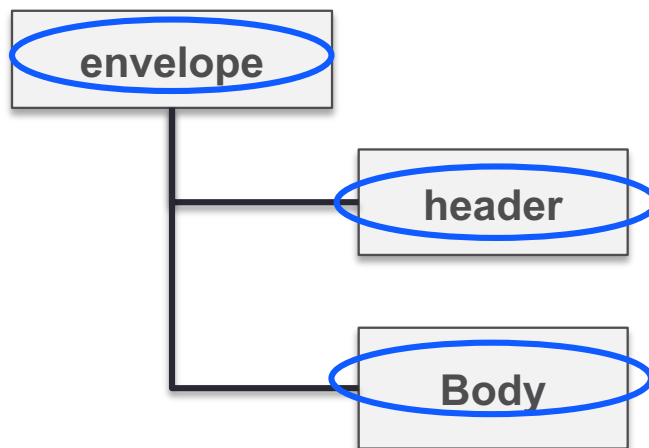
SOAP standard

SOAP

- Specification of the structure of exchanged messages
- XML based standard
- SOAP messages are sent using transport protocols (e.g., HTTP)



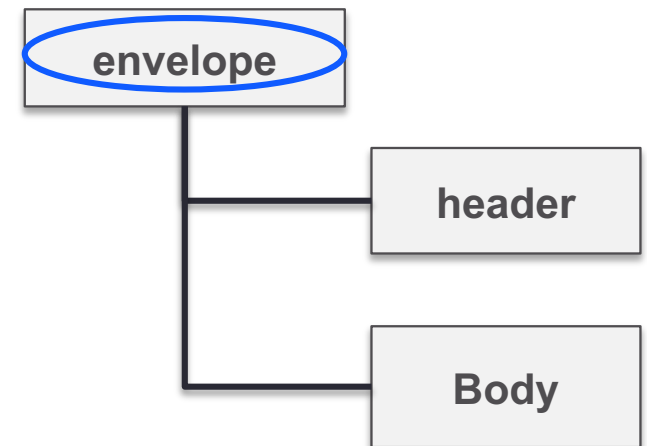
SOAP structure



```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/">  
  <soapenv:Header></soapenv:Header>  
  <soapenv:Body></soapenv:Body>  
</soapenv:Envelope>
```

Envelope

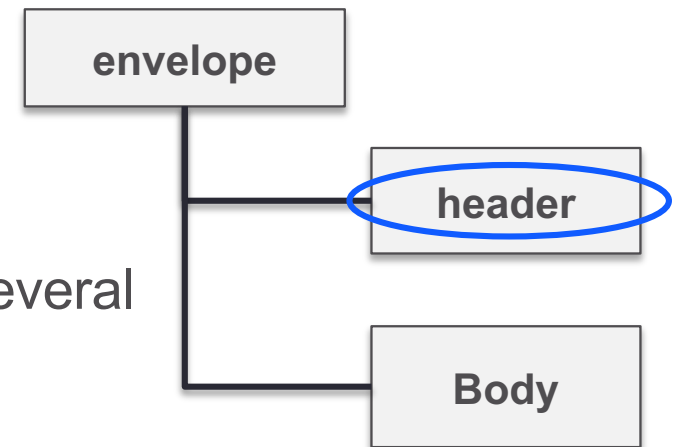
- Root element of a SOAP message
- Contains all necessary namespaces
- One envelope per message



```
<soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:ws="http://myWebService.insa.fr">
```

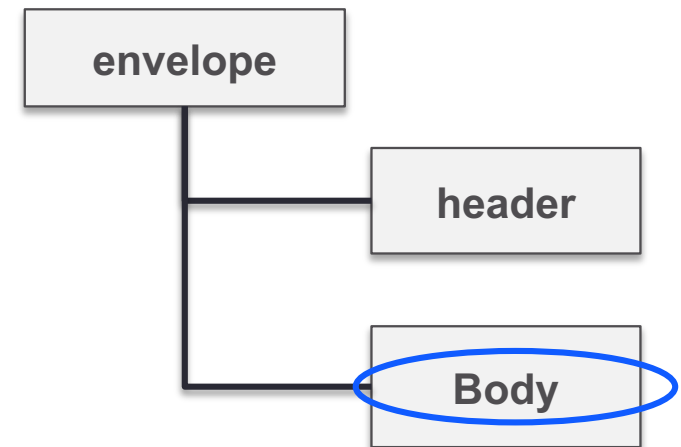
Header

- It is an optional element
- Useful when the message needs to be handled by several intermediaries
- Add functionalities to a SOAP message (e.g., **authentication credentials**)



Body

- Contains the data to be exchanged
- The necessary information for the receiver
 - The name of the invoked method
 - The parameters of the method



Body

SOAP request

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/">
  <soapenv:Header/>
  <soapenv:Body>
    <getGrade>
      <id>15</id>
    </getGrade>
  </soapenv:Body>
</soapenv:Envelope>
```

Invoked operation

Input parameter of the operation

PersonnalInfos

getGrade(id: int): String

getGrade method
receives an identifier and
returns a grade

Body

SOAP reply

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/">  
  <soapenv:Body>  
    <getGradeResponse>  
      <grade>Professor</grade>  
    </getGradeResponse>  
  </soapenv:Body>  
</soapenv:Envelope>
```

Output of the operation execution

PersonnalInfos

getGrade(id: int): String

getGrade method
receives an identifier and
returns a grade

SOA architecture

- SOA architecture
- Web services
- SOA standards
 - WSDL
 - SOAP

Exercise - SOAP

- Go to "Exercises" under the section Service architectures on moodle.

