Persistence

An Introduction to XML and Serialization

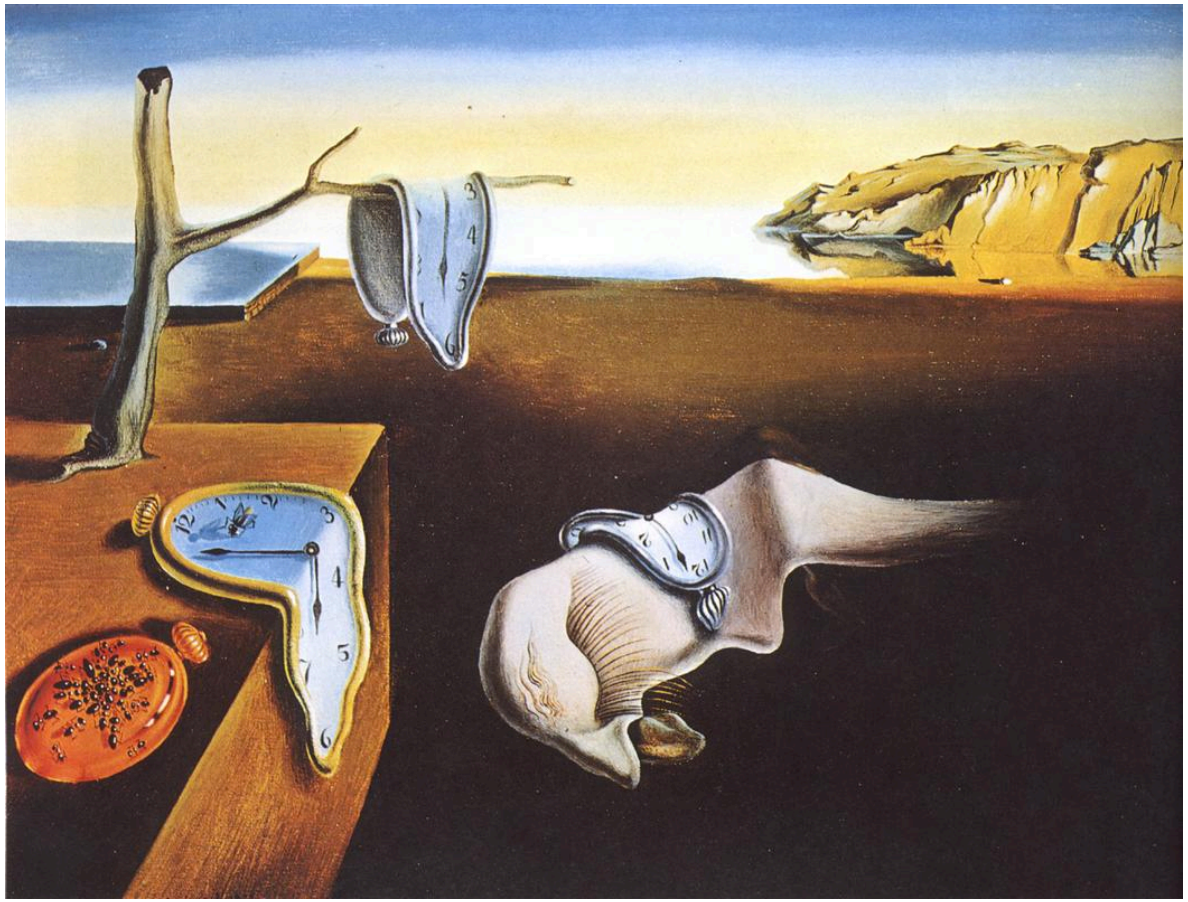
Produced by: Dr. Siobhán Drohan
Mr. Colm Dunphy

Waterford Institute *of* Technology
INSTITIÚID TEICNEOLAÍOCHTA PHORT LÁIRGE

Department of Computing and Mathematics
http://www.wit.ie/

Persistence

"the continued existence of something"



Dali – "Persistence of memory"

Persistence – lack of (volatility - volatile)

Persistence - Topic List

1. Introduction to **XML**:
   - XML versus HTML
   - Example of XML
   - XML does not “do” anything
2. Object **Serialization**.

XML versus HTML

- **XML** was designed to **describe data**,
  - focus on **what** the data is.
- XML is about carrying information.

```
<note>
        <to>Donald Duck</to>
        <from>Minnie Mouse</from>
        <heading>Reminder</heading>
        <body>Meeting at 10am today</body>
</note>
```

XML versus **HTML**

- **HTML** was designed to **display data**,
  - focus on **how** the data **looks**.
- HTML is about displaying information.

```
<html>

<head>
    <title>My First Web Page</title>
</head>

<body>
    <h1>My First Web Page</h1>
    <p><b>Hello World Wide Web!</b></p>
    <p><i>Hello World Wide Web!</i></p>
    <p><u>Hello World Wide Web!</u></p>
    <p>This is my first web page.</p>
    <p>HTML tags can give <b><i>various</i></b>
    <u>looks and format</u> to the content of this web page.</p>
</body>

</html>
```

XML is NOT a replacement for HTML

```
<note>
        <to>Donald Duck</to>
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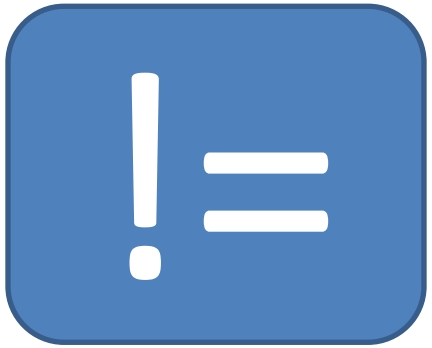

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```
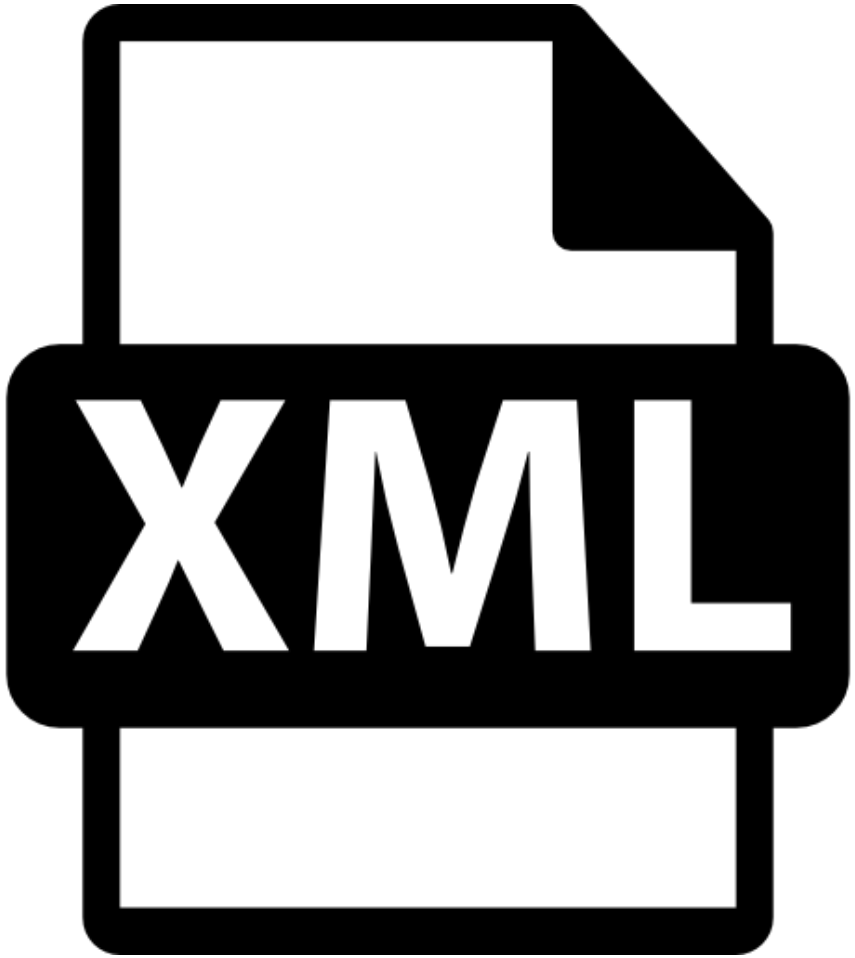

XML…

- Extensible
  - Extensible markup language
- Markup
  - Like HTML
- Describes Data
  - Not for displaying data HTML
- Define your own tags
  - Not predefined
- Self Descriptive



Persistence - Topic List

1. Introduction to **XML**:
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   - XML does not “do” anything
2. Object **Serialization**.

XML **example**

```
<note>
      <to>Donald Duck</to>
      <from>Minnie Mouse</from>
      <heading>Reminder</heading>
      <body>Meeting at 10am today</body>
</note>
```

A **note** to Donald Duck, from Minnie Mouse, stored as XML

It has sender <**to**> and receiver <**from**> information
It also has a <**heading**> and a message <**body**>.
The XML is self descriptive.

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Our **Shop** App

Shop V4.0
implemented the **CRUD** process

Problem: All entered **data is lost** if we **close our application** (or lose power)

Shop V5.0
use XML to make our **data persistent** beyond the life of our app

Solution: Store our objects from memory to XML **files**.

XML does not “do” anything

- XML is just information wrapped in <tags>.
- Someone must write a piece of software to send, receive or display it.
- We will write Java code to:
  - **SEND objects TO** an **XML file** on the hard disk.
  - **READ objects FROM** an **XML file** on the hard disk.
- This is called **Object Serialization**

Source: http://www.w3schools.com/xml/xml_whatis.asp

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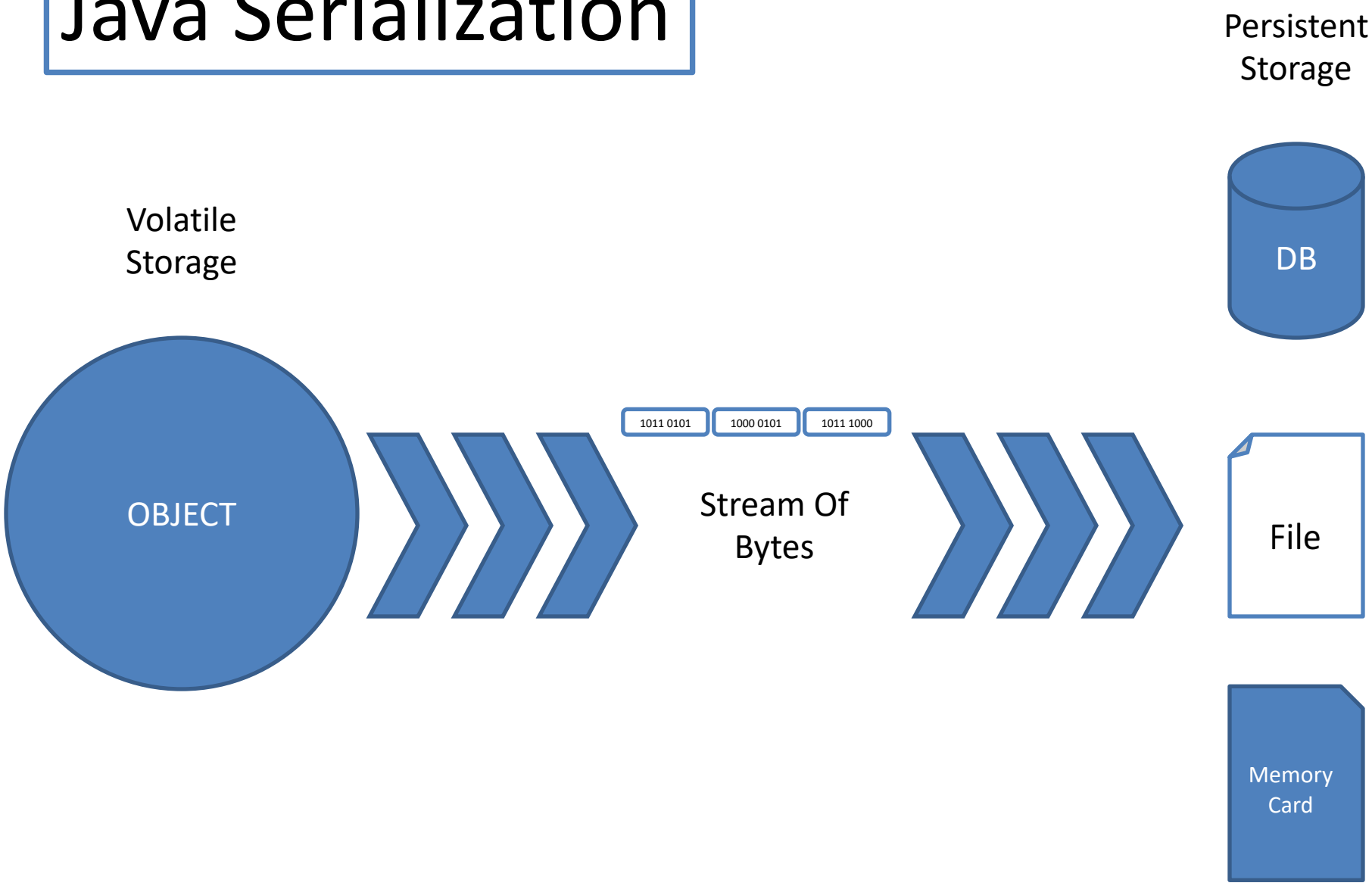
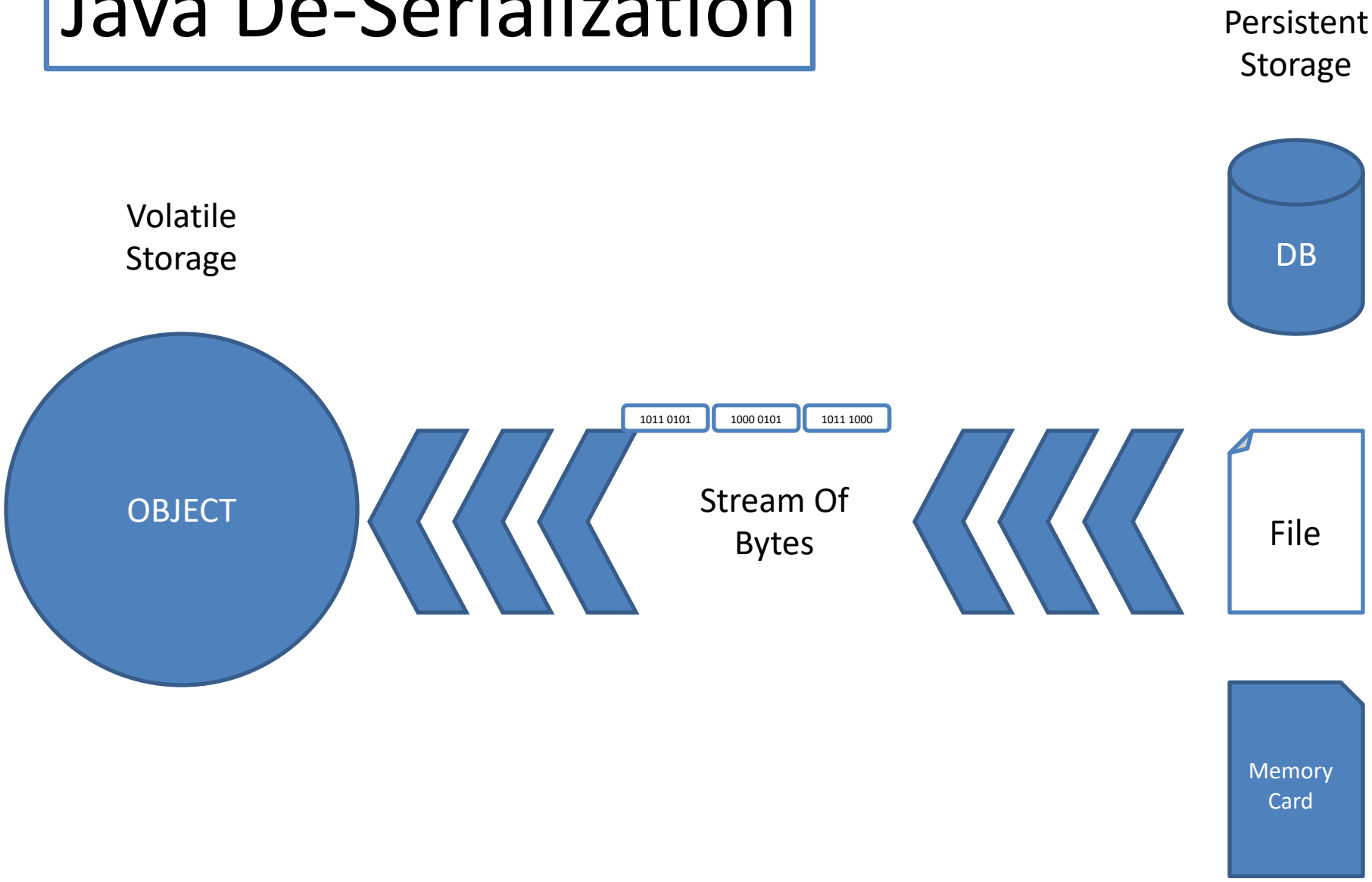
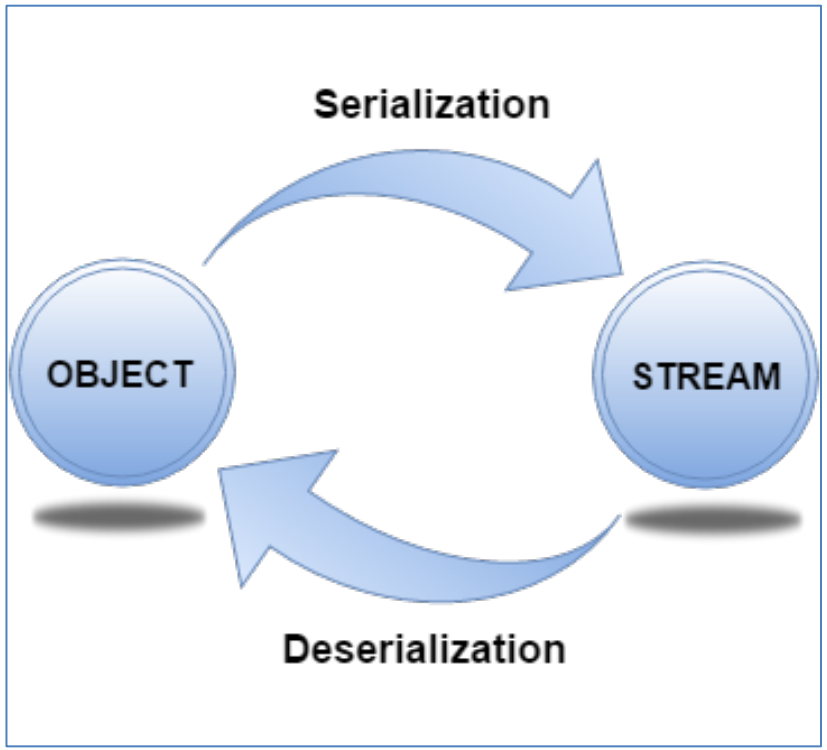
Java Serialization



Java De-Serialization



Object Serialization



An object can be represented as a **sequence of bytes**

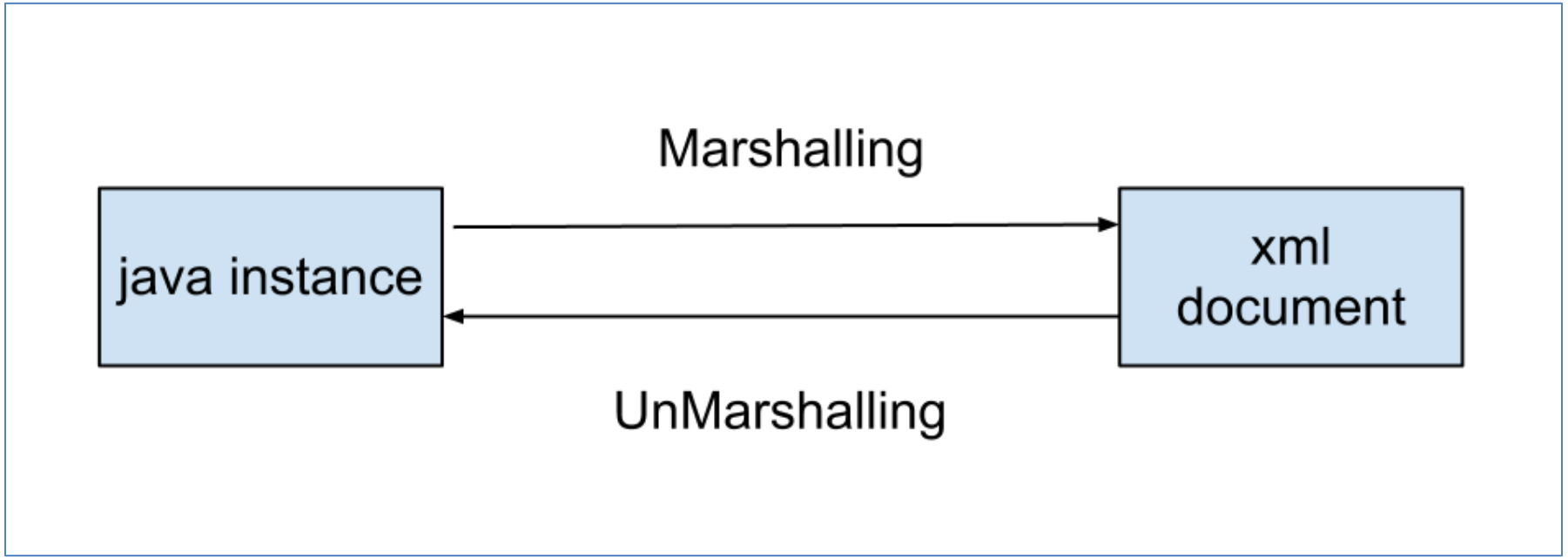
that includes the object's **data**

as well as information about the object's **type**

and the **types of data stored in the object**.

Serialization process involves **Marshalling** and **unMarshalling**

Marshalling is the process of converting the objects & data into a stream.



UnMarshalling is the reverse process
of converting the stream back to their original objects & data.

Prog Fund Week 10 unit 1

Finish

Any Questions?