

COMP 6701 eScience Project

Semantic Web for Museums



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Outline

- Introduction
- Semantic Web Technologies
- Semantic Web System
- Demonstration
- Conclusion



Introduction

- The Semantic Web was thought up by Tim Berners-Lee in 1998, inventor of the World Wide Web (WWW)
- Make the web a more collaborative medium.
- Create a web of data that machines can process
- Web - Most information on the Web page was designed for human-human communication.
- Semantic web - The information not only for human consumption, but also machines would understand and process them.



Semantic Web Technologies

Four Levels of smart data

- **Text Documents and Database Records**
 - Data just can be used for single application
- **Metadata level:**
 - describe information by using single vocabulary
 - Data is now can be understand by machine.
- **RDF/XML level:**
 - group information with mixed vocabularies
 - Data can be composed from multiple museums or institutes
- **Ontologies level:**
 - data is now smart enough to be described with concrete relationships
 - new data can be inferred from existing data by following logical rules



Example - Metadata

- Meta-data: description of data;
- Example:

RAW DATA

John Smith

Moonlight St.

Canberra

META DATA

name

street

city

```
<person>
```

```
  <name> John Smith </name>
```

```
  <street> Moonlight St. </street>
```

```
  <city> Canberra </city>
```

```
</person>
```



Example - RDF/XML 1

RDF is refer to Resource Description Framework. the resource described in RDF could be identified by URI (Uniform Resource Identifiers). The statement about resource is combined of three elements, or triple.

Subject	Predicate	Object
&ns;/location/ Moonlight St.	-----> locateAt	&ns;/location/ Canberra



Example - RDF/XML 2

- Example:

```
<person rdf:about="http://www.w3.org/People/ John Smith">  
  <name> John Smith </name>  
  <street> Moonlight St. </street>  
</person>
```

```
<location rdf:ablout="http://www.w3.org/location/Moonlight St.">  
  <type>street</type>  
  <identifier>Moonlight St.</identifier>  
  <locateAt rdf:resource="http://www.w3.org/location/Canberra"/>  
</location>
```

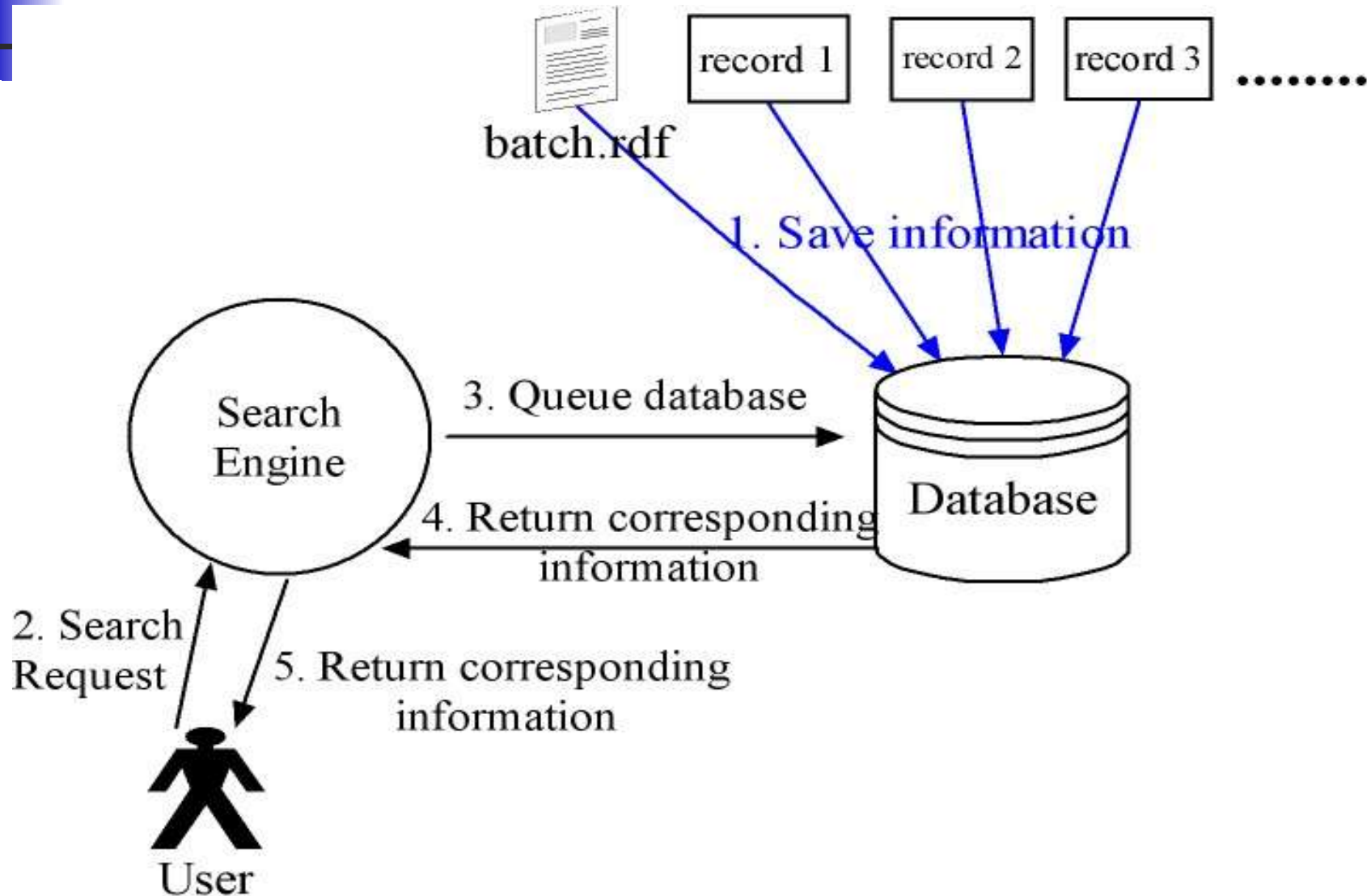
Semantic Web System

--- Prototype 1

- A prototype of a semantic web archive system for museums already developed.
- By Junren Lei (U4143677), at the first semester of 2006.

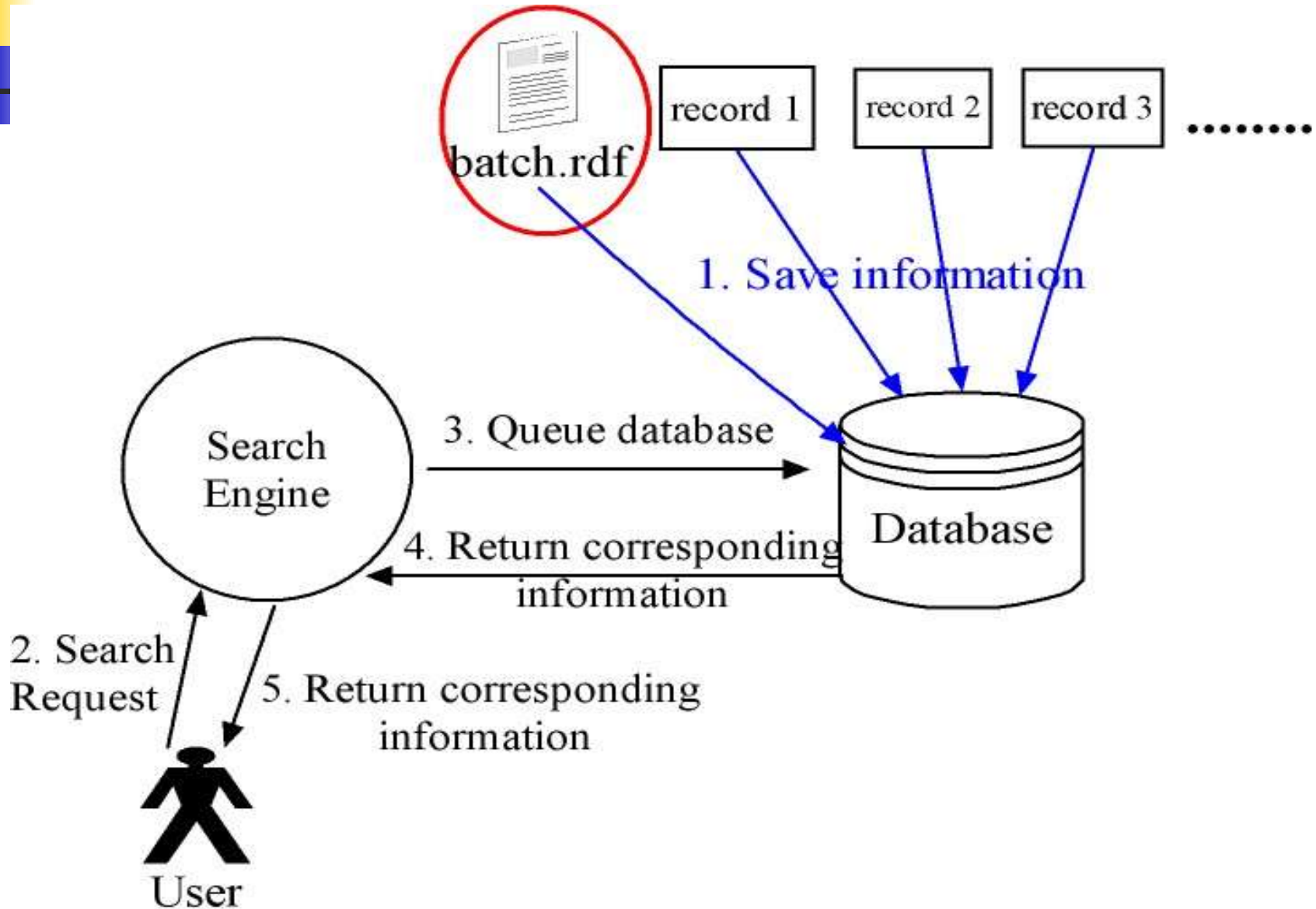
Semantic Web System

--- Prototype 2



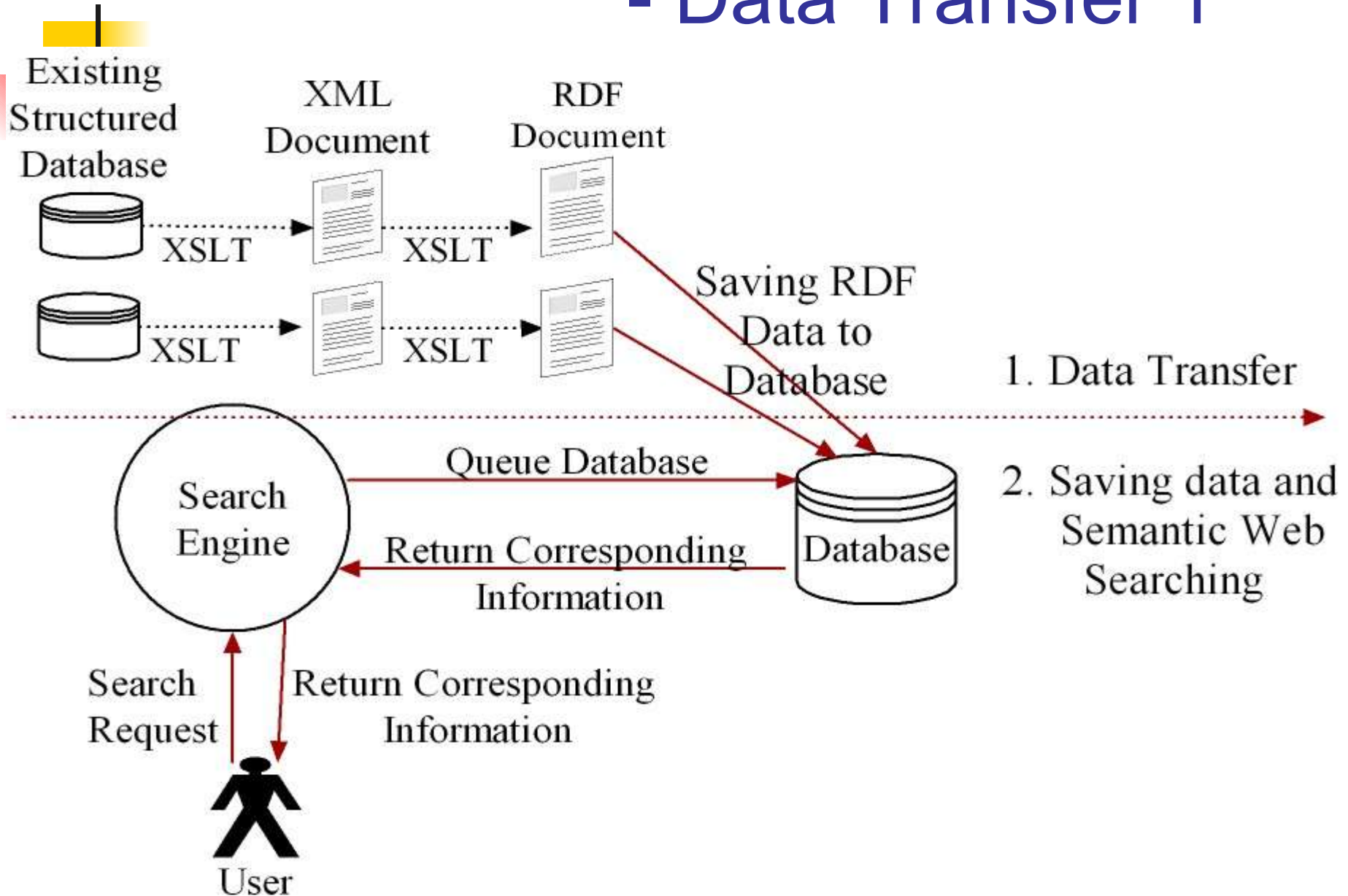
Semantic Web System

---This Project



Semantic Web System

- Data Transfer 1

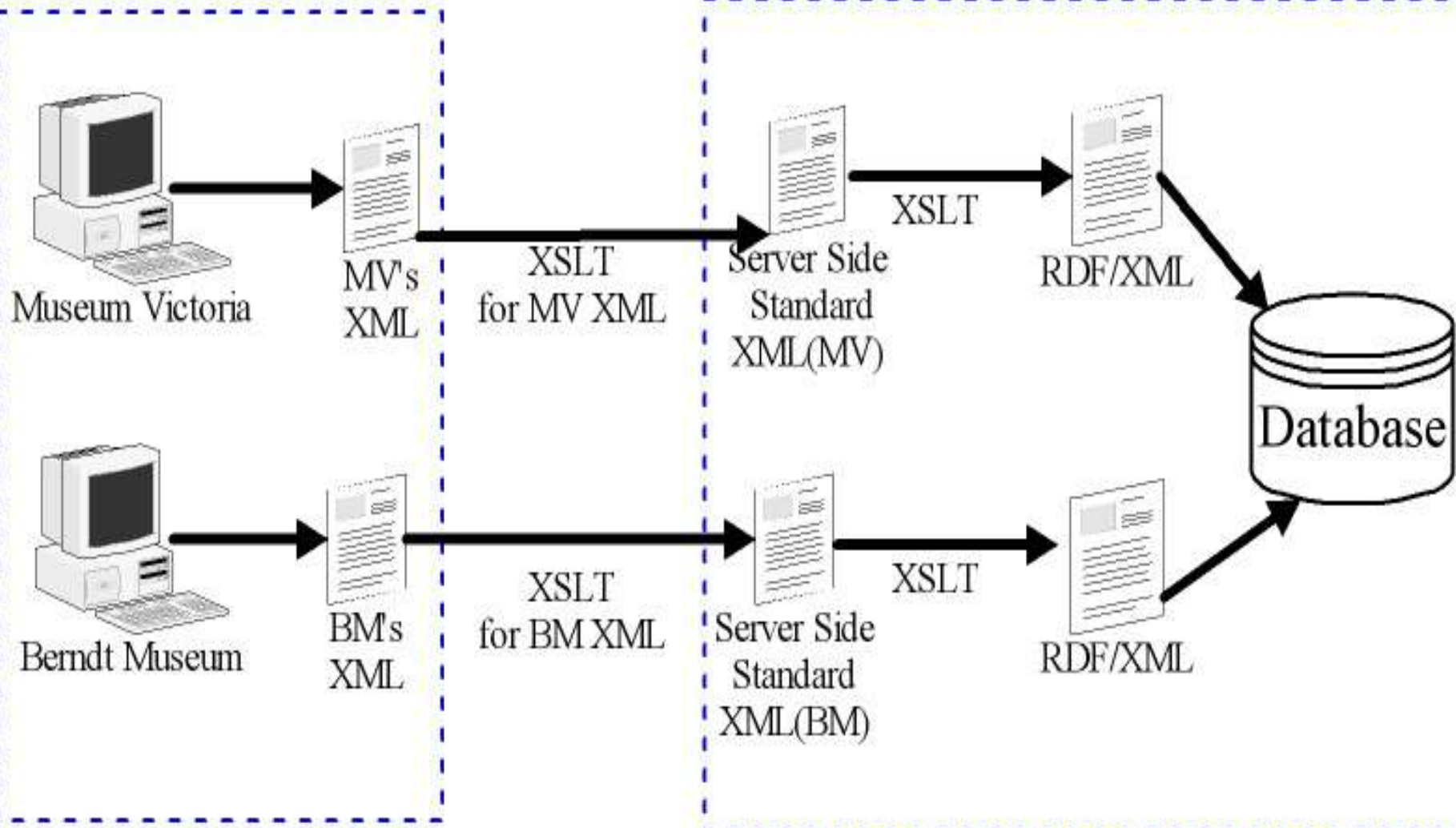


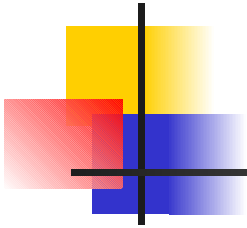
Semantic Web System

- Data Transfer 2

Client Side

Server Side





Demonstration



Conclusion

- The real museum records has been transferred to SWM System standard RDF/XML document.
- The transferred real museums records in RDF format imported into the SWM system
- Related searching can be done across multiple museum.



Reference

- Junren Lei's report

<http://escience.anu.edu.au/project/06S1/JunranLei/JunranLeiFinalRe>

- Junren Lei's project artefacts

<http://escience.anu.edu.au/project/06S1/JunranLei/JunranLeiProject/>

- Museum Victoria

<http://melbourne.museum.vic.gov.au/index.asp>

- Berndt Museum

<http://www.berndt.uwa.edu.au/>

- Information about Semantic Web (Metadata, RDF, Ontology, etc.)

<http://www.w3.org/>

<http://www.w3schools.com/>



Questions?

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