Resource Description Framework (RDF)

What is RDF?

- Used to represent information about resources on the web
- Can represent any resource, including things that cannot be directly retrieved such as an author of a web page
- Intended for use where information not only needs to be displayed to people, but also processed by a machine

RDF and URI

RDF is a collection of URIs to identify a given Resource. These URIs are set up in a graph with the URIs as the arches and the information as the nodes.

Relations and Statements

- All RDF information is defined with statements like "CPS196.3 has a student whose value is Roy Williams"
- All of these relationships can be broken up into a subject, a predicate, and an object

Relations and Statements (cont...)

- A subject, predicate, objects set is referred to as a "Triple"
- "Vocabularies are set up to set exact meaning of items in a triple.
- For example, sets up the difference between when "name" is used in reference to a person as opposed to being used in reference to a variable name in a function

RDF/XML

- RDF is implemented using XML
- Formatted with the the root as the definitions such as namespaces and syntaxes
- Then, for each description the parent node is the subject, and the child node’s name is the predicate, and the child node’s text is the object
RDF/XML Example

1. `<?xml version="1.0"?>`
2. `<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:exterms="http://www.example.org/terms/">`
3. `<rdf:Description rdf:about="http://www.example.org/index.html">`
4. `<exterms:creation-date>August 16, 1999</exterms:creation-date>`
5. `<rdf:Description rdf:about="http://www.example.org/index.html">`
6. `<exterms:language>English</exterms:language>`
7. `<rdf:Description>`
8. `<rdf:Description>`
9. `<rdf:Description>`
10. `<?xml version="1.0"?>`

Dublin Core Metadata Initiative

- "Metadata is data about data."
- Example: Library Catalog or a Search Engine.
- The DCMI is an attempt to provide a minimal set of information needed to describe a document.

Dublin Core example

```xml
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
         xmlns:dc="http://purl.org/dc/elements/1.1/">
  <rdf:Description rdf:about="http://www.dlib.org">
    <dc:description>The D-Lib program supports the community of people with research interests in digital libraries and electronic publishing.</dc:description>
    <dc:publisher>Corporation For National Research Initiatives</dc:publisher>
    <dc:date>1995-01-07</dc:date>
    <dc:subject>
      <rdf:Bag>
        <rdf:li>Research; statistical methods</rdf:li>
        <rdf:li>Education, research, related topics</rdf:li>
        <rdf:li>Library use Studies</rdf:li>
      </rdf:Bag>
    </dc:subject>
    <dc:rights>`Etc……`
  </rdf:Description>
</rdf:RDF>
```

Dublin Core (cont)

- Fields include:
  - Source
  - Title
  - Creator
  - Subject
  - Description
  - Contributor
  - Data
  - Type
  - Format
  - Identifier

Dublin Core example

- `Etc……`

NEXT:

- What's keeping Semantic web from being implemented?