DAY 5

On the fifth day, we explore various data formats and identifiers used in web development and the Semantic Web. These include JSON, XML, URL, URI, URN, IRI, and TURTLE.

JSON (JavaScript Object Notation)

JSON (JavaScript Object Notation) is a lightweight data interchange format that is easy for humans to read and write, and easy for machines to parse and generate. JSON is language-independent but uses conventions familiar to programmers of the C family of languages. It is often used to transmit data between a server and a web application as text. JSON structures data in a key-value pair format, making it ideal for representing structured data.

Example of JSON:

```
{
  "name": "John Doe",
  "age": 30,
  "email": "johndoe@example.com",
  "interests": ["reading", "travelling"]
}
```

XML (eXtensible Markup Language)

XML (eXtensible Markup Language) is a markup language designed to store and transport data. It is both human-readable and machine-readable. XML allows developers to create custom tags to define data structures, making it flexible for various applications. XML is widely used in web services, configuration files, and data exchange between systems.

Example of XML:

```
  <person>
  <name>John Doe</name>
  <age>30</age>
  <email>johndoe@example.com</email>
```

```
  <interests>
    <interest>reading</interest>
    <interest>travelling</interest>
  </interests>
</person>
```

URL (Uniform Resource Locator)

A URL (Uniform Resource Locator) is a specific type of URI (Uniform Resource Identifier) that provides the means to locate a resource on the internet by specifying its address. A URL includes the protocol (such as http or https), the domain name, and the path to the resource.

Example of URL:

https://www.example.com/page

URI (Uniform Resource Identifier)

A URI (Uniform Resource Identifier) is a string of characters used to identify a resource either by location, by name, or both. URIs can be classified as URLs or URNs. A URI provides a way to uniquely identify a resource on the web.

Example of URI:

http://www.example.com/resource

URN (Uniform Resource Name)

A URN (Uniform Resource Name) is a type of URI that uses a name to uniquely identify a resource, without implying its location. URNs are used to provide persistent, location-independent resource identifiers.

Example of URN:

urn:isbn:978-3-16-148410-0

IRI (Internationalized Resource Identifier)

An IRI (Internationalized Resource Identifier) is an extension of the URI standard that allows the use of characters from the Universal Character Set (Unicode/UTF-8), enabling the inclusion of non-ASCII characters. This makes IRIs suitable for internationalized web resources.

TURTLE (Terse RDF Triple Language)

TURTLE (Terse RDF Triple Language) is a syntax for expressing RDF data in a compact, readable format. It is similar to N-Triples but allows for more readable and abbreviated statements. TURTLE is commonly used for writing RDF data due to its simplicity and ease of use.

Example of TURTLE:

```
@prefix foaf: <http://xmlns.com/foaf/0.1/> .


<http://example.org/person/JohnDoe>
    a foaf:Person ;
    foaf:name "John Doe" ;
    foaf:mbox <mailto:johndoe@example.com> ;
    foaf:knows <http://example.org/person/JaneSmith> .
```

These formats and identifiers are fundamental to web development and the Semantic Web, enabling the efficient exchange, identification, and representation of data.