(TR-102) MASTERING THE SEMANTIC WEB –

Training Day 6 Report :

19 June 2024

Task assigned:

example1.tex × ex046.ttl ×

```
# filename: ex046.ttl

@prefix ab:   <http://learningsparql.com/ns/addressbook#> .
@prefix rdf:  <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
@prefix owl:  <http://www.w3.org/2002/07/owl#> .

ab:i0432
   ab:firstName "Richard" ;
   ab:lastName  "Mutt" ;
   ab:spouse    ab:i9771 .

ab:i8301
   ab:firstName "Craig" ;
   ab:lastName  "Ellis" ;
   ab:patient   ab:i9771 .

ab:i9771
   ab:firstName "Cindy" ;
   ab:lastName  "Marshall" .

ab:spouse
   rdf:type owl:SymmetricProperty ;
   rdfs:comment "Identifies someone's spouse" .

ab:patient
   rdf:type rdf:Property ;
   rdfs:comment "Identifies a doctor's patient" .

ab:doctor
   rdf:type rdf:Property ;
   rdfs:comment "Identifies a doctor treating the named resource" ;
   owl:inverseOf ab:patient .
```

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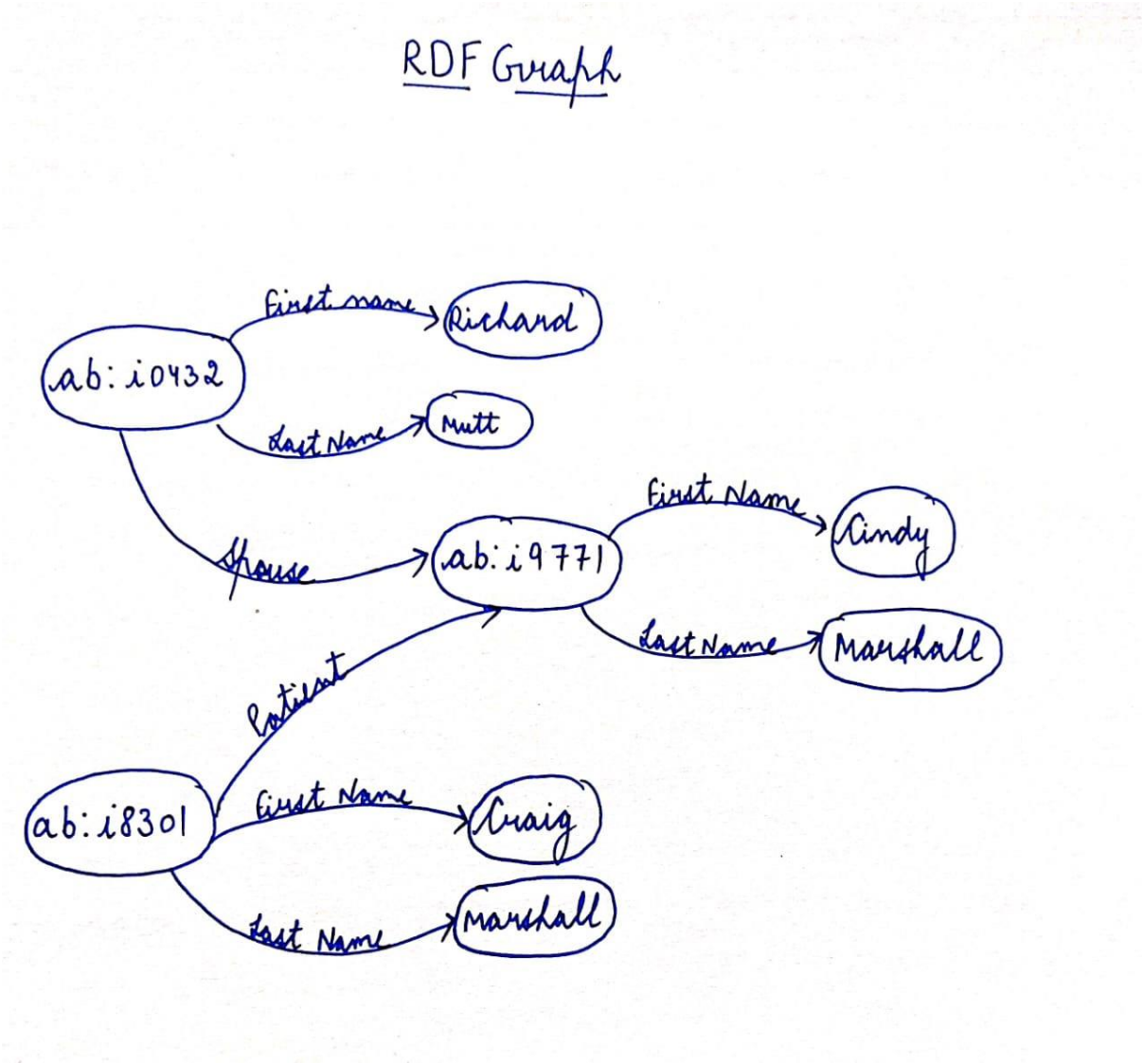
Solution:



NFR:

- Non-functional requirements (NFRs) are specifications that describe the operational capabilities and constraints of a system. They define how well a system performs, including aspects such as speed, security, reliability, data integrity, and usability.

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- NFRs are crucial for ensuring that a system meets quality standards and user expectations.

- Some examples of NFRs include:

i. Performance: How fast the system responds to user actions.
ii. Reliability: How often the system experiences failures or crashes.
iii. Security: How well the system protects against unauthorized access or data breaches.
iv. Usability: How easy the system is to use and understand.

- NFRs are used because they are just as important as the actual features of a system. A system might have all the right features, but if it's slow, unreliable, or difficult to use, it won't be very useful to the users.

- The need for NFRs comes from the fact that users have certain expectations about how a system should work, beyond just the features it provides. By defining and meeting these expectations, the system can be more successful and satisfy the users.

- For example, if a banking app has all the right features for managing accounts, but it's slow and crashes frequently, users will be frustrated and may not use the app. By defining NFRs for performance and reliability, the app can be designed and built to meet the users' expectations.

How to optimize NFR?

Tools like Google PageSpeed Insights, Lighthouse, and GTmetrix help optimize Non-Functional Requirements (NFRs) by analyzing and providing recommendations for improving the performance, speed, and user experience of a website.

Google PageSpeed Insights and Lighthouse Tool:

Google PageSpeed Insights and the Lighthouse tool helps optimize performance and speed by providing a detailed report on the website's performance and offering actionable recommendations to improve it. Here are some ways tools assists in optimization:

i. Performance Metrics: Lighthouse provides detailed metrics on performance, such as the Speed Index, Time to Interactive, and Total Blocking Time, which help identify areas for improvement.
ii. Recommendations: Lighthouse provides actionable recommendations for optimizing performance, such as enabling text compression, reducing render-blocking scripts, and optimizing images.
iii. Audits: Lighthouse performs audits on the website, highlighting issues like unused JavaScript, inefficient cache policies etc. These audits help identify specific areas for improvement.
iv. Prioritization: By analyzing the performance metrics and recommendations, developers can prioritize the most critical issues and focus on the most impactful optimizations.

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GTmetrix Tool:

GTmetrix is a free tool that analyzes website performance and page load time. It generates scores for pages and offers actionable recommendations to improve performance. Here are some key points about GTmetrix:

i. Performance Score: GTmetrix provides a performance score based on various metrics such as load time, size, and requests.
ii. International Testing: GTmetrix allows users to test their website's performance on 28 different servers in 7 different locations across the world.
iii. Accessibility: GTmetrix evaluates the accessibility of a website, providing suggestions for improvement.
iv. Cost: GTmetrix is a free tool, making it accessible to anyone who wants to analyze and improve their website's performance.

By using GTmetrix, developers and website owners can identify areas for improvement and optimize their website's performance to provide a better user experience.

NVDA:

NVDA (NonVisual Desktop Access) is a free screen reader software designed for Microsoft Windows.

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What is NVDA?

NVDA is a free, open-source screen reader that allows blind and vision-impaired people to use computers. It reads out the text on the screen in a synthesized voice, helping users navigate and interact with digital content.

How does NVDA work?

i. Text-to-Speech: NVDA converts visual text into audio, allowing users to hear what's on the screen.
ii. Braille Support: NVDA can convert text into braille if the computer has a braille display.
iii. Keyboard Navigation: Users can control NVDA using keyboard shortcuts, allowing them to navigate and interact with digital content.

Key Features:

i. Free and Open-Source: NVDA is free to download and use, with no cost or subscription required.
ii. Portable: NVDA can be run from a USB drive, making it easy to use on different computers.
iii. Community Support: NVDA has a strong community of developers who regularly release new versions and updates.

How to Use NVDA:

i. Download and Install: Download NVDA from the official website and follow the installation instructions.

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ii. Start NVDA: Launch NVDA by clicking the icon in the Windows taskbar or using the keyboard shortcut (Ctrl + Alt + N).
iii. Adjust Settings: Customize NVDA settings to suit your needs, such as adjusting the voice output or braille display.

Navigate: Use keyboard shortcuts to navigate and interact with digital content.