The **GNOME** Conference

TinySPARQL and LocalSearch

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TinySPARQL



Foundation for LocalSearch



- Foundation for LocalSearch
- Solid foundations are good!



- Foundation for LocalSearch
- Solid foundations are good!
- Collictive: Being the SQLite for SPARQL



ℭ Query language for RDF



Query language for RDFW3C standard



ℰ W3C standard



- ℰ W3C standard
- Recommendations to describe labeled directed graphs



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- Recommendations to describe labeled directed graphs
- ℭ node1 label node2



- € W3C standard
- Recommendations to describe labeled directed graphs
- ℭ node1 label node2
- ℭ Multiple file formats

RDF

- ℰ W3C standard
- Recommendations to describe labeled directed graphs
- ℭ node1 label node2
- ℭ Multiple file formats
- But graphs are shapeless!



ℰ W3C standard

RDF Schema

- ℰ W3C standard
- Enforces a shape on the graph

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- *^e* Gives it an object oriented flavor

RDF Schema

- 觉 W3C standard
- ℭ Enforces a shape on the graph
- Cives it an object oriented flavor
- TinySPARQL mandates use of RDF Schema



A store for *RDF* data constrained by *RDF Schema* rules, efficiently query-able through *SPARQL*.



It's a database (library).

But what does it have to offer?

ℰ An actual standard

- ℰ An actual standard
- Introspectable

- ℰ An actual standard
- ℰ Introspectable
- ♥ Query federation

- 🐔 An actual standard
- ℰ Introspectable
- ♥ Query federation
- Bulk operations on data

Prepared statements

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- GResource friendliness and code/data separation

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- *^e* GResource friendliness and code/data separation
- Hand holding in schema maintenance

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- *^{<i>i***}** GResource friendliness and code/data separation
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- Full text search and other high level features

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- Powerful CLI tools and web-based IDE

- Prepared statements
- GResource friendliness and code/data separation
- Hand holding in schema maintenance
- Full text search and other high level features
- Powerful CLI tools and web-based IDE
- Versatile: Private, in-memory databases, endpoints...

TinySPARQL is a thin layer over SQLite

TinySPARQL is a thin layer over SQLite



It is tested





It is fast

LocalSearch

LocalSearch

€ Cache for local (file) metadata
LocalSearch

- € Cache for local (file) metadata
- Objective: One-stop metadata indexer and manager

Copen to desktop applications

- Copen to desktop applications
- Portal access

- Open to desktop applications
- 🤴 Portal access
- Sandboxed metadata extraction

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- Comprehensive

- Open to desktop applications
- 👸 Portal access
- Sandboxed metadata extraction
- ℰ Comprehensive
- Ø Metadata writeback infrastructure

- Open to desktop applications
- 👸 Portal access
- Sandboxed metadata extraction
- **Comprehensive**
- Ø Metadata writeback infrastructure
- Votification infrastructure

Low in resources

ℭ Low, flat memory usage

Low in resources

- ℭ Low, flat memory usage
- 觉 Durable cache



Full reindex within minutes

Yet fast

- Full reindex within minutes
- Hot start within seconds

Yet fast

- Full reindex within minutes
- Hot start within seconds
- *^e* Queries within milliseconds

What now?



Caution: Small team

Eat more CPU again!

More sprawling indexing (localsearch#336)

Eat more CPU again!

- More sprawling indexing (localsearch#336)
- Removable volumes (localsearch#347)

Web scraping to complete local metadata

- Web scraping to complete local metadata
- Face recognition in photographs

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- Face recognition in photographs
- Remote search

- Web scraping to complete local metadata
- Face recognition in photographs
- 🐔 Remote search
- Simplifications in configurability

But some eye candy too







The search entry problem

The search entry problem

ℭ What you want out is clear

The search entry problem

What you want out is clear

€ What you type in is ...?

€ Full-text search is amazing

- Full-text search is amazing
- Improvement: Synonym support

- Full-text search is amazing
- Improvement: Synonym support
- Image captioning bridges a gap

Where does it not help?

♥ Music from seattle

Where does it not help?

- *♥ Music from seattle*
- *Tree on a cliff*

Where does it not help?

- *♥ Music from seattle*
- *Tree on a cliff*
- *Tax form from 2023*

The elephant in the room

ChatGPT 4 >

C



=

You

Create a picture of an empty room with no elephant in it. Absolutely no elephant anywhere in the room.





I've created another image of an empty room with no elephant in it. If there's anything more you need, feel free to ask!

Source: https://garymarcus.substack.com

A1

What could it be useful for?

Interpreting the user input

What could it be useful for?

- Interpreting the user input
- Facilitating information on content (e.g. image captioning)


Questions?