

Project Requirements

CSCI3308 Spring 2015

- Title: Memory Oracle
- Vision statement: To enhance the usability of GDB and facilitate the instruction of programming, especially data structures.
 - Live mockup here: <https://dnoland.com/vision/mockup.html>
- Who: Daniel Noland, Conner Simmering, Taylor Thomas, Justin Olson, Michael Muehlbradt
- Requirements

Business Requirements:

Requirement	Size (1-20)
(BUSINESS-0) As a business, we want to be able to debug Linux compatible software written in C++ in a graphical environment using only GDB and other free and open source tools so that we can write software without paying licensing fees.	10

User Requirements:

Requirement	Size (1-20)
(USER-0) As a user, I want to be able to interact with GDB using its normal scripting language, so that I don't need to learn a new way of controlling my debugger.	4
(USER-1) As a user, I want to be able to see a dynamic graphical display of the memory state of my program as it runs so that I can understand bugs quickly.	8

Functional Requirements:

Requirement	Size (1-20)
(FUNCTIONAL-0) As a user, I want to be able to view my source code and the next line to be executed from within the debugger interface so that I can easily understand my program's control flow.	7
(FUNCTIONAL-1) As a user, I want to be able to see the current scope's local variables and their values so that I may better understand the behavior of each function I write.	5
(FUNCTIONAL-2) As a user, I want the web interface to display the debuggee's memory state even if the debuggee program crashes or exits abnormally so that I may study the abnormal behavior without manually loading core dump files.	3
(FUNCTIONAL-3) As a user, I want to be able to keep the input and output of GDB distinct from the input and output of my program so that I can easily debug arbitrary terminal based programs.	6

Non-Functional Requirements:

Requirement	Size (1-20)
(NON-FUNCTIONAL-0) As a user, I want the debugger interface to continue to function with low (less than one second) of latency even while the debuggee program is not paused so that I may continue working even while the debuggee is in a blocking state.	14
(NON-FUNCTIONAL-1) As a user, I want to be able to debug software without exposing my computer to security vulnerabilities.	1

- Methodology: Agile
- Project Tracking Software: Trac
- Link to project tracking software: <https://dnoland.com/3308>
- Github repo: <https://github.com/daniel-noland/MemoryOracle>

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Project Plan

Search results - Google | Custom Query - 3308 | #25 (Construct web) | Iteration - Google Search | Daniel

https://3308.dnoland.com/3308/query?group=status&milestone=iteration+1

Status: accepted (2 matches)

Ticket	Summary	Owner	Type	Priority	Component	Resolution
#29	Write backend to track debuggee program's heap allocations / deallocations	dnoland	task	major	server	
#30	Make frontend asynchronously react to debuggee memory state changes	dnoland	task	major	frontend	

Status: assigned (4 matches)

Ticket	Summary	Owner	Type	Priority	Component	Resolution
#27	Write wrapper functions around GDB python API	mmuehlbradt	task	blocker	gdb interface	
#26	Select and configure local webserver	mmuehlbradt	task	major	server	
#28	Construct javascript library for websocket io with server	tthomas	task	major	frontend	
#31	Write CSS/LESS to consistently theme jQuery UI and Bootstrap	csmimmering	task	major	frontend	

Status: closed (1 match)

Ticket	Summary	Owner	Type	Priority	Component	Resolution
#25	Construct web interface mockup	dnoland	task	major	frontend	fixed

Batch Modify

Save query

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Search results - Google | Dependency Graph | #25 (Construct web) | Iteration - Google Search | Daniel

https://3308.dnoland.com/3308/depgraph/ticket-30?summary=1

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Without labels | Back to Ticket #30

Dependency Graph for Ticket #30

```
graph TD; 26([#26 Select and configure local webserver]) --> 28([#28 Construct javascript library for websocket io with server]); 26 --> 30([#30 Make frontend asynchronously react to debuggee memory state changes]); 27([#27 Write wrapper functions around GDB python API]) --> 28; 28 --> 30; 29((29))
```

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