Søren Hansen <sha@ase.au.dk>
V0.9

Debugging

Introduction

The *art of debugging* is actually a discipline which does not get the attention that it ought - why? In real life software project upward 50% of your time may be spend on debugging... So yeah having some sort of approach and understanding of the tools at hand matters - *alot!*.

Contents

Theme(s)	Topic(s)	Reference
Debugging	How to go about debugging Essential elements when debugging Different error categories	[2], [3], [1]
GDB	How is gdb used How do we do cross debugging How is ddd used What is a core dump and how is it used	[1], [4, chapters 2-2.1.1, 4 (pp. 25), 4.10, 5-5.2, 20.1-20.3.4], [5]
Tools f. dynamic code analysis	valgrind - memory checker helgrind - thread data & deadlocks checker callgrind - profiler	*See valgrind's homepage - JFGI*

Material

Slides

[1] S. Hansen, *Debugging*, Slides - see course repos.

Online

[2] T. E. Boult. (). Debugging techniques, [Online]. Available: `http://vast.uccs.edu/~tboult/CS330/NOTES/debugging.ppt`.

[3] T. Parr. (2004). Learn the essentials of debugging, [Online]. Available: `http://parrt.cs.usfca.edu/doc/debugging.html`.

[4] S. S. e. a. Richard Stallman Roland Pesch. (). Debugging with gdb. Link to the most recent manual, [Online]. Available: `http://sourceware.org/gdb/current/onlinedocs/gdb.pdf.gz`.

[5] R. H. Pesch. (). Gdb quick reference. Link to the most recent manual, [Online]. Available: `http://sourceware.org/gdb/current/onlinedocs/refcard.pdf.gz`.

Fundamental questions to consider while reading

Debugging

- What are the 6 *essentials*
  - Consider each and discuss its merits

  - Which do you currently employ - if any :-)
- Error types / categories
  - What are they
  - Do you know how they present themselves in code - e.g. do you know how to find each and everyone (why is, in fact, extremely important that you know this???)
- What is a debugger is and how is used - at least from a fundamental point of view.