[ZF Theory + Scala + LLVM/JikesRVM → HOL + Kubernetes + IoT Informatics + HPC Systems R&D.Exploring HOL - Isabelle w.r.t LLVM & JikesRVM & CWB – Concurrency Work Bench/PwB]

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[I] Introduction + Inspiration + Idea Derivation :

CWB + Zermelo–Fraenkel Set Theory → Process IoT Informatics Using Isabelle HOL Software/JikesRVM-Research Virtual Machine/KVM/Scala/Smart Devices/IoT/HPC R&D Heterogeneous Systems.

"Kubernetes is a portable, extensible, open-source platform for managing containerized workloads and services, that facilitates both declarative configuration and automation. It has a large, rapidly growing ecosystem. Kubernetes services, support, and tools are widely available."

[Source → https://kubernetes.io/docs/concepts/overview/_print/]

"Isabelle is a generic proof assistant. It allows mathematical formulas to be expressed in a formal language and provides tools for proving those formulas in a logical calculus. The main application is the formalization of mathematical proofs and in particular formal verification, which includes proving the correctness of computer hardware or software and proving properties of computer languages and protocols. The most widespread instance of Isabelle nowadays is Isabelle/HOL, which provides a higher-order logic theorem proving environment that is ready to use for big applications. Isabelle/HOL includes powerful specification tools, e.g. for (co)datatypes, (co)inductive definitions and recursive functions with complex pattern matching. Proofs are conducted in the structured proof language Isar, allowing for proof text naturally understandable for both humans and computers".

Ref/s:

- [1] http://isabelle.in.tum.de/overview.html
- [2] http://www.cl.cam.ac.uk/research/hvg/Isabelle/index.html
- [3] http://mirror.cse.unsw.edu.au/pub/isabelle/overview.html

Our Short Technical Notes on Vixra.org:

[4] An Insight into HOL-Isabelle/Coq Theorem Provers based Design of Algorithms Using [Minsky Machines+Scala NLP/Scala/Akka/JikesRVM-Research Virtual Machine/JVM/LLVM] in the Context of Electronic Health Record [EHR] Software R&D – A Simple Suggestion. [Source – [a] https://vixra.org/abs/1909.0490]/ [b] https://github.com/tejdnk-2019-ShortNotes

[5] The algebraic structure of interfaces \rightarrow Science of Computer Programming 49 (2003) 47 – 88 \rightarrow [doi:10.1016/j.scico.2003.04.001]

[6] LLVM → https://llvm.org/

[7] JikesRVM → https://www.jikesrvm.org/

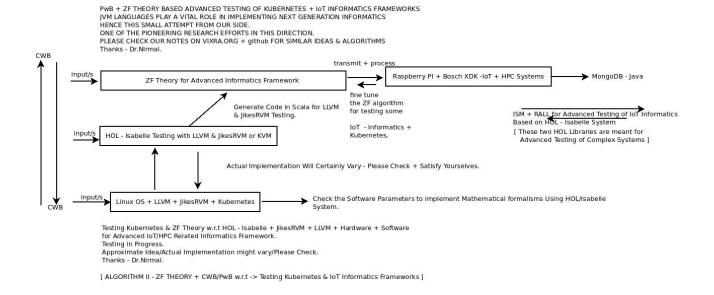
 $[8] \ \underline{\text{https://en.wikipedia.org/w/index.php?title=Zermelo\%E2\%80\%93Fraenkel set theory\&oldid=1005389352}} \\$

[II] HOL Informatics Framework Using Specified Tools w.r.t LLVM + RVM:

ZF THEORY BASED ADVANCED TESTING OF KUBERNETES + 10T INFORMATICS FRAMEWORKS JVM LANGUAGES PLAY A VITAL ROLE IN IMPLEMENTING NEXT GENERATION INFORMATICS HENCE THIS SMALL ATTEMPT FROM OUR SIDE. ONE OF THE PIONEERING RESEARCH EFFORTS IN THIS DIRECTION.
PLEASE CHECK OUR NOTES ON VIXRA.ORG + github FOR SIMILAR IDEAS & ALGORITHMS Thanks - Dr.Nirmal. input/s Raspberry PI + Bosch XDK -IoT + HPC Systems MongoDB - Java ZF Theory for Advanced Informatics Framework fine tune the ZF algorithm Generate Code in Scala for LIVM ISM + RALL for Advanced Testing of IoT Informatics Based on HOL - Isabelle System for testing some & JikesRVM Testing. IoT - Informatics + [These two HOL Libraries are meant for HOL - Isabelle Testing with LLVM & JikesRVM or KVM Advanced Testing of Complex Systems] Actual Implementation Will Certainly Vary - Please Check + Satisfy Yourselves. input/s Check the Software Parameters to implement Mathematical formalisms Using HOL/Isabelle Linux OS + LLVM + JikesRVM + Kubernetes Testing Kubernetes & ZF Theory w.r.t HOL - Isabelle + JikesRVM + LLVM + Hardware + Software for Advanced IoT/HPC Related Informatics Framework. Testing in Progress. Approximate Idea/Actual Implementation might vary/Please Check. Thanks - Dr.Nirmal. [ALGORITHM I - ZF THEORY w.r.t -> Testing Kubernetes & IoT Informatics Frameworks]

[Figure I – Algorithm I – Simple Informatics Testing Framework]

** Formalising Ruby in Isabelle ZF by Ole Rasmussen August 1995 → Highly Useful.



[Figure II – Algorithm II – Simple Informatics Testing Framework]

Psi-Calculi Workbench (Pwb):

"Pwb is built with applications in mind, for example, sensor networks, security protocols, cache coherence protocols, etc. That is models that use different modes of communication, require structured data, and logics."

[Source - http://www.it.uu.se/research/group/concurrency/applied/psiworkbench]

[III] Acknowledgments: Sincere Thanks to all WHO made this happen in my LIFE. Non-Profit R&D. Inspire Others Always.

[THE END]