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**Project Plan**

**<STM Lua>**

**(CW228)**

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# Introduce

This project is developed into a concurrency control, but it is not only use lock. It use STM (Software Transactions Memory), after finish process it use lock get the resource that can’t be available to others and update new result to resource. The STM can avoid dead lock and live lock, most of time it will be more efficient than lock.

# Project Plan Gantt chart

This section is showing the schedule of project developing time.



# Project Requirement

This project requires the addition of STM to the Lua language.

The project requires:

* Basic STM enabled;
* Built in multithreading in Lua;
* Tight integration of STM through extension of the Lua grammar.

**Exceptional**

* STM extended to all complex data types;
* Integrated multicore aware multitasking with customizable scheduling.

# Project Plan Brief explain

1.
2.
3.
4.

## Install Lua and libraries of Lua (one day)

In this day, I will complete install Lua and its libraries.

I learn to how to install Lua and libraries of Lua. I am install Lua for windows (it include many libraries) and install Lua and some libraries in ubuntu.

## Try to code in Lua (5 days)

In these days, I will try to code by Lua.

It includes:

* Try to code Lua with or without import the libraries in windows
* Try to code Lua with or without import the libraries in ubuntu.

## Learn Lua (5 days)

In this phase, I start to learn Lua.

Learn Lua from some books and the internet. For example, Programming in Lua, Lua programming gems, Lua reference manual and so on.

## STM Algorithm Design (Two weeks)

In this phase, the algorithm will be completed.

It includes:

* The STM how to work in Lua?
* How to control the concurrency by STM?
* The project how to control the memory and update the resource?

## Functions Design (one week)

In this phase, design what functions the project will support.

For example:

* Concurrency control by STM
* Update the version number of resource.
* And so on.

## Set up Web page (5 days)

Set up a Web page for my project.

1.
2.
3.
4. 1.
	2.
	3.
	4.
	5.
	6.

## Start to code the first prototype of project (one week)

Try to code the STM in Lua for project. get the first prototype of project.

1.
2.
3.
4. 1.
	2.
	3.
	4.
	5.
	6.
	7.

## Code for concurrency control (9 days)

In this phase, achieve concurrency control.

* Let my project support concurrency control.
* Control multi-threadings
* Control multi-processes
	1.

## Achieve STM control (two weeks)

In this phase, achieve Lua STM control.

* Coding the concurrency control is under STM control.
* Update the resource need to match the version number of resource.

## Code for Lua state control (one week)

In this phase, achieve Lua state control.

Let other users can import a library what is developed by me to control the concurrency programming.

1.
2.
3.
4. 1.
	2.
	3.
	4.
	5.
	6.
	7.
	8.
	9.
5.
6.
7.
8. 1.
	2.
	3.
	4.
	5.
	6.
	7.
	8.
	9.
	10.

## Build project into a library of Lua (three days)

In this phase, build my project into a library of Lua.

Let user can easy install it and import it.

## Finial testing (14 days)

In this phase, this is very important work need to be done.

It includes:

* Users can import the library that I develop and it works r not.
* The STM will update the right new result to resource or not.
* And more cannot imagine problems.

## Coding review and generate code listings document (one week)

In this phase, complete the code listings document.

## Project report (one week)

In this phase, complete the project report.

## Create project user manual (three days)

In this phase, complete the user manual.

* Let users easy to learn how to use this project.
* The project support what functions.
* The users how to use the methods that is supported by project to achieve users purpose.
* And so on.

## Burn the installation CD, and submit the documents (one day)

Burn the installation of project into a CD and submit the documents and CD.