**PREM KRISHNA CHETTRI**

**APEX Documentation Date: 18th Nov ‘15**

**Project Design:**

My simulator design consists of 10000 Memory array, a dependency map, pipeline map and an Instruction map.

Memory Array is the sequence of memory address where I can have a read and write operation during load and store operation.

Dependency Map holds the information about the register, which are currently allocated.

Pipeline Map is a mapping of pipeline stage to instruction within it.

Instruction map is the list of instructions, which is to be executed during the simulation.

**Architecture**

The simulator runs as a big outer while loop and checks for user input to serve. Foreach input command it maps to the type of the service.

For simulation, we check if there is instruction to be fetched from the instruction set and for each instruction we process through the various stages of pipeline.

**Execution**

Simulation starts with the initialization phase, where we load all the instruction from the file to the Instruction map and set the flag variable and Program counter.

For simulation, user is supposed to provide the number of instruction which s/he want to execute and for each cycle, we will display the pipeline stage and its corresponding instructions during the simulation.

We can also display, the pipeline content by display command, which prints the pipeline content at a particular instance.

For exiting the simulation, we can provide exit command.