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| CSCI 6461 Computer Simulator |
| Design Notes |
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## **Project Overview**

The CISC Simulator is a project to build a basic Computer Simulator that demonstrates the structure of a computer system, the breakdown of ISA, executes instructions and operations.

## **Technology and Tools**

* Programming language: Java 1.8
* IDE: IntelliJ IDEA CE 2
* Repository: GitHub

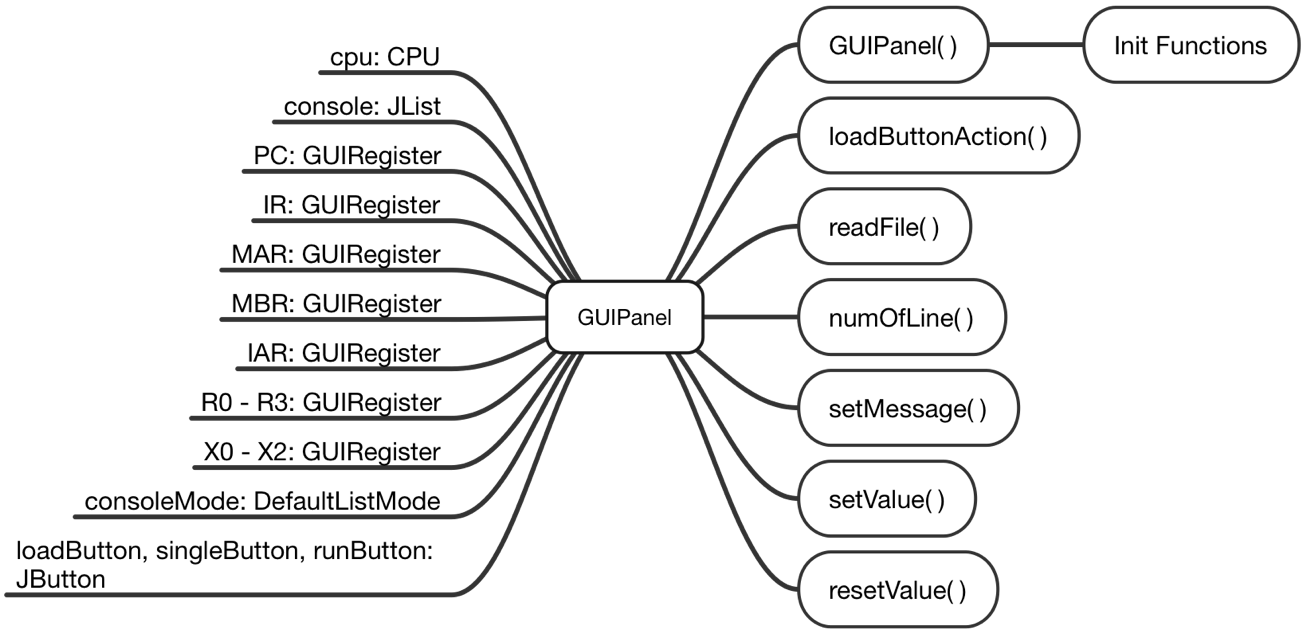
## **Part I: Basic Machine**

### Description: We have implemented a simple memory that you can see represented in an Array. The Simulator has the ability to execute Load and Store instructions using the graphical user interface we have created.

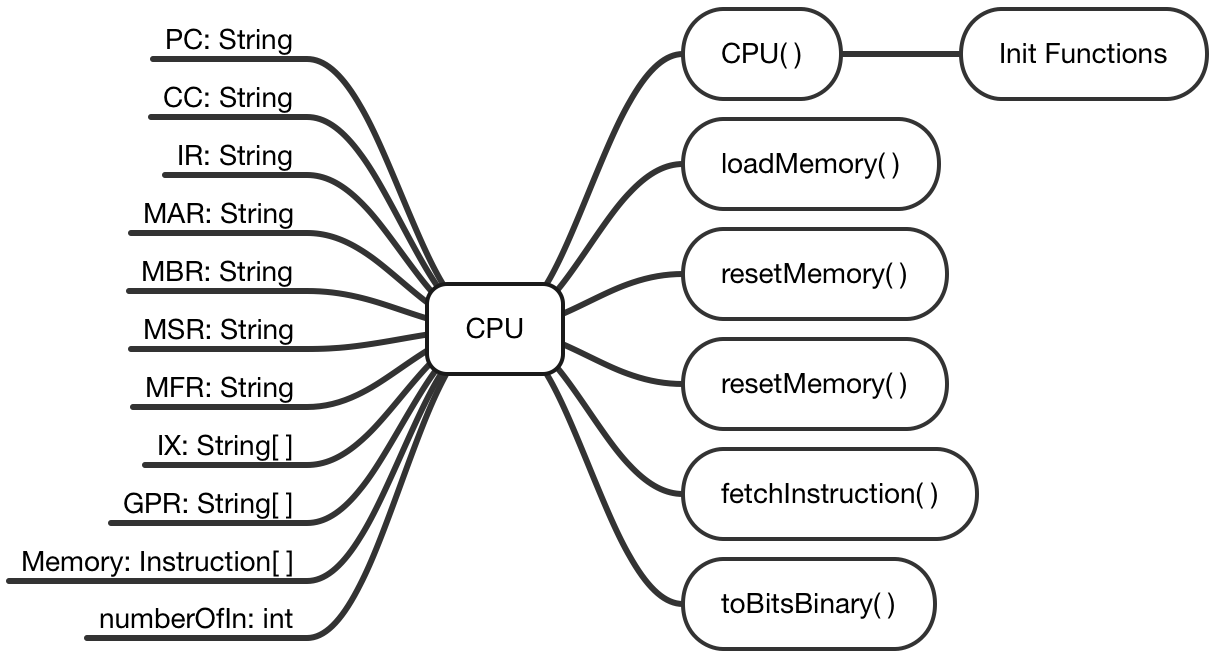
### Input: Input file contains binary instructions.

### Test and Error handling: Exceptions and handlers are used when reading from file and elsewhere needed.

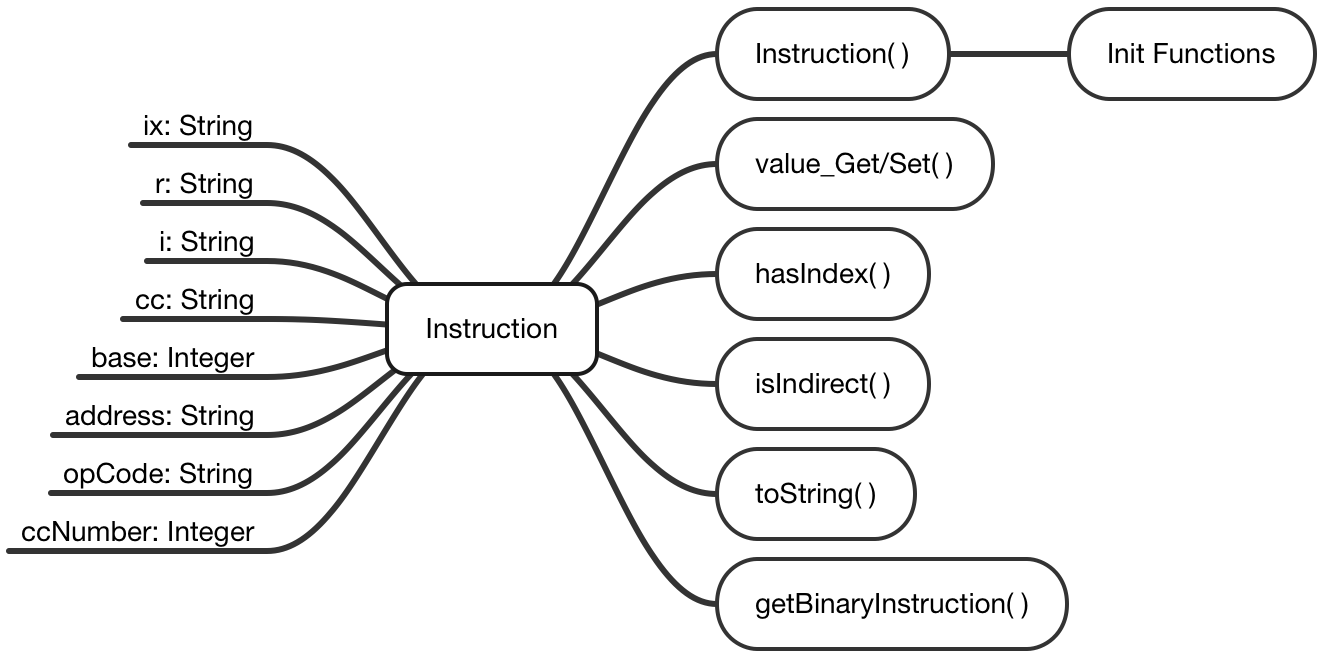
### API Maps: All labels on the left of Class Node are class properties; All labels on the right of Class Node are functions;



GUIPanel Class Node



CPU Class Node



Instruction Class Node

### Classes Overview:

* 1. GUIPanel: Creates and initializes the Graphical User Interface, representing all objects in view, associated with their actions that are supposed to run when buttons are clicked.
  2. GUIRegister: Creates and initializes registers view.
  3. Instruction: A class where Instruction constructors are initialized, an Instruction can be broken down per it’s ISA, setters and getters available accordingly. Will be used more in upcoming phases.
  4. CPU: A class that performs ‘load’ instruction by loading file of binary instructions into memory, displaying the content on the GUI. It also holds the functionality of ‘Single Step’ instruction where a single line is read from memory, and registers values are changed accordingly on GUI.
  5. Main: Loads the GUIPanel and creates a new instance of it. The part that we run every time we run a new instance of the program.

**Part II: Memory and Cache Design**

\*\*\*\*\*\*Will come soon\*\*\*\*\*\*

## **Part III: Execute All Instructions**

\*\*\*\*\*\*Will come soon\*\*\*\*\*\*

## **Part IV: A or B**

\*\*\*\*\*\*Will come soon\*\*\*\*\*\*

## **A. Floating Point and Vector Operations**

## **B: Enhanced Scheduling**

## **Version**

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| Version No. | Version Date | Author | Description |
| 0.1 | 02-05-2017 | Han Wang, Lulwah AlKulaib | Phase I: Basic Machine |
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