Explanation of MIPS instruction input file

Input files

- **assembly_file_vm1**: Contains the VM configuration parameter for VM1.
  - **vm_exec_slice_in_instructions**: Number of instructions to execute before context switch to another VM (VM2).
  - **vm_binary**: File name for the assembly instructions for VM1 (instructions_vm1).
- **assembly_file_vm2**: Contains the VM configuration parameter for VM2.
  - **vm_exec_slice_in_instructions**: Number of instructions to execute before context switch to another VM (VM1).
  - **vm_binary**: File name for the assembly instructions for VM2 (instructions_vm2).

Instruction execution

1. Initial register state of all registers would be zero

2. Process the instructions in the input file. For the input file "instructions_vm2" below will be the execution sequence.

a. **Load immediate values into registers**

```
li $1,10          # $1 = 10
li $2,20          # $2 = 20
li $3,-5          # $3 = -5
```

b. **Arithmetic operations**

```
add $4,$1,$2      # $4 = $1 + $2 = 30
sub $5,$2,$1      # $5 = $2 - $1 = 10
addi $6,$3,15     # $6 = $3 + 15 = 10
mul $7,$1,$2      # $7 = $1 * $2 = 200
```

c. **Logical operations**

```
and $8,$1,$2         # $8 = $1 & $2 = 0
or $9,$1,$2          # $9 = $1 | $2 = 30
xor $10,$1,$2        # $10 = $1 ^ $2 = 30
or $11,$2,100        #$11 = $2 | 100 = 116
sll $12,$2,10        #$12 = $2 << 10 = 20480
srl $13,$12,10       #$13 = $12 >> 10 = 20
```

d. **Printing operations**

```
    DUMP_PROCESSOR_STATE     # This will pretty print the
register values.
```

3. Sample output for the instruction DUMP_PROCESSOR_STATE

The register values are:
R1=10
R2=20
R3=-5
R4=30
R5=10
R6=10
R7=200
R8=0
R9=30
R10=30
R11=116
R12=20480
R13=20