ASSIGNING OPCODE TO DIFFERENT TYPES OF INSTRUCTIONS

Assuming we are working on a MP with size of register as 16-bit.

Also assuming we have address of 16-bit as well.

Instruction	Opcode
Move	0x0X
Load	0x1X
Store	0x2X
Arithmetic Operation	0x3X
Comparison Operation	0x4X
Branching	0x5X

X = (0 - 9)

Naming of Register

There are 7 registers in our Microprocessor:

Syntax: **R** Number of register (1 - 7)

R1, R2, R3, R4, R5, R6, R7

INSTRUCTIONS SET

M : 16-bit memory address

INSTRUCTION	OPCODE	OPERAND	OPERATION	EXAMPLE
MOV	0x00	R1, R2	Copy value of Register into another	MOV R1, R2
LD	0x10	R, M	Copy value at memory(M) into Register	MOV R1, $3000
LD	0x11	R, 16-bit value	Set value of Register as value	LD R1, 0xFFFF
STL	0x20	R1, R2	Store value of Register R1 into the address stored at R2	STL R1, R2
STL	0x21	R, M	Store value of Register into Memory location (M)	STL R1, $3000
ADD	0x30	R1, R2	Perform addition of content of both registers and store in R1	ADD R1, R2
ADD	0x31	R, 16-bit value	Perform Addition of content of Register with the value and store the result back in Register	ADD R1, 1
SUB	0x32	R1, R2	Perform subtraction of content of both registers and store in R1	SUB R1, R2
SUB	0x33	R, 16-bit value	Perform Subtraction of content of Register with the value and store the result back in Register	SUB R1, 1
CMP	0x40	R, M	Compares value of register and content at the address	CMP R1, 0x3000
CMP	0x41	R, 16-bit value	Compare value of Register with the value and set the flags as per the result	CMP R1, 10
BLT	0x50	Label	If Less than flag is 1 then go to label	BLT label
BGT	0x51	Label	If Greater than flag is 1 then go to label	BGT label
BEQ	0x52	Label	If Equal flag is 1 then go to label	BEQ label
UCB	0x53	Label	Unconditional jump to label	UCB label