Sourcecode - **AccumSim**	Binary translation
.data	.data
0x00300000:3	0x0030000000000003
0x00300001:7	0x0030000100000007
0x00300002:5	0x0030000200000005
0x00300003:4	0x0030000300000004
0x00300004:0	0x0030000400000000
0x00300005:0	0x0030000500000000
.text	.text
LOAD 0x00300000	0xE100300000
MULT 0x00300000	0x0F00300000
MULT 0x00300001	0x0F00300001
STORE 0x00300004	0x7700300004
LOAD 0x00300002	0xE100300002
MULT 0x00300000	0x0F00300000
ADD 0x00300004	0xAA00300004
ADD 0x00300003	0xAA00300003
END	A5

Sourcecode -**Stacksim**	
.data	.data
0x00300000:3	0x0030000000000003
0x00300001:7	0x0030000100000007
0x00300002:5	0x0030000200000005
0x00300003:4	0x0030000300000004
.text	text
PUSH 0x00300001	0xFF00300001
PUSH 0x00300000	0xFF00300000
PUSH 0x00300000	0xFF00300000
MULT	0F
MULT	0F
PUSH 0x00300002	0xFF00300002
PUSH 0x00300000	0xFF00300000
MULT	0F
ADD	AA
PUSH 0x00300003	0xFF00300003
ADD	AA
END	A5

ADD	0b10101010	-> HEX ->	AA
SUB	0b01010101	-> HEX ->	55
MULT	0b00001111	-> HEX ->	F
DIV	0b11110000	-> HEX ->	F0
PUSH	0b11111111	-> HEX ->	FF
POP	0b00000000	-> HEX ->	0
LOAD	0b11100001	-> HEX ->	E1
STORE	0b01110111	-> HEX ->	77
END	0b10100101	-> HEX ->	A5

(Data seg number * bits/mem_add + text_seg * bits/instr) / 8

(6 * 32 + 9 * 32)/8 = **60 bytes**

(Data seg number * bits/mem_add + text_seg * bits/instr) / 8

(6 * 32 + 9 * 32) / 8 = **60 bytes**

MIPS:

(4 * 32 + 9 * 32) / 8 = **52 bytes**

Instructions	Opcode (8 bits)	Address (24-bits)
PUSH	0xFF	Source
POP	0x00	Destination
MULT	0x0F	N/A
ADD	0xAA	N/A
SUB	0x55	N/A
DIV	0xF0	N/A
END	0xA5	N/A

Instructions	Opcode (8 bits)	Address (24-bits)
LOAD	0xE1	Source
STORE	0x77	Destination
MULT	0x0F	Source
ADD	0xAA	Source
END	0xAF	N/A

Hypothetical encoding from part #4
Differences between types of instructions: Opcodes with a 1 as the most significant bit is a immediate operand type, and with a 0 as the most significant bit will be of the memory address operand type.

Types:

8 bit op code	32 bit mem_addr
8 bit op code	32 bit signed

Push:	0x006FFFFFFF
Pop:	0x016FFFFFFF
Add:	0x026FFFFFFF
Mult:	0x036FFFFFFF
PushS:	0x1000000001

Load:	0x006FFFFFFF
Store:	0x016FFFFFFF
Add:	0x026FFFFFFF
Mult:	0x036FFFFFFF
LoadS:	0x1000000001