

1.c)

Registers	Coproc 1	Coproc 0	Registers	Coproc 1	Coproc 0	Registers	Coproc 1	Coproc 0	Registers	Coproc 1	Coproc 0
Name	Number	Value	Name	Number	Value	Name	Number	Value	Name	Number	Value
\$zero	0	0x00000000	\$zero	0	0x00000000	\$zero	0	0x00000000	\$zero	0	0x00000000
\$at	1	0x00000000	\$at	1	0x00000001	\$at	1	0x00000000	\$at	1	0x00000001
\$v0	2	0x00000000	\$v0	2	0x00000000	\$v0	2	0x0000000a	\$v0	2	0x00000000
\$v1	3	0x00000000	\$v1	3	0x00000000	\$v1	3	0x00000000	\$v1	3	0x00000000
\$a0	4	0x00000000	\$a0	4	0x00000000	\$a0	4	0x00000000	\$a0	4	0x00000000
\$a1	5	0x00000000	\$a1	5	0x00000000	\$a1	5	0x00000000	\$a1	5	0x00000000
\$a2	6	0x00000000	\$a2	6	0x00000000	\$a2	6	0x00000000	\$a2	6	0x00000000
\$a3	7	0x00000000	\$a3	7	0x00000000	\$a3	7	0x00000000	\$a3	7	0x00000000
\$t0	8	0x00000000	\$t0	8	0x00000001	\$t0	8	0x00000002	\$t0	8	0x00000000
\$t1	9	0x00000002	\$t1	9	0x00000000	\$t1	9	0x00000002	\$t1	9	0x00000001
\$t2	10	0x00000000	\$t2	10	0x00000000	\$t2	10	0x00000000	\$t2	10	0x00000000
\$t3	11	0x1001000c	\$t3	11	0x10010000	\$t3	11	0x1001000c	\$t3	11	0x10010000
\$t4	12	0x00000001	\$t4	12	0x00000001	\$t4	12	0x00000002	\$t4	12	0x00000000
\$t5	13	0x00000000	\$t5	13	0x00000000	\$t5	13	0x00000000	\$t5	13	0x00000000
\$t6	14	0x00000000	\$t6	14	0x00000000	\$t6	14	0x00000000	\$t6	14	0x00000000
\$t7	15	0x00000000	\$t7	15	0x00000000	\$t7	15	0x00000000	\$t7	15	0x00000000
\$s0	16	0x00000002	\$s0	16	0x00000000	\$s0	16	0x00000002	\$s0	16	0x00000000
\$s1	17	0x00000002	\$s1	17	0x00000002	\$s1	17	0x00000002	\$s1	17	0x00000002
\$s2	18	0x10010000	\$s2	18	0x10010000	\$s2	18	0x10010000	\$s2	18	0x10010000
\$s3	19	0x00000000	\$s3	19	0x00000000	\$s3	19	0x00000000	\$s3	19	0x00000000
\$s4	20	0x00000000	\$s4	20	0x00000000	\$s4	20	0x00000000	\$s4	20	0x00000000
\$s5	21	0x00000000	\$s5	21	0x00000000	\$s5	21	0x00000000	\$s5	21	0x00000000
\$s6	22	0x00000000	\$s6	22	0x00000000	\$s6	22	0x00000000	\$s6	22	0x00000000
\$s7	23	0x00000000	\$s7	23	0x00000000	\$s7	23	0x00000000	\$s7	23	0x00000000
\$t8	24	0x00000000	\$t8	24	0x00000000	\$t8	24	0x00000000	\$t8	24	0x00000000
\$t9	25	0x00000000	\$t9	25	0x00000000	\$t9	25	0x00000000	\$t9	25	0x00000000
\$k0	26	0x00000000	\$k0	26	0x00000000	\$k0	26	0x00000000	\$k0	26	0x00000000
\$k1	27	0x00000000	\$k1	27	0x00000000	\$k1	27	0x00000000	\$k1	27	0x00000000
\$gp	28	0x10008000	\$gp	28	0x10008000	\$gp	28	0x10008000	\$gp	28	0x10008000
\$sp	29	0x7ffffcfc	\$sp	29	0x7ffffcfc	\$sp	29	0x7ffffcfc	\$sp	29	0x7ffffcfc
\$fp	30	0x00000000	\$fp	30	0x00000000	\$fp	30	0x00000000	\$fp	30	0x00000000
\$ra	31	0x00000000	\$ra	31	0x00000000	\$ra	31	0x00000000	\$ra	31	0x00000000
pc		0x00400044	pc		0x0040003c	pc		0x0040005c	pc		0x00400040
hi		0x00000000	hi		0x00000000	hi		0x00000000	hi		0x00000000
lo		0x00000002	lo		0x00000000	lo		0x00000002	lo		0x00000000

1.d) To implement the code in 1.c (initialize the variables a and b to 2 and 2, respectively) took a total of 2 pseudoinstructions or 4 instructions.

2.b)

First function call, creation of space on the stack, and saving of \$ra, \$s0, \$s1

Registers	Coproc 1	Coproc 0
Name	Number	Value
\$zero	0	0x00000000
\$at	1	0x00000000
\$v0	2	0x00000000
\$v1	3	0x00000000
\$a0	4	0x00000003
\$a1	5	0x00000000
\$a2	6	0x00000000
\$a3	7	0x00000000
\$t0	8	0x00000000
\$t1	9	0x00000000
\$t2	10	0x00000000
\$t3	11	0x00000000
\$t4	12	0x00000000
\$t5	13	0x00000000
\$t6	14	0x00000000
\$t7	15	0x00000000
\$s0	16	0x00000000
\$s1	17	0x00000000
\$s2	18	0x00000000
\$s3	19	0x00000000
\$s4	20	0x00000000
\$s5	21	0x00000000
\$s6	22	0x00000000
\$s7	23	0x00000000
\$t8	24	0x00000000
\$t9	25	0x00000000
\$k0	26	0x00000000
\$k1	27	0x00000000
\$gp	28	0x10008000
\$sp	29	0x7ffffcfc
\$fp	30	0x00000000
\$ra	31	0x00400008
pc		0x00400024
hi		0x00000000
lo		0x00000000

fib(n-1) call

Registers	Coproc 1	Coproc 0	
Name	Number		Value
\$zero	0		0x00000000
\$at	1		0x00000001
\$v0	2		0x00000001
\$v1	3		0x00000000
\$a0	4		0x00000002
\$a1	5		0x00000000
\$a2	6		0x00000000
\$a3	7		0x00000000
\$t0	8		0x00000000
\$t1	9		0x00000000
\$t2	10		0x00000000
\$t3	11		0x00000000
\$t4	12		0x00000000
\$t5	13		0x00000000
\$t6	14		0x00000000
\$t7	15		0x00000000
\$s0	16		0x00000003
\$s1	17		0x00000000
\$s2	18		0x00000000
\$s3	19		0x00000000
\$s4	20		0x00000000
\$s5	21		0x00000000
\$s6	22		0x00000000
\$s7	23		0x00000000
\$t8	24		0x00000000
\$t9	25		0x00000000
\$k0	26		0x00000000
\$k1	27		0x00000000
\$gp	28		0x10008000
\$sp	29		0x7ffffef0
\$fp	30		0x00000000
\$ra	31		0x00400044
pc			0x00400014
hi			0x00000000
lo			0x00000000

second fib(n-1) call

Registers	Coproc 1	Coproc 0	
Name	Number		Value
\$zero	0		0x00000000
\$at	1		0x00000001
\$v0	2		0x00000001
\$v1	3		0x00000000
\$a0	4		0x00000001
\$a1	5		0x00000000
\$a2	6		0x00000000
\$a3	7		0x00000000
\$t0	8		0x00000000
\$t1	9		0x00000000
\$t2	10		0x00000000
\$t3	11		0x00000000
\$t4	12		0x00000000
\$t5	13		0x00000000
\$t6	14		0x00000000
\$t7	15		0x00000000
\$s0	16		0x00000002
\$s1	17		0x00000000
\$s2	18		0x00000000
\$s3	19		0x00000000
\$s4	20		0x00000000
\$s5	21		0x00000000
\$s6	22		0x00000000
\$s7	23		0x00000000
\$t8	24		0x00000000
\$t9	25		0x00000000
\$k0	26		0x00000000
\$k1	27		0x00000000
\$gp	28		0x10008000
\$sp	29		0x7ffffef4
\$fp	30		0x00000000
\$ra	31		0x00400044
pc			0x00400040
hi			0x00000000
lo			0x00000000

first return

Registers			Coproc 1	Coproc 0
Name	Number	Value		
\$zero	0	0x00000000		
\$at	1	0x00000001		
\$v0	2	0x00000001		
\$v1	3	0x00000000		
\$a0	4	0x00000001		
\$a1	5	0x00000000		
\$a2	6	0x00000000		
\$a3	7	0x00000000		
\$t0	8	0x00000000		
\$t1	9	0x00000000		
\$t2	10	0x00000000		
\$t3	11	0x00000000		
\$t4	12	0x00000000		
\$t5	13	0x00000000		
\$t6	14	0x00000000		
\$t7	15	0x00000000		
\$s0	16	0x00000002		
\$s1	17	0x00000000		
\$s2	18	0x00000000		
\$s3	19	0x00000000		
\$s4	20	0x00000000		
\$s5	21	0x00000000		
\$s6	22	0x00000000		
\$s7	23	0x00000000		
\$t8	24	0x00000000		
\$t9	25	0x00000000		
\$k0	26	0x00000000		
\$k1	27	0x00000000		
\$gp	28	0x10008000		
\$sp	29	0x7ffffef4		
\$fp	30	0x00000000		
\$ra	31	0x00400044		
pc		0x00400044		
hi		0x00000000		
lo		0x00000000		

first fib(n-2) call

Registers			Coproc 1	Coproc 0
Name	Number	Value		
\$zero	0	0x00000000		
\$at	1	0x00000001		
\$v0	2	0x00000000		
\$v1	3	0x00000000		
\$a0	4	0x00000000		
\$a1	5	0x00000000		
\$a2	6	0x00000000		
\$a3	7	0x00000000		
\$t0	8	0x00000000		
\$t1	9	0x00000000		
\$t2	10	0x00000000		
\$t3	11	0x00000000		
\$t4	12	0x00000000		
\$t5	13	0x00000000		
\$t6	14	0x00000000		
\$t7	15	0x00000000		
\$s0	16	0x00000002		
\$s1	17	0x00000001		
\$s2	18	0x00000000		
\$s3	19	0x00000000		
\$s4	20	0x00000000		
\$s5	21	0x00000000		
\$s6	22	0x00000000		
\$s7	23	0x00000000		
\$t8	24	0x00000000		
\$t9	25	0x00000000		
\$k0	26	0x00000000		
\$k1	27	0x00000000		
\$gp	28	0x10008000		
\$sp	29	0x7ffffef4		
\$fp	30	0x00000000		
\$ra	31	0x00400050		
pc		0x00400050		
hi		0x00000000		
lo		0x00000000		

Screenshot-6: second return

Registers	Coproc 1	Coproc 0
Name	Number	Value
\$zero	0	0x00000000
\$at	1	0x00000001
\$v0	2	0x00000001
\$v1	3	0x00000000
\$a0	4	0x00000000
\$a1	5	0x00000000
\$a2	6	0x00000000
\$a3	7	0x00000000
\$t0	8	0x00000000
\$t1	9	0x00000000
\$t2	10	0x00000000
\$t3	11	0x00000000
\$t4	12	0x00000000
\$t5	13	0x00000000
\$t6	14	0x00000000
\$t7	15	0x00000000
\$s0	16	0x00000002
\$s1	17	0x00000001
\$s2	18	0x00000000
\$s3	19	0x00000000
\$s4	20	0x00000000
\$s5	21	0x00000000
\$s6	22	0x00000000
\$s7	23	0x00000000
\$t8	24	0x00000000
\$t9	25	0x00000000
\$k0	26	0x00000000
\$k1	27	0x00000000
\$gp	28	0x10008000
\$sp	29	0x7ffffef4
\$fp	30	0x00000000
\$ra	31	0x00400050
pc		0x00400014
hi		0x00000000
lo		0x00000000

Screenshot-7: third return

Registers	Coproc 1	Coproc 0
Name	Number	Value
\$zero	0	0x00000000
\$at	1	0x00000001
\$v0	2	0x00000001
\$v1	3	0x00000000
\$a0	4	0x00000000
\$a1	5	0x00000000
\$a2	6	0x00000000
\$a3	7	0x00000000
\$t0	8	0x00000000
\$t1	9	0x00000000
\$t2	10	0x00000000
\$t3	11	0x00000000
\$t4	12	0x00000000
\$t5	13	0x00000000
\$t6	14	0x00000000
\$t7	15	0x00000000
\$s0	16	0x00000003
\$s1	17	0x00000000
\$s2	18	0x00000000
\$s3	19	0x00000000
\$s4	20	0x00000000
\$s5	21	0x00000000
\$s6	22	0x00000000
\$s7	23	0x00000000
\$t8	24	0x00000000
\$t9	25	0x00000000
\$k0	26	0x00000000
\$k1	27	0x00000000
\$gp	28	0x10008000
\$sp	29	0x7ffffef0
\$fp	30	0x00000000
\$ra	31	0x00400044
pc		0x00400044
hi		0x00000000
lo		0x00000000

Screenshot-8: second fib(n-2) call

Registers	Coproc 1	Coproc 0
Name	Number	Value
\$zero	0	0x00000000
\$at	1	0x00000001
\$v0	2	0x00000001
\$v1	3	0x00000000
\$a0	4	0x00000001
\$a1	5	0x00000000
\$a2	6	0x00000000
\$a3	7	0x00000000
\$t0	8	0x00000000
\$t1	9	0x00000000
\$t2	10	0x00000000
\$t3	11	0x00000000
\$t4	12	0x00000000
\$t5	13	0x00000000
\$t6	14	0x00000000
\$t7	15	0x00000000
\$s0	16	0x00000003
\$s1	17	0x00000001
\$s2	18	0x00000000
\$s3	19	0x00000000
\$s4	20	0x00000000
\$s5	21	0x00000000
\$s6	22	0x00000000
\$s7	23	0x00000000
\$t8	24	0x00000000
\$t9	25	0x00000000
\$k0	26	0x00000000
\$k1	27	0x00000000
\$gp	28	0x10008000
\$sp	29	0x7ffff0
\$fp	30	0x00000000
\$ra	31	0x00400050
pc		0x00400014
hi		0x00000000
lo		0x00000000

Screenshot-9: forth return

Registers	Coproc 1	Coproc 0
Name	Number	Value
\$zero	0	0x00000000
\$at	1	0x00000001
\$v0	2	0x00000001
\$v1	3	0x00000000
\$a0	4	0x00000001
\$a1	5	0x00000000
\$a2	6	0x00000000
\$a3	7	0x00000000
\$t0	8	0x00000000
\$t1	9	0x00000000
\$t2	10	0x00000000
\$t3	11	0x00000000
\$t4	12	0x00000000
\$t5	13	0x00000000
\$t6	14	0x00000000
\$t7	15	0x00000000
\$s0	16	0x00000003
\$s1	17	0x00000001
\$s2	18	0x00000000
\$s3	19	0x00000000
\$s4	20	0x00000000
\$s5	21	0x00000000
\$s6	22	0x00000000
\$s7	23	0x00000000
\$t8	24	0x00000000
\$t9	25	0x00000000
\$k0	26	0x00000000
\$k1	27	0x00000000
\$gp	28	0x10008000
\$sp	29	0x7ffff0
\$fp	30	0x00000000
\$ra	31	0x00400050
pc		0x00400050
hi		0x00000000
lo		0x00000000

Screenshot-10: before program exit

Registers			Coproc 1	Coproc 0
Name	Number	Value		
\$zero	0	0x00000000		
\$at	1	0x00000001		
\$v0	2	0x0000000a		
\$v1	3	0x00000000		
\$a0	4	0x00000001		
\$a1	5	0x00000002		
\$a2	6	0x00000000		
\$a3	7	0x00000000		
\$t0	8	0x00000000		
\$t1	9	0x00000000		
\$t2	10	0x00000000		
\$t3	11	0x00000000		
\$t4	12	0x00000000		
\$t5	13	0x00000000		
\$t6	14	0x00000000		
\$t7	15	0x00000000		
\$s0	16	0x00000000		
\$s1	17	0x00000000		
\$s2	18	0x00000000		
\$s3	19	0x00000000		
\$s4	20	0x00000000		
\$s5	21	0x00000000		
\$s6	22	0x00000000		
\$s7	23	0x00000000		
\$s8	24	0x00000000		
\$s9	25	0x00000000		
\$k0	26	0x00000000		
\$k1	27	0x00000000		
\$gp	28	0x10008000		
\$sp	29	0x7fffffc		
\$fp	30	0x00000000		
\$ra	31	0x00400008		
pc		0x00400010		
hi		0x00000000		
lo		0x00000000		