

**CISS360: Computer Systems and Assembly Language**  
**Quiz q1201**

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Open `main.tex` and enter answers (look for `answercode`, `answerbox`, `answerlong`). Turn the page for detailed instructions. To rebuild and view pdf, in bash shell execute `make`. To build a gzip-tar file, in bash shell execute `make s` and you'll get `submit.tar.gz`.

Q1. The following function `main` needs to save and restore certain registers:

```
main:  li    $t0, 1
       li    $s1, 2
       add   $a0, $s2, $s1
       add   $t3, $t0, $s2
       [what to save?]
       jal   g
       [what to restore?]
       mul   $s2, $t0, $v0
       sub   $s0, $t3, $s0
       add   $s0, $a0, $t3
```

What registers must be saved and restored? Only include the relevant ones.

ANSWER:

`$s2, $t3, $t0, $a0`

(Correct the above.)

Q2. The following function `f` needs to save and restore certain registers:

```
f:     [what to save?]
       add   $t0, $a0, $a0
       add   $t1, $a0, $a1
       add   $s0, $t0, $t1
       sub   $s1, $s0, $t1
       div   $s1, $s0
       mfhi  $a0
       add   $v0, $a0, $s1
       [what to restore?]
       jr    $ra
```

What registers must be saved and restored? Only include the relevant ones.

ANSWER:

`$s0, $s1, $ra`

(Correct the above.)