(20 pts) Exercise 2-27

```
loop:    add $t0, $zero, $zero
         beq $a1, $zero, finish
         add $t0, $t0, $a0
         sub $a1, $a1, 1
         j    loop
finish:  addi $t0, $t0, 100
         add $v0, $t0, $zero
```

• (10 pts) Add comments to the MIPS code above. Assume that $a0 and $a1 are used for the input and both initially contain the integers ‘a’ and ‘b’, respectively. You may assume ‘a’ and ‘b’ are both greater than zero.

• (10 pts) In one sentence, what does this code compute (in terms of ‘a’ and ‘b’)?
Exercise 2-28

```
sll $a2, $a2, 2  
sll $a3, $a3, 2  
add $v0, $zero, $zero  
add $t0, $zero, $zero  
outer: add $t4, $a0, $t0  
        lw $t4, 0($t4)  
        add $t1, $zero, $zero  
inner: add $t3, $a1, $t1  
        lw $t3, 0($t3)  
        bne $t3, $t4, skip  
        addi $v0, $v0, 1  
skip  
        addi $t1, $t1, 4  
        bne $t1, $a3, inner  
        addi $t0, $t0, 4  
        bne $t0, $a2, outer
```

- (10 pts) Add comments to the MIPS code above. This code processes two arrays and produces an important value in register $v0. Assume that each array consists of 2500 words indexed 0 through 2499, that the base addresses of the arrays are stored in $a0 and $a1 respectively, and their sizes (2500) and stored in $a2 and $a3, respectively. In your comments, call the arrays Array1 and Array2.

- (10 pts) In one sentence, what does this code compute and store in $v0?
(5 pts) Exercise 2-31

- Suppose you are given the code for the following function:
  int function1(int a, int b);
Write MIPS code to call function1(3, 7) and then store the result in $s0

(5 pts) Exercise 2-32

- Now you have this definition for function1:
  int function1(int a, int b) {
      return (a – b);
  }
Write MIPS code to define function1.
(10 pts) Exercise 2-33

• Write MIPS code to define the following function:
  
  ```c
  int cat(int a, int b) {
    if (a < b)
      return a;
    else
      return b;
  }
  ```
Exercise 2-36

- Write the MIPS code to define the following function
  
  ```
  int function2(int g, int h)
  {
    return g + function1(g, h);
  }
  ```

  (You will need to store something on the stack – why?)
(5 pts) Exercise 2-37

- Write the MIPS code to define the following function
  
  ```
  int function3(int a, int b)
  {
    return function6(a) + function7(b);
  }
  ```

  (You will need to store something on the stack – why?)
Exercise 2-38

Write the MIPS code to define the following function

```c
int lemur(int a, int b)
{ return panda(a) + b; }
```