CSCI 2500: Computer Organization

Lab 6 – Exercises MAL Programming

1. Hello World!: Load the 'Hello World' program presented in Lecture 10 (10/2/2015) into SPIM and run it.

2. Assume `$t0` holds the value 0x00101000. What is the value of `$t2` after the following instructions?

```
                slt $t2, $0, $t0
                bne $t2, $0, else
                j done
      else:     addi $t2, $t2, 2
      done:
```

3. Convert the following C program to an equivalent MIPS assembly language program. Assume that the variables a and b are assigned to registers `$s0` and `$s1` respectively.

```
#include <stdio.h>
int main(void)
{
   int a, b;
   a = 0; b = 5;
   while( a < 10 ) {
      b = b + a;
      a++;
      printf("%d\n",b);
   }
}
```

Program Output:

```
5
6
8
11
15
20
26
33
41
50
```

4. Is it a digit?: Download lab6_ex4.s from LMS. The file lab6_ex4.s is a skeleton program and needs to be finished. The final complete MIPS program will prompt the user for one (and only one) input character. The program should then determine if the character is a digit and print an appropriate message back to the user. Hint: You will need to reference the ASCII table you created in Lab 3.