

## Assignment 2

### Question 1:

We have to move a given 32 bit represented immediate in hexa-decimal to a 32-bit register

0x12345678

First we will break number in two halves

0x 1234 and 0x 5678

```
movh r1,0x 1234
```

```
addu r1,0x 5678
```

Both the number < 32 bits so this satisfy constraints given in question

### Question 2:

Role of flag register to store the result of last comparison. By storing two flags equal to and greater than represented as follows:

flag.E stores whether values at registers are equal.

flag.GT stores whether value at first register is greater than the second one.

0, 1 represent  $r1 > r2$

1, 0 represent  $r1 == r2$

0, 0 represent  $r2 > r1$

Are flag registers unnecessary? the answer is No.

Cmp is a very common operation. We use them very frequently, flag register gives a way to store the result of the last cmp without using a register visible to the programmer. Like every time there is an if-else statement or there is a condition on loop we use values at the flag register. So they are not unnecessary.

Can the flag register be removed? The answer is yes.

Although the flag registers are necessary, their functionality can be implemented using other registers. So they are necessary but can be removed.