base address A in $s3

i is in $s1

A[i]

= i x 4

= i x 2^2

```
sll  $t0, $s1, 2
add  $t1, $t0, $s3
lw   $t3, 0($t1)
```

A[5]

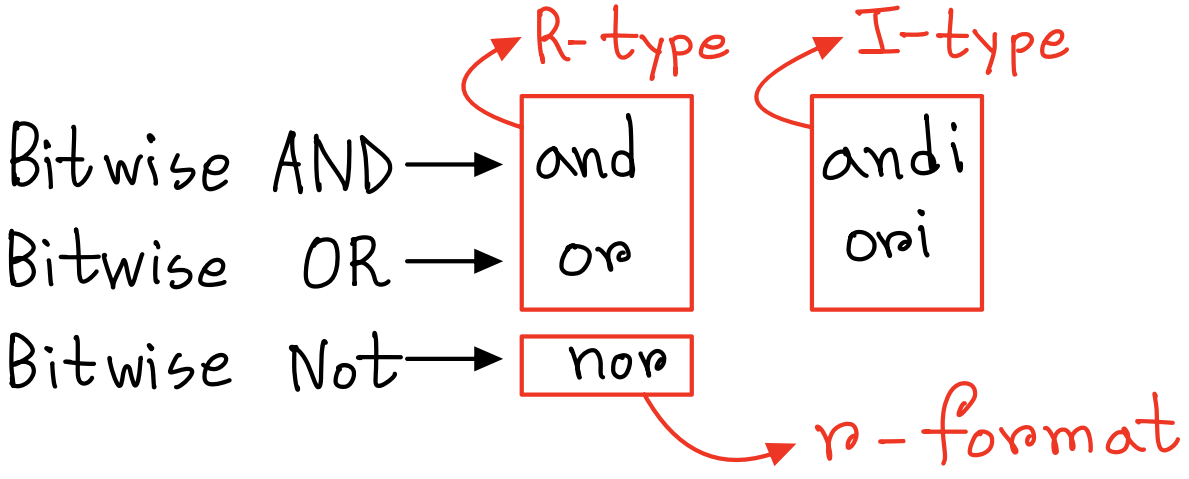
```
lw   $t0, 20($s3)
```

$s2 ← y = 5

```
addi  $s2, $zero, 5
```

↓

5+0 = 5



and $t0, $t1, $t2 r-type

rd rs rt

$t1 = 1 1 1 0

$t2 = 0 1 0 1

∴ $t0 = 0 1 0 0

একটা Register আর অ্যাকেটার int এর মধ্যে হলে শেষে i হয়।

andi $t0, $t1, 2

rd rs

i-type

$t1 = 1 1 1 0

$t2 = 0 0 1 0

∴ $t0 = 0 0 1 0

or $t0, $t1, $t2 r-type

rd rs rt

$t1 = 1 1 1 0

$t2 = 0 1 0 0

∴ $t0 = 1 1 1 0

ori $t0, $t1, $2 i-type

rd rs

$t1 = 1011
$t2 = 0010
∴ $t0 = 1011

a nor b = Not (a or b) → আগে a or b এর মধ্যে or operation হবে Then এটার Complement হবে

nor $t0, $t1 $t2 r-format

rd rs rl

$t1 = 0100
$t2 = 1000
∴ $t0 = 0011

First of all,
or { 0100
     1000

1100
Then, not
0011

শুধু Not করার জন্য

nor $t1, $t2, $zero

$t2 = 1 0 1 1
$zero = 0 0 0 0

∴ or operation এর পর = 1 0 1 1
এখন এটার not হবে।
∴ $t1 = 0 1 0 0

nor $t1, $t2, $t3

$t2 = 0 1 0 0
$t3 = 1 0 0 0

or operation এর পর = 1100
Not এর পর, $t1 = 0 0 11

Loops

While loop:

i → $s3
k → $s5
Base Address of save → $s6
a → $s4

C - Code:

```
while (save[i]==k){
    a = a+2;
    i = i+1;
}
```

i, k, a are stored in $s3, $s5, and $s4 respectively and base address of save is $s6.

Mips Code:

```
Loop:
    sll $t0, $s3, 2
    add $t0, $t0, $s6      # Memory address of save[i]
    lw  $t1, 0($t0)
    bne $t1, $s5, Exit
    addi $s4, $s4, 2
    addi $s3, $s3, 1
    j Loop                 # Loop iterate করার জন্য
Exit:
```

For loop:

```
for (int i=0; save[i]>k; i++){
}     a = a+2
```

i, k, a are stored in $s3, $s5, and $s4 respectively and base address of save is $s6.

Mips Code:

```
add  $s3, $zero, $zero ----> # i=0
Loop:                        assign করা
     sll  $t0, $s3, 2        হচ্ছে initially
     add  $t0, $t0, $s6
     lw   $t1, 0($t0)
     slt  $t2, $t1, $s5 ----> # যেহেতু
     bne  $t2, $zero, Exit    Main Code
     addi $s4, $s4, 2         যে > then
     addi $s3, $s3, 1         < এর মাঝে
     j Loop                   Compare
Exit:                         করবো, Less
                              then হলে
                              $t2 তে 1
                              store হতো।
                              # sets 1
```