COMP1521
WEEK 3 – MIPS – load/store

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Announcements 

- Lab start this week!
  - Lab3 has been released, due on **Week 4 Monday 12:00:00 (midday)**

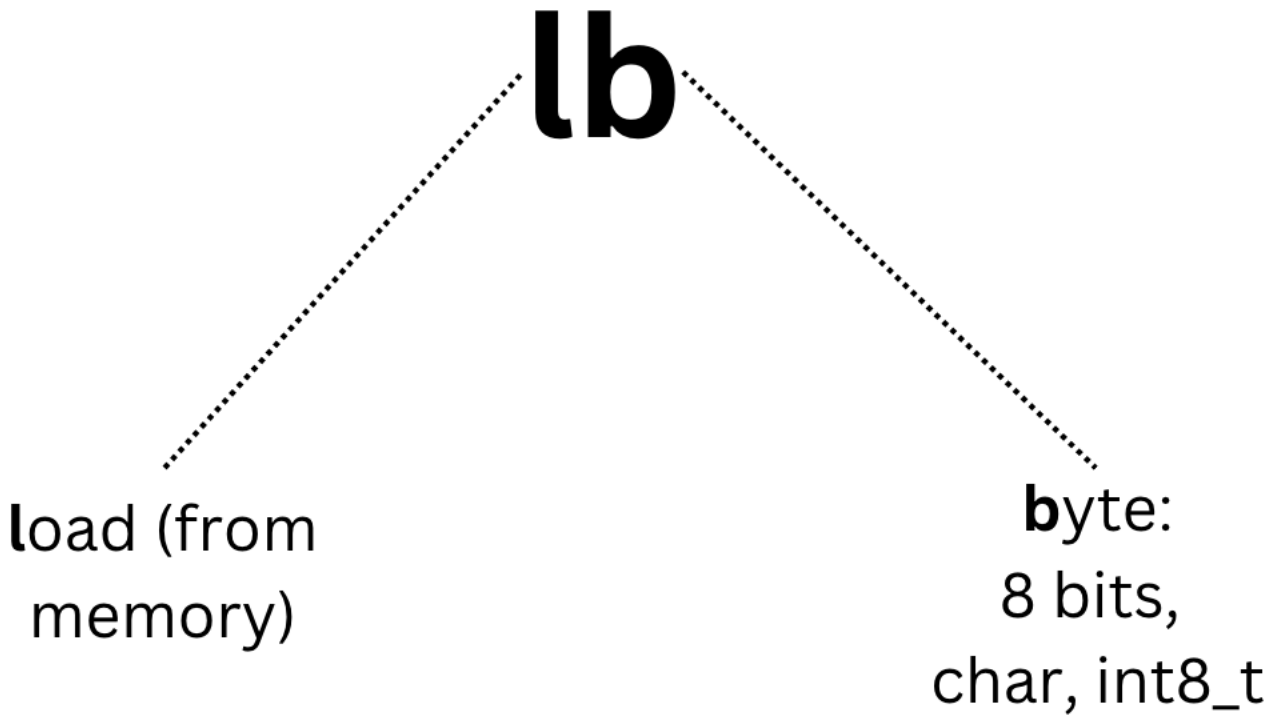
- The first weekly quiz will be released soon!
  - come out on Thursday
  - **Due Week 4 Thursday 21:00:00**
- **Assignment1 is on the way!!**
  - Will be released mid week

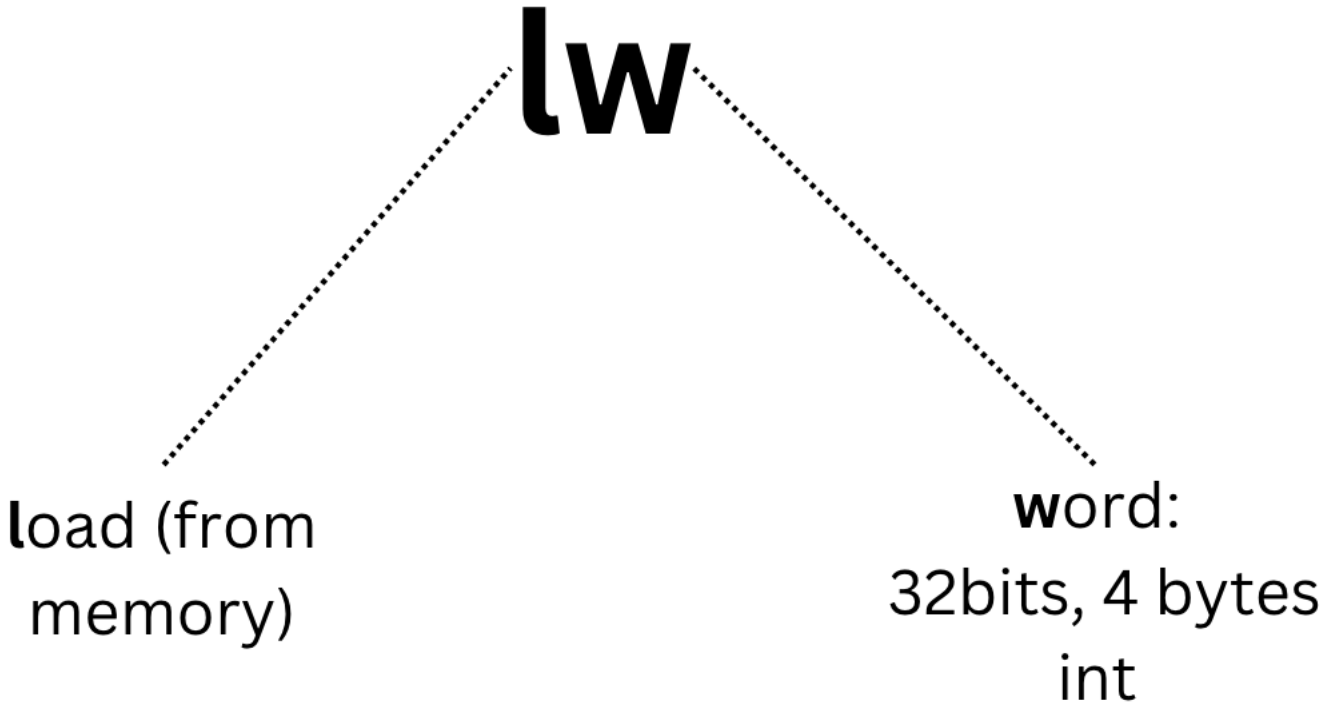
Tutorial question 2

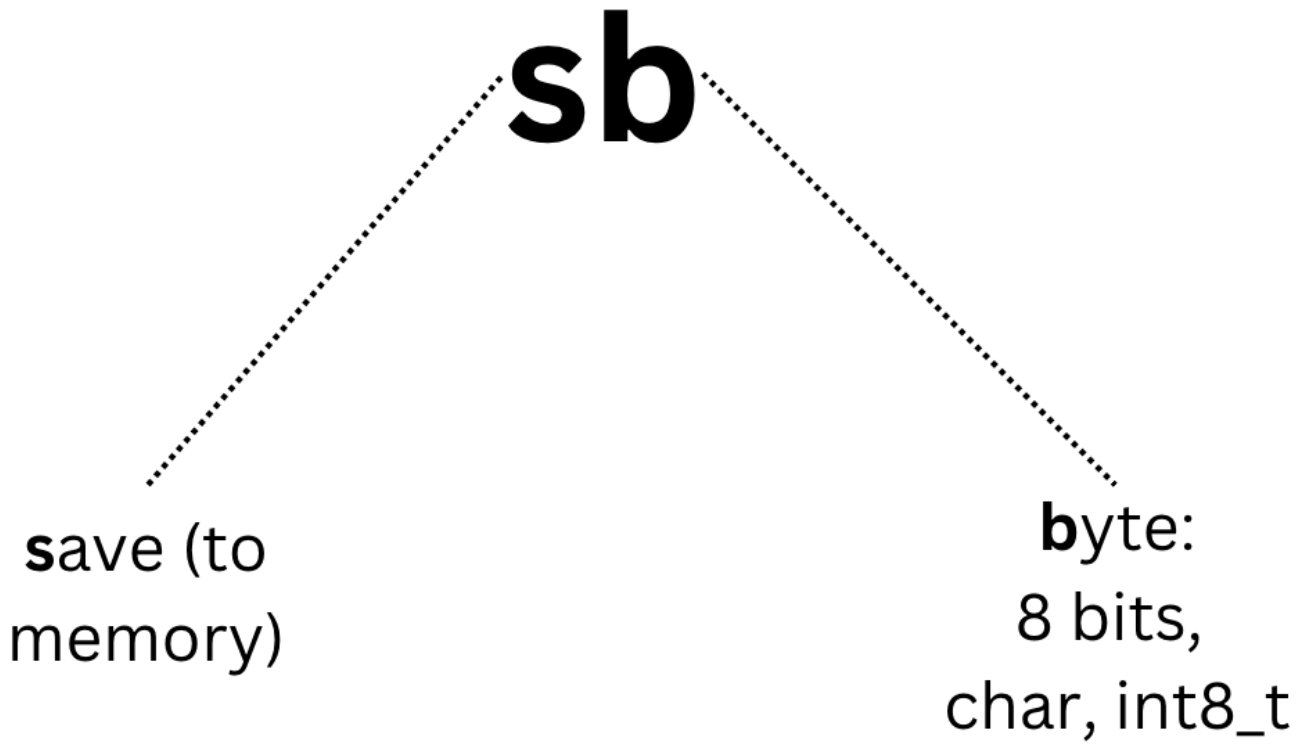
2. If the data segment of a particular MIPS program starts at the address `0x10010020`, then what addresses are the following labels associated with, and what value is stored in each 4-byte memory cell?

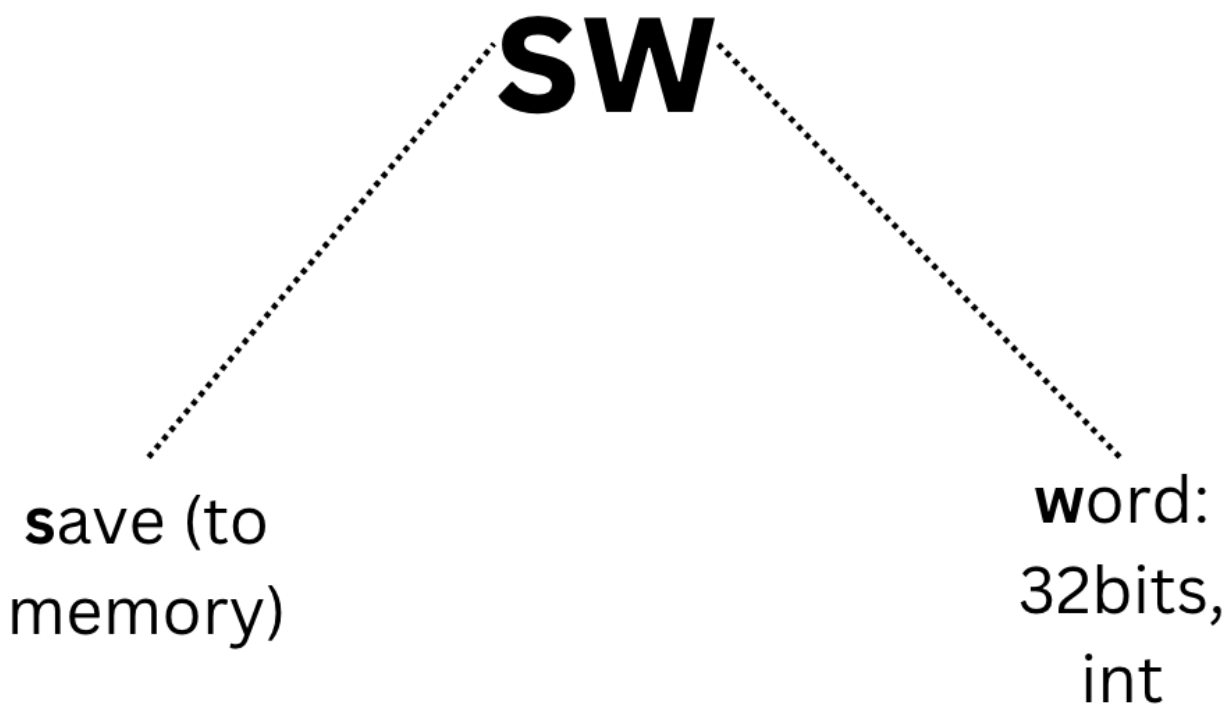
```
    .data
a:  .word   42
b:  .space  4
c:  .asciiz "abcde"
    .align  2
d:  .byte   1, 2, 3, 4
e:  .word   1, 2, 3, 4
f:  .space  1
```

- Like C, MIPS has types too!
- .word = 4 bytes (int)
- .byte = 1 byte (char)
- .space 7 = 7 bytes of uninitialized space.


lb
load (from memory)
byte:
8 bits,
char, int8_t


lw
load (from memory)
word:
32bits, 4 bytes
int


sb
save (to memory)
byte: 8 bits, char, int8_t


SW
save (to memory)
word: 32bits, int

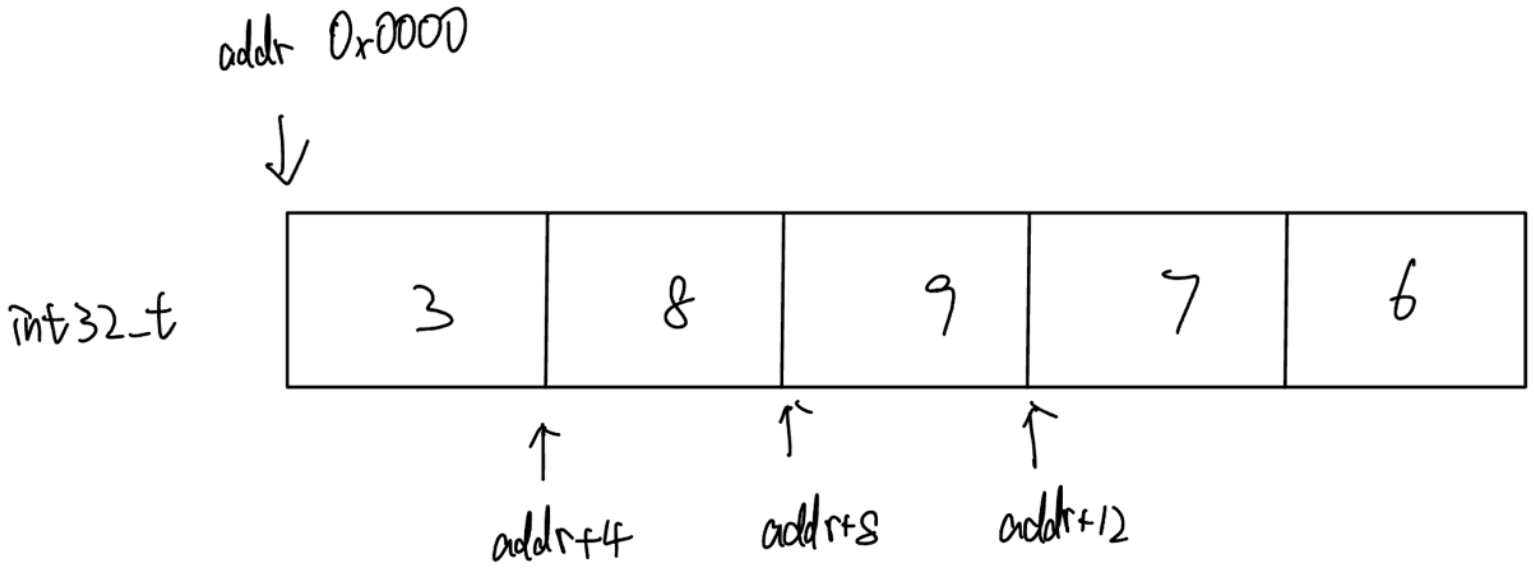
Difference between sb/lb

- **Store is difference!!**
- **memory address = offset + reference addr**

```
sb      $t0, addr

lb      $t1, addr
```

An example



① lw $t0, (addr)

② lw $t0, 4(addr)

Next step

- Address number[i]

- Tutorial question 4, 6, 7

Questions and Answers