

String Processing

Question 1: (15 points)

(V02, V03, V08) Each null-terminated string in Figure ?? corresponds to an Alberta license plate number. All license plates have the same number of characters. The first string in the list corresponds to `plates[0]`.

```
1  # license-plate array
2  .data
3  plates:
4      .asciz "GFC-906"
5      .asciz "FNL-909"
6      .asciz "BTP-610"
7      .asciz "GTC-883"
8      .asciz "KCH-135"
9      .asciz "JCW-320"
10     .asciz "MPV-591"
11     .asciz "MZL-574"
```

Figure 1: An array of Alberta license plates.

Question 2: (5 points)

Write the shortest sequence of RISC-V instructions that places the address of the first character of `plates[3]` into register `a0`.

Question 3: (5 points)

Assume that register `a1` contains an unsigned integer value `k`. Write the shortest sequence of RISC-V instructions that places the address of the first character of `plates[k]` in `a0`.

Question 4: (5 points)

Write the shortest sequence of RISC-V instructions that loads the third character of `plates[5]` (this is the “W” character) into `t0`.