

Exercise 3

(i) if we use operations studied in lectures. `pushback(l, k)` can be expressed by `append(l, x)`, `pushfront` can be expressed by `insert(l, x)` `popback` can be expressed by: $a = \text{length}(l)$ firstly to get length of the list, then use $b = \text{get}(l, a)$ to get element, `delete(l, a)` to delete it, finally return b . `popfront(l)` can be expressed by $b = \text{get}(l, 1)$ to get element `delete(l, 1)` and returns b .

if we use operations defined on lab Alist. `pushback(l, k)` expressed by `append(k)`, `pushfront` expressed by `insert(0, k)` `popback(l)` expressed by `remove(\text{getlength}(l))` and ~~return~~ `getitem(\text{getlength}(l) - 1)` `popfront` expressed by ~~return~~ `remove(0)` and return `getitem(0)`