Problem Set 1

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Problem 1-1.

(a) $(f_5, f_3, f_4, f_1, f_2)$

(b) $(f_1, f_2, f_5, f_4, f_3)$

(c) $(\{f_2, f_5\}, f_4, f_1, f_3)$

(d) $(f_5, f_2, f_1, f_3, f_4)$

Problem 1-2.

(a) Consider a sub-array of length k starting at index i. We swap element at index `i` with the element at index `i+k-1`, and then recurse, decreasing the length of the subarray by 2. For the base case we consider a sub-array of length 1 or lesser.

```
def reverse(D, i, k):
    if k <= 1:
        return
    start = D.delete_at(i)
    end = D.delete_at(i + k - 1)
    D.insert_at(i, end)
    D.insert_at(i + k - 1, start)
    reverse(D, i + 1, k - 2)
```

(b) Starting from the end index `i + k`, delete the element at index `i + k` and insert it at index

Problem 1-3.

Problem 1-4.

(a)

(b)

(c)

(d) Submit your implementation to `alg.mit.edu`.