Developing Iterative Algorithms

Loop invariant.

- ☐ the first k people have been assigned to groups
- ☐ the first k people have been assigned to groups so that no one is in a group with someone they don't want to work with
- ☐ there are at most d+1 groups
- ★ the first k people have been assigned to groups so that no one is in a group with someone they don't want to work with and there are at most d+1 groups
- ☐ have a correct solution for the first k input items
- ☐ haven't gone wrong yet
- ☐ have produced the first k items of the output
- ☐ the first k groups have been assigned people
- ☐ the first k groups have been assigned people without anyone being in a group with someone they don't want to work with

process input – go through the input elements one at a time

loop invariant – condition true at the start of each iteration – should help establish correctness: loop invariant + exit condition = final answer

process input version – have a correct solution for the first *k* items

haven't gone wrong yet (solution is still consistent with a valid solution)

apply the template to the specific problem

needs to be related to the correctness of the solution