

# Algorithms Assignment 2

Anirudh Mungre 100615309

Ethan Elliott 100622168

- November 16th 2018 -

## PSEUDOCODE and BIG OH

### COMPLETED QUESTION 1:

**INPUT:** a graph "g" with people as vertices and edges meaning dislike between people

**OUTPUT:** a list "g1" and a list "g2" of the two separate groups

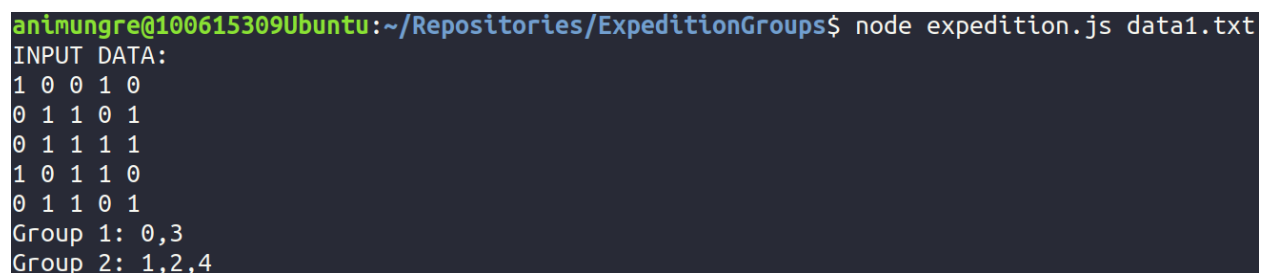
```
g1 <- empty list                                1
g2 <- empty list                                1
FOR n UNTIL total people                        n+1
    enemy <- check adjacent vertices of graph    n
    IF (n has no enemies in group 1) THEN        m
        Add n to group 1                        n
    ELIF (n has no enemies in group 2) THEN      m
        Add n to group 2                        n
    ELSE
        PRINT Group separation not possible      1
        Kill program                            1
    END IF
END FOR
RETURN g1, g2                                   1
```

n -> Number of people to separate

m -> Enemies of the nth person

**Time Complexity:**  $O(nm)$

## Sample Output Screenshot



```
animungre@100615309Ubuntu:~/Repositories/ExpeditionGroups$ node expedition.js data1.txt
INPUT DATA:
1 0 0 1 0
0 1 1 0 1
0 1 1 1 1
1 0 1 1 0
0 1 1 0 1
Group 1: 0,3
Group 2: 1,2,4
```