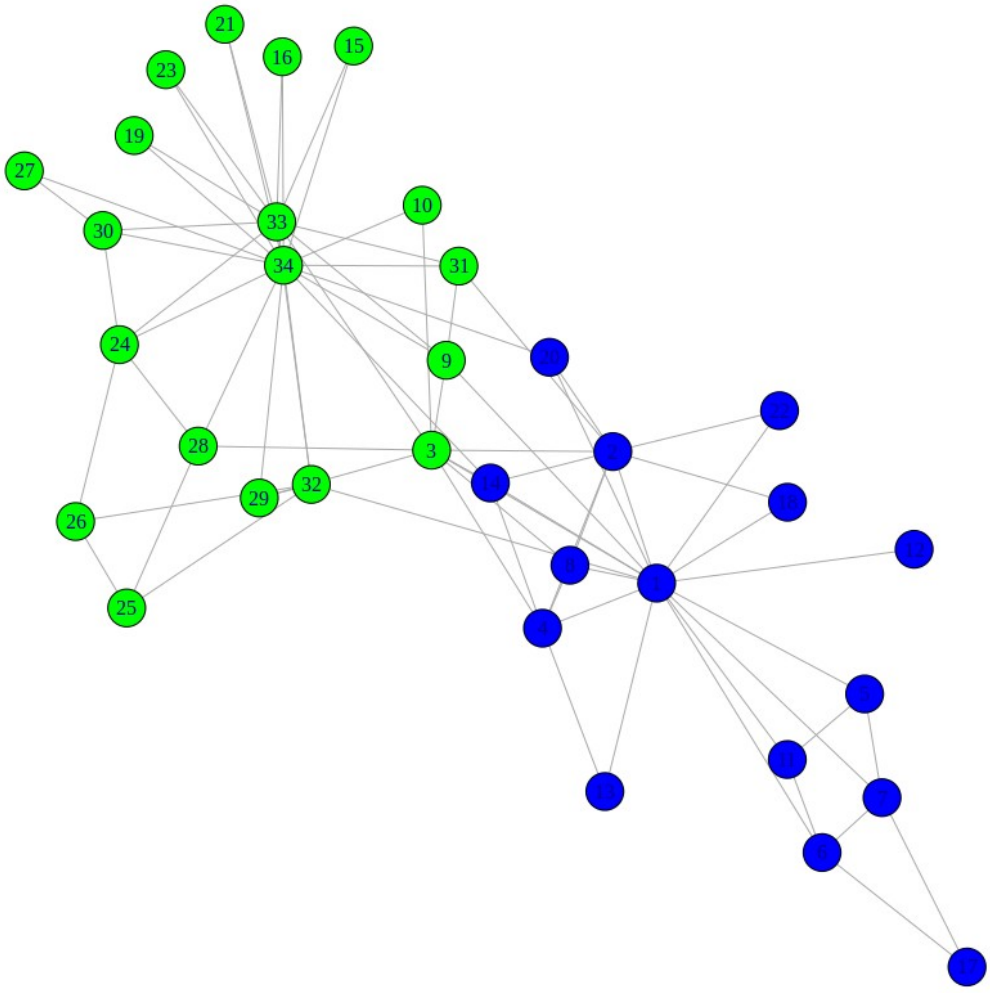
SNA ASSIGNMENT
Community Detection using Edge Betweeness

R code:

```
library (igraph)
find_community <- function (G) {
  g = G
  com = components (g)$no

  while (com == 1) {

    cat ("Number of components: ", com, "\n")
    ebt = edge_betweenness (g)
    g = g -  E(g) [which.max (ebt)]
    com = components (g)$no
  }

  cat ("Number of components: ", com, "\n")

  com1 = groups (components (g)) [1]
  com2 = groups (components (g)) [2]
  comps = c(c(com1), c(com2))

  return (comps)
}

show_communities <- function (G) {

  comps = find_community (G)

  c1 = as.integer (comps$`1`)
  c2 = as.integer (comps$`2`)
  print (c1)
  print (c2)

  V(G)$color = ifelse (V(G)%in% c2, "green", "blue")
  plot (G, color = V(G)$color, vertex.size = 8)
}

# For Karate club network
G = read_graph ("~/ankit/Github/Social-Network-Analysis/karate.gml", format = "gml")
show_communities (G)

# For dolphin network
G = read.csv("~/ankit/Github/Social-Network-Analysis/dolphin.csv")
G = graph_from_data_frame (G, directed = FALSE)
show_communities (G)
```

GitHub Link: https://github.com/AnkitDimri/Social-Network-Analysis/tree/master/betweeness

1. Community detection in Karate club network:



2. Community detetction in Dolphin network: