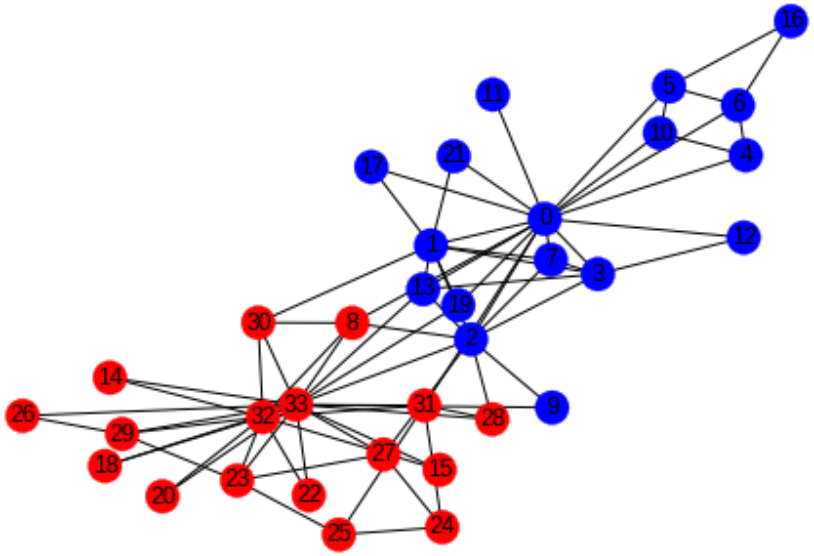
Quiz 10

Make a program for comparing the partitioning of karate club network. (You can use the following built-in functions of networkX.)

a. kernighan_lin_bisection
b. greedy_modularity_communities

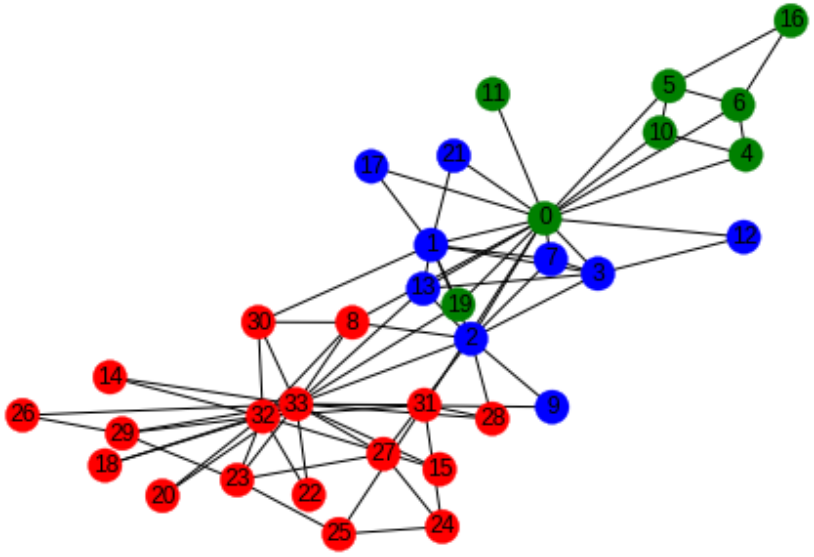
- Submit from Tokyo Tech OCW-i
- Deadline: ??:??(Japan Standard Time) on Jan. 20(Sun)
- Files should be MS Word, PDF or Zipped Jupyter notebook.

```
import networkx as nx
import matplotlib.pyplot as plt
import numpy as np
import numpy.linalg as LA
from networkx.algorithms.community import greedy_modularity_communities
from networkx.algorithms.community import kernighan_lin_bisection

G = nx.karate_club_graph()
color_map = ['yellow'] * (nx.number_of_nodes(G) - 1)
color_map.append('red')

colors = ['red', 'blue', 'green', 'purple', 'brown', 'yellow']
pos = nx.spring_layout(G)

lst_b = kernighan_lin_bisection(G)
color_map_b = ['black'] * nx.number_of_nodes(G)
```



Fill in this part

```
nx.draw_networkx_edges(G, pos)
nx.draw_networkx_nodes(G, pos, node_color=color_map_b)
nx.draw_networkx_labels(G, pos)
plt.axis('off')
plt.show()

lst_c = list(greedy_modularity_communities(G))
color_map_c = ['black'] * nx.number_of_nodes(G)
```



Fill in this part

```
nx.draw_networkx_edges(G, pos)
nx.draw_networkx_nodes(G, pos, node_color=color_map_c)
nx.draw_networkx_labels(G, pos)
plt.axis('off')
plt.show()
```