# Lab assignment 4

**Problem 1:** Write a program to print all the connected components in an input undirected graph. Take as input an undirected graph and print all the vertices in each connected component. Ensure that your entire program runs in O(V+E) (i.e. linear) time. Use BFS, suitably modified to solve this problem.

**Problem 2:** Write a program to test if is a given input graph is *bipartite* or not. Take as input an undirected, unweighted graph, and output YES if the graph is bipartite, NO otherwise. Use the BFS algorithm, suitably adapted to solve this problem.

**Problem 3:** Write a python program to implement the **Fraction** class. Define appropriate constructors. Write methods to add, subtract, multiply and divide fractions. Write a method __str__ to return a string representation of a fraction which should then be printed to the console.