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FACULTY OF INFORMATION TECHNOLOGY
SOFTWARE ENGINEERING DEPARTMENT
ADVANCED PROGRAM IN COMPUTER SCIENCE
COURSE: **DATA STRUCTURE**
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WEEK 07

INTRODUCTION TO GRAPH THEORY

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1 Overview

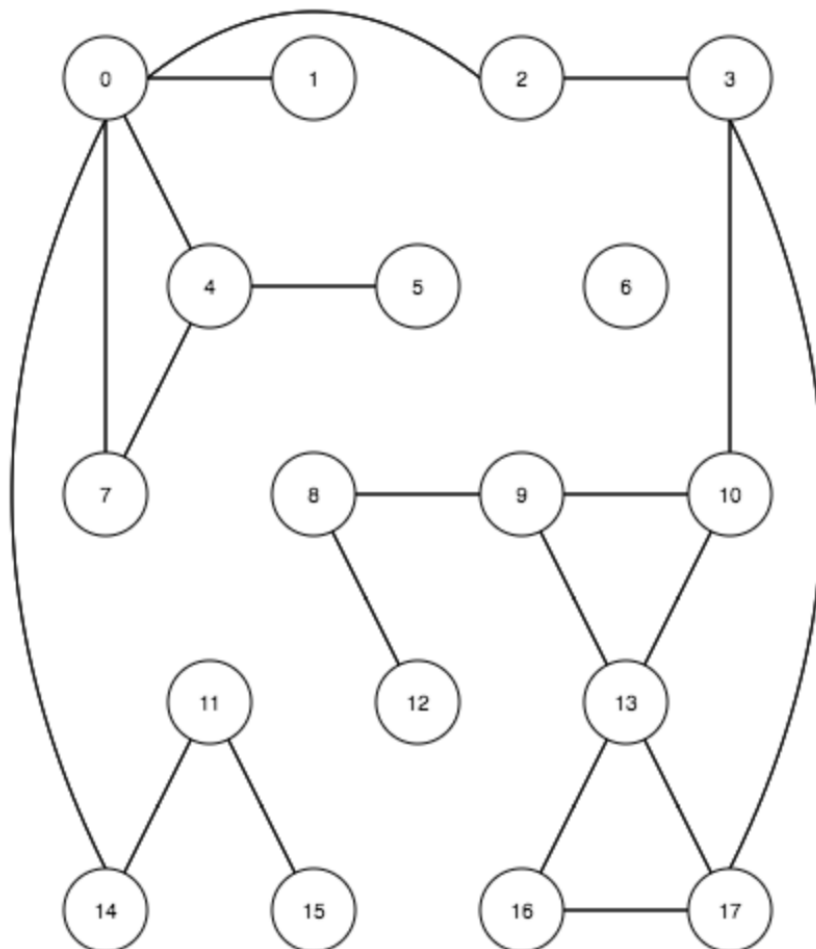
In this lab, we will study about graph:

1. Edge
2. Vertex
3. Adjacency matrix
4. Connected components
5. Spanning tree algorithms

2 Assignments

2.1 Paper assignments

Given a specific graph.



1. How many edges are there in the graph? List them.
2. How many vertices are there in the graph? List them.
3. Is it a simple graph? Why?

4. Calculate degrees of vertices in the graph.
5. What is the adjacency matrix of this graph?
6. Find the spanning tree of this graph

7. Give a realworld example of directed graph.
8. Give a realworld example of graph that has weighted edges. Can weighted edges are negative number? Give an example for it.
9. Give an example of complete graph.
10. Give an example of bipartite graph.

2.2 Coding assignments

1. Implement:
 - a. Depth first search
 - b. Breath first search
 - c. Find connected components