**Data Structures**
**Project**

UNIVERSIDAD POLITÉCNICA DE YUCATÁN

# Centrality

Project 2

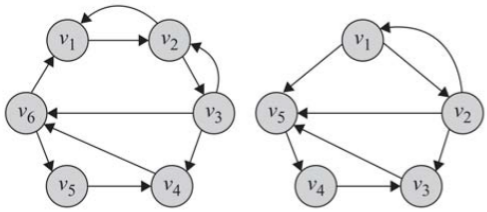
## Objective

The student will build non-linear structures for data storage and retrieval.

## Instructions

### Introduction

Consider the following graphs:




(a) (b)

Complete the following

1. Write (in paper or in document) the corresponding representation for each graph: adjacency matrix, adjacency list, edge list.
2. Include the following functions to the **graph.c** program reviewed in class:
    a. printList(): Function which prints the edge list of the given a graph (genPtr). For example, for graph b it must print:
    1: 2, 5
    2: 1, 3, 5
    3: 5
    4: 3
    5: 4
    b. printOutDegree(): Function which prints for each nodes the number of outgoing edges given a graph (genPtr). This is known as out-degree. For example, for graph b it must print:
    1: 2
    2: 3
    3: 1
    4: 1
    5: 1
    c. printInDegree(): Function which prints for each nodes the number of incoming edges given a graph (genPtr). This is known as in-degree. For example, for graph b it must print:
    1: 1
    2: 1


3: 2
4: 1
5: 3

3. Record a video where for each graph (a, b) you:
    a. Input nodes and edges.
    b. Use functions: printList(), printOutDegree(), printInDegree().

    In the final part of the video, include a 3-5 mins sections where you explain the most relevant applications of graph in Data Engineering.

## Submission

Submit the following before:

- Source Code
- Video