# Objectives: Lab 06

The purpose of this lab of BTP500 is to familiarize yourself with the linked list concepts and Graphs. By the end of this lab, you should be able to:

* Successfully ran Breadth First Search algorithm using linked list.

# 

Explore the linked list options for BFS for Graphs in C++.

1. Write a C++ program to create a un-directed graph that adds the following list of provinces from provinces picture and states undirected graph with an adjacency matrix from the pictures attached.
   1. Provinces:
      * Alberta
      * British Columbia
      * Manitoba
      * New Brunswick
      * Newfoundland and Labrador
      * Northwest Territories
      * Nova Scotia
      * Nunavut
      * Ontario
      * Prince Edward Island
      * Quebec
      * Saskatchewan
      * Yukon

A map of canada with different colored regions

Description automatically generated

* 1. States:
     + Alabama
     + Alaska
     + Arizona
     + Arkansas
     + California
     + Colorado
     + Connecticut
     + Delaware
     + Florida
     + Georgia
     + Hawaii
     + Idaho
     + Illinois
     + Indiana
     + Iowa
     + Kansas
     + Kentucky
     + Louisiana
     + Maine
     + Maryland
     + Massachusetts
     + Michigan
     + Minnesota
     + Mississippi
     + Missouri
     + Montana
     + Nebraska
     + Nevada
     + New Hampshire
     + New Jersey
     + New Mexico
     + New York
     + North Carolina
     + North Dakota
     + Ohio
     + Oklahoma
     + Oregon
     + Pennsylvania
     + Rhode Island
     + South Carolina
     + South Dakota
     + Tennessee
     + Texas
     + Utah
     + Vermont
     + Virginia
     + Washington
     + West Virginia
     + Wisconsin
     + Wyoming
     + District of Columbia
     + American Samoa
     + Guam
     + Northern Mariana Islands
     + Puerto Rico
     + United States Minor Outlying Islands
     + Virgin Islands

A map of the united states

Description automatically generated

1. In the same C++ program, write the code for **Breadth first traversal using linked list** Paste the screenshot of each of the search functions of the breadth first traversal implemented using linked list here below.

 List the entire Graph created for Provinces- display only the provinces. starting from any node

* List the entire Graph created for states- display only the states. starting from any node

A computer screen shot of a code

Description automatically generated

1. In the same C++ program, write the code **for Depth first traversal using linked list** Paste the screenshot of each of the search functions of the breadth first traversal implemented using linked list here below.

 List the entire Graph created for Provinces- display only the provinces. starting from any node

* List the entire Graph created for states- display only the states. starting from any node

A computer screen shot of a computer code

Description automatically generated

A screenshot of a computer

Description automatically generated

LAB 06 – SUBMISSION

# **2 files.**

# **1.   Word document BTP500-LAB6-NAME.DOCX filled with screenshots for each functions asked for hash table implementation**

# **2.   BTP500-LAB6-STUDENTNAME-BF-DF-GRAPH-linkedlist.cpp**

Do not submit a .zip or RAR file.