

# Introduction\_AI\_Graphs

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## 1 Intelligent Agents and Uninformed Search

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Expected time = 1.5 hours

Total points = 70 points

### 1.1 Assignment Overview

This assignment prefaces later work with graph traversal problems. As preparation, you will cover ways to represent basic graphs and trees using base Python and the [networkx](#) library. The main goals in this portion of the assignment are:

- To represent and manipulate graphs & trees using Python idioms
- To visualize graphs and trees using Python
- To perform uninformed search in graphs using Python

This assignment is designed to build your familiarity and comfort coding in Python while also helping you review key topics from each module. As you progress through the assignment, answers will get increasingly complex. It is important that you adopt a data scientist's mindset when completing this assignment. **Remember to run your code from each cell before submitting your assignment.** Running your code beforehand will notify you of errors and give you a chance to fix your errors before submitting. You should view your Vocareum submission as if you are delivering a final project to your manager or client.

**Vocareum Tips** - Do not add arguments or options to functions unless you are specifically asked to. This will cause an error in Vocareum. - Do not use a library unless you are explicitly asked to in the question. - You can download the Grading Report after submitting the assignment. This will include feedback and hints on incorrect questions.

#### 1.1.1 Learning Objectives

- Write Python codes for search algorithms by coding intelligent and search agents
- Create and plot graphs from a dictionary and a dataframe using the [networkx](#) library
- Differentiate between connected and non-connected graphs
- Create graphs for trees using [networkx](#)
- Represent mathematical expressions and formulas using simple binary trees
- Learn uninformed search algorithms using the Depth-First Search and Breadth-First Search strategies
- Perform graph Search Algorithms in [networkx](#)