

Search and sorting algorithms



Objectives

Using Python to solve complex problems

- Implement search functions in Python
- Implement sorting algorithms
- Learn how to use lambda expressions in Python
- Develop abstract data types



Requirements

1. Given a list of numbers, search the list in order to:
 - a. Determine all numbers from the list that are primes.
 - b. Determine all numbers from the list that are primes or perfect squares.
 - c. Determine all numbers from the list that are primes/perfect squares using a single algorithm with correct parameters.
2. Develop an ADT *GeometricalShape* – information about name (e.g. square, triangle, hexagon), number of sides, and length of each side.
 - a. Create a repository to manage a list of shapes.
 - b. Filter shapes with more than k sides.
 - c. Sort shapes based on the perimeter ascending / descending.