**Class Activity 32**

1. Linear Search:
   1. What is the precondition to use linear search on an array of elements?

Must be compatible with data type

* 1. What is the Big O time complexity of the Linear Search algorithm? (**Hint: worst-case and best-case**) Worst O(n). Best O (2)

1. Binary Search:
   1. What is the precondition to use binary search on an array of elements?

The array must already be sorted

* 1. What is the Big O time complexity of the Binary Search algorithm? (**Hint: worst-case and best-case**)

Worst O(logn). Best O(1)

1. Describe a **LinkedList** (example: LinkedList contains one or more nodes that store a/an value and a/an reference to the next node.
2. Describe a **HashMap**.

Hashmaps store data in a key and value system. You can access them by a index of another type.

1. Describe
   1. a **Stack** and if it is LIFO or FIFO : A stack is a collection of items that allows things to be removed and added in a last in first out manner. A stack is a LIFO.
   2. a **Queue** and if it is LIFO or FIFO : A queue is a structure that adds and removes from the other end. A queue is a FIFO.
   3. what **LIFO** and **FIFO** mean : LIFO means last in and first out so this means the element added last is processed first. FIFO means first in and first out so this means that the first element is added first.
2. Describe what is meant by
   1. an **overloaded** constructor : Allows to have many constructors with different parameter list
   2. an **overloaded** method : Methods that do the same thing but in different ways.
3. Describe
   1. what the **static** keyword means : the static keyword indicates that a class member—fields (variables) or methods— belongs to the class itself, not to any particular instance of the class. Only one copy of that static member is created which is shared across all instances of the class
   2. when would you use a static variable (field) : You would use it when you need to store information that relates to the class.
   3. when would you use a static method : You would use it when you need to make several instances of a class with their own distinct values.