CS 1.2: Intro to Data Structures & Algorithms

Linked List Time Complexity Worksheet Name: _____

Linked List Diagram – organization of data structure in memory

Draw a diagram of how a linked list data structure is organized in memory using references. The linked list should contain exactly 5 items: `'mango'`, `'peach'`, `'honeydew'`, `'pear'`, and `'kiwi'`.
Label the `head`, `tail`, `data`, and `next` properties in appropriate places to complete the diagram.

Linked List Operations – implementation and time complexity

Using your diagram above to guide you, complete the table below. First, write a short summary in pseudocode (English) of the major steps performed in the implementation of each operation. Then, analyze each operation's best case and worst case time complexity using big-O notation. Use the variable ***n*** for the number of items stored in the list (equivalently, the number of nodes).

Linked List operation	*short summary in pseudocode (English) of the major steps performed in the implementation*	*best case running time*	*worst case running time*
`is_empty`			
`length`			
`append`			
`prepend`			
`find`			
`delete`			