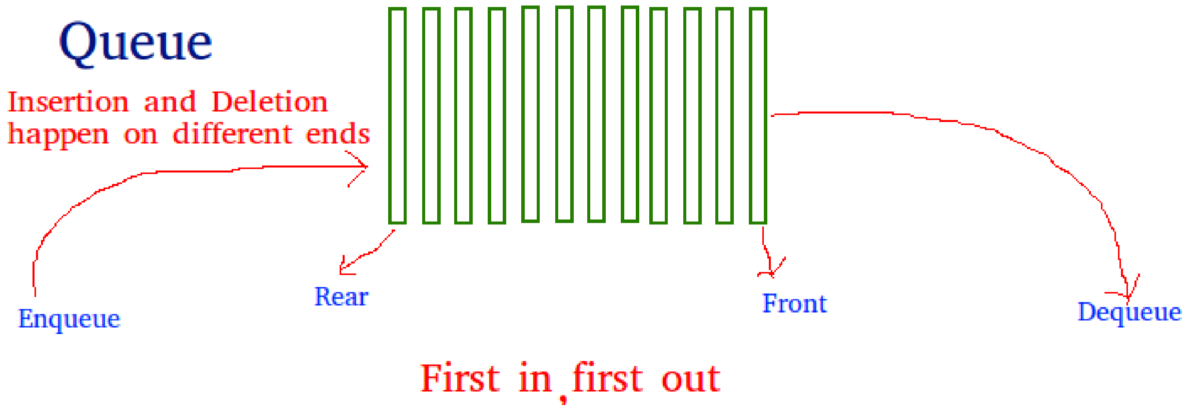
A **queue** is a collection of entities that are maintained in a sequence and can be modified by the addition of entities at one end of the sequence and removal from the other end of the sequence. By convention, the end of the sequence at which elements are added is called the back or rear of the queue and the end at which elements are removed is called the head or front of the queue, analogously to the words used when people line up to wait for goods or services.

The operation of adding an element to the rear of the queue is known as **enqueue**, and the operation of removing an element from the front is known as **dequeue**.

Other operations may also be allowed, often including a **peek** or front operation that returns the value of the next element to be dequeued without dequeuing it.

The operations of a queue make it a **first-in-first-out (FIFO)** data structure.



In a FIFO data structure, the first element added to the queue will be the first one to be removed. This is equivalent to the requirement that once a new element is added, all elements that were added before have to be removed before the new element can be removed. A queue is an example of a linear data structure, or more abstractly a sequential collection. Queues are common in computer programs, where they are implemented as data structures coupled with access routines, as an abstract data structure or in object-oriented languages as classes. Common implementations are circular buffers and linked lists.

Queues provide services in computer science, transport, and operations research where various entities such as data, objects, persons, or events are stored and held to be processed later. In these contexts, the queue performs the function of a buffer. Another usage of queues is in the implementation of breadth-first search.