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[https://www.100test.com/kao\\_ti2020/138/2021\\_2022\\_\\_E5\\_85\\_B8\\_E5\\_9E\\_8B\\_E6\\_95\\_B0\\_E6\\_c98\\_138256.htm](https://www.100test.com/kao_ti2020/138/2021_2022__E5_85_B8_E5_9E_8B_E6_95_B0_E6_c98_138256.htm) The data types arrays and records are native to many programming languages . By using the pointer data type and dynamic memory allocation , many programming languages also provide the facilities for constructing linked structures . Arrays , records , and linked structures provide the building blocks for implementing what we might call higher-level abstractions . The first two higher-level abstract data types that we take up-stacks and queues-are extremely important to computing . A stack is a data type whose major attributes are determined by the rules governing the insertion and deletion of its elements . The only element that can be 0deleted or removed is the one that was inserted most recently . Such a structure is said to have a “ last in , first out ” ( LIFO ) behavior , or protocol . The simplicity of the data type stack belies [1] its importance . Many computer systems have stacks built [2] into their circuitry and have machine-level instructions to operate the hardware stack . The sequencing of calls to and returns from subroutines follows a stack protocol . Arithmetic expressions are often evaluated by a sequence of operations on a stack . Many handheld calculators use a stack mode of operation . In studying computer science , you can expect to see many examples of stacks . Queues occur frequently in everyday life and are therefore familiar to us . The line of people waiting for [3] service at a bank or for tickets at a movie theater and the line of autos at a traffic light are

examples of queues . The main feature of queues is that they follow a “ first come , first served ” rule . Contrary to a stack , in which the latest element inserted is the first removed or served , in queues the earliest element inserted is the first served . In social settings , the rule appeals to our sense of equality and fairness . There are many applications of the FIFO protocol of queues in computing . For example , the line of input/output ( I/O ) requests waiting for access to a disk drive in a multiuser time-sharing system might be a queue . The line of computing jobs waiting to be run on a computer system might also be a queue . The jobs and I/O requests are serviced in order of their arrival , that is , the first in is the first out . There is a second kind of queue that is important . An everyday example can be seen in an emergency room of a hospital . In large emergencies it is common to first treat the worst injured patients who are likely to survive . In certain societies in which less emphasis is placed on equality , people with higher social standing may be treated first . In computer systems , events that demand the attention of the computer are often handled according to a “ most-important-event served-first ” , or “ highest-priority in / first-out ” ( HPIFO ) , rule . Such queues are called priority queues , in this type of queue service is not in order of time of arrival but rather in order of some measure of priority . 100Test 下载频道 开通 , 各类考试题目直接下载。详细请访问 [www.100test.com](http://www.100test.com)