**Application of Strings:**

* Spam email detection.(same naam ke email means spamming)
* Plagiarism detection. (agar match ho jaye strings)
* Search engine.
* Spell checkers. (eg:- grammerly)
* In the database to check valid information of the user

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**Application of Matrix:**

Matrix is an ordered collection of columns and rows of elements. It is necessary to enclose the elements of a matrix within the brackets.

* Used for plotting graphs, and statistics and also to do scientific studies and research in almost different fields.
* Matrices are also used in representing real-world data like the population of people, infant mortality rate, etc.
* They are the best representation methods for plotting surveys.
* Media player.
* Mailing list.
* Symbol table creation.

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[Application of Linked Lists](https://www.geeksforgeeks.org/applications-of-linked-list-data-structure/)**:**

A [linked list](https://www.geeksforgeeks.org/data-structures/linked-list/) is a sequence data structure, which connects elements, called nodes, through links.

Some other applications of the linked list are:

* Web pages can be accessed using the previous and the next URL links which are linked using a linked list.
* The music players also use the same technique to switch between music.(eg :- spotify)
* To keep the track of turns in a multi-player game, a [circular linked list](https://www.geeksforgeeks.org/circular-linked-list/) is used. (eg:- LUDO)
* Social media content “feeds”.
* Used in switching between applications and programs (Alt + Tab) in the Operating system (implemented using Circular Linked List)
* Train coaches are connected to one another in a doubly-linked list fashion.
* It can be used to implement Stacks, Queues, Graphs, and Trees.

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Application of Stack:

* Converting infix to postfix expressions.
* Undo/Redo button/operation in word processors.
* Forward-backward surfing in the browser.
* Message logs and all messages you get are arranged in a stack.
* Call logs, E-mails, Google photos’ any gallery, YouTube downloads, Notifications (latest appears first).
* Changing wearables on a cold evening, first in, comes out at last.
* Loading bullets into the magazine of a gun. The last one to go in is fired first. Bam!
* Recursion.

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[Application of Queue](https://www.geeksforgeeks.org/applications-of-queue-data-structure/)**:**

A queue is a data structure that uses [FIFO order](https://www.geeksforgeeks.org/fifo-first-in-first-out-approach-in-programming/).

* Sending an e-mail, it will be queued.
* Uploading and downloading photos, first kept for uploading/downloading will be completed first (Not if there is threading)
* A circular queue is used to maintain the playing sequence of multiple players in a game.
* A queue can be implemented in - Linked List-based Queue, Array-based Queue, Stack-based Queue.
* Handle website traffic
* CPU scheduling

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**Application of Priority Queue:**

* Graph algorithms like Dijkstra’s shortest path algorithm, prims minimum spanning tree , etc
* CPU scheduling
* Stack Implementation
* Priority queues are used in file-downloading operations in a browser
* Finding Kth largest/smallest element

**Advantages of Priority Queue:**

* It helps to access the elements in a faster way. This is because elements in a priority queue are ordered by priority, one can easily retrieve the highest priority element without having to search through the entire queue.

**Disadvantages of Priority Queue:**

* High complexity. Priority queues are more complex than simple data structures like arrays and linked lists, and may be more difficult to implement and maintain.
* High consumption of memory. Storing the priority value for each element in a priority queue can take up additional memory, which may be a concern in systems with limited resources.

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**Advantages of Circular Linked Lists:**

* Any node can be a starting point. We can traverse the whole list by starting from any point. We just need to stop when the first visited node is visited again.
* Useful for implementation of a queue. Unlike [this](https://www.geeksforgeeks.org/queue-linked-list-implementation/)implementation, we don’t need to maintain two pointers for front and rear if we use a circular linked list. We can maintain a pointer to the last inserted node and the front can always be obtained as next of last.

* Circular lists are useful in applications to repeatedly go around the list. For example, when multiple applications are running on a PC, it is common for the operating system to put the running applications on a list and then cycle through them, giving each of them a slice of time to execute, and then making them wait while the CPU is given to another application. It is convenient for the operating system to use a circular list so that when it reaches the end of the list it can cycle around to the front of the list.

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