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DIGITAL LEARNING CONTENT

CHAPTER-1

What is linked list ?

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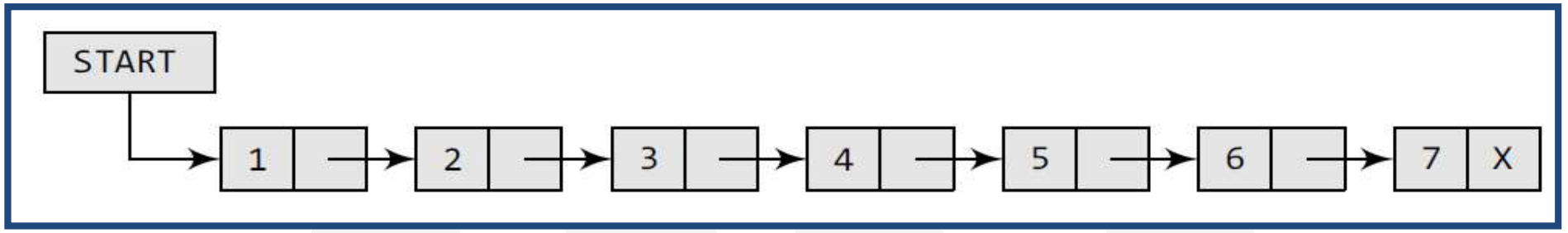
What is linked list ?

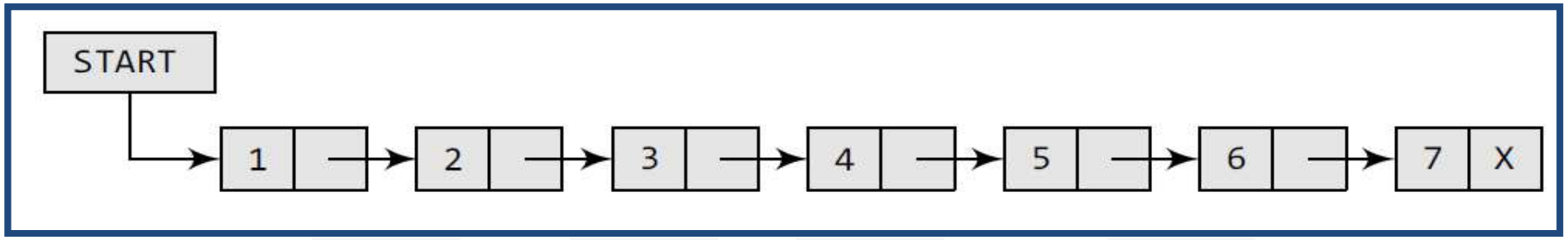
- A linked list does not store its elements in consecutive memory locations and the user can add any number of elements to it.
- However, unlike an array, a linked list does not allow random access of data.
- Elements in a linked list can be accessed only in a sequential manner. But like an array, insertions and deletions can be done at any point in the list in a constant time.
- A linked list, in simple terms, is a linear collection of data elements. These data elements are called nodes.

Structure of Link List



1. A linked list can be perceived as a train or a sequence of nodes in which each node contains one or more data fields and a pointer to the next node.
2. In Fig. 6.1, we can see a linked list in which every node contains two parts, an integer and a pointer to the next node.
3. The left part of the node which contains data may include a simple data type, an array, or a structure.

Structure of Link List



4. The right part of the node contains a pointer to the next node (or address of the next node in sequence).
5. The last node will have no next node connected to it, so it will store a special value called NULL.
6. In Fig. 6.1, the NULL pointer is represented by X.

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Link List in C Program

- In C, we can implement a linked list using the following code:

```
struct node
{
int data;
struct node *next;
};
```

- New node can be created as follows.

```
struct node* newnode;
newnode=(struct node*)malloc(sizeof(struct node));
```

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Types of Link List

- Single link list
- Doubly link list
- Circular link list