ASSIGNMENT - 2

Q- What is Buffer in Node.js and why it is used?

Ans- A Buffer in Node.js is a Special type of memory used to store binary data. (raw data) It is Similar to an array but works with raw bytes instead of number or strings.

why is Buffer needed?

In Node.js, data from files, network streams, or other sources does not always come as a complete Package. Instead, it comes in Small chunks (pieces). Since JS natively handles only strings and numbers, Node.js uses Buffers to store and process these raw data chunks efficiently.

Example of Buffer usage -

```
const buffer = Buffer.from ('Hello');
console.log (buffer);
```

OUTPUT -   < Buffer 48 65 6c 6c 6f >

The text "Hello" is stores as binary data (hex value) 47 65 6c 6c 6f are the hexadecimal codes for "H", "e", "l", "l", "o"

* Where is Buffer used

1) Reading files - when reading a file, Node .js loads it into a Buffer before converting it into a String

2) Handling streams - (eg HTTP requests, file uploads)

Data from network request is received in chunks & store in Buffer.

3) working with Binary data (eg images, video, audio) Buffers are useful when handling media files that are not Plain text

Key features of Buffers

① Stores raw binary data

② Works faster than Strings for handling large data.

③ Helps with throwing files & network request efficiently