C# Notes – Enum, String vs StringBuilder

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1. Enum Data Type

Definition: - Enum (Enumeration) is a value type representing a set of named constant values.

Example:

```csharp
enum Days { Sunday, Monday, Tuesday }
```

When to use: - When you have a limited set of known values. - Makes code more readable and less error-prone.

Common built-in enums: 1. DayOfWeek 2. ConsoleColor 3. StringComparison

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2. String vs StringBuilder

Use `string` **when:**

- Text is constant or has few modifications.
- Reading or comparing text.
- Performance impact is negligible.

Example:

```csharp
string name = "Ali";
name = name + " Ahmed";
```

Use `StringBuilder` **when:**

- Many frequent modifications.
- Inside loops or large text processing.

Example:

```csharp
StringBuilder sb = new StringBuilder();
sb.Append("Hello");
sb.Append(" World");
```

Comparison Summary:

Feature	string	StringBuilder
Mutability	Immutable	Mutable
Frequent modifications	❌	✅
Memory efficiency	Lower	Higher
Best use	Simple text	Large / repeated changes