MATLAB

# String Handling

## # String

→ Strings are sequence of characters.
→ In Matlab, string can be represented as:
  - Character array ('Hello')
  - String objects ("Hello") — scalar
→ characters can be letter, number, symbols or even spaces.
→ In programming (Matlab), string are used to store and manipulate text.

## # Why are strings Important?

String are used to;
→ Display message
→ Handle user inputs
→ work with text data
→ Read & process text files
→ Analyze language data

## # Creation of strings in Matlab;

using single Quotes

' '

character array

using Double Quotes

" "

string scalar

# String Handling

→ String Handling in Matlab means creating, modifying, processing and analyzing text (string) using Matlab's built-in function & operation.

→ In Matlab, strings are a special data type used to store and manage text easily.

→ It supports both string array and string scalar (' ', " ").

# Why is string Handling Important?

→ It includes text data

→ In D-S, machine learning & automation, we often process and clean text.

→ Matlab provides many tools to efficiency handling and manipulating strings like:
- text cleaning
- searching for words
- Replacing text
- Formatting outputs

# Key operations in string Handling (with exam)

| operation | description | Matlab example |
|---|---|---|
| • create string | Make a text string | str = "Hello world"; |
| • find length | No. of character | len = strlength(str); |
| • change case | Uppercase / Lowercase. | upper(str), lower(str). |
| • concatenate | Join multiple str. | strjoin({"data", "science"}, " ") |
| • split string | Break string into words | split(str) |
| • Replace text | Change part of the string | replace(str, "world", "matlab") "old", "new" |

# Basic Operations in strings (matlab)

## 1) Creating string

### a) Character array

```
Str1 = ['Hello world'];  % single quotes
```

- Traditional method
- Each character occupies a single element in array

### b) String array

```
Str2 = "Hello world";  % double quotes
```

- Newer method
- Easier & better for working with text.

## 2) String Array

```
names = ["Alice", "Bob", "Charlie"];
```

- A string array is an array where each element is string.

## 3) Basic string function

a) strlength()
b) upper()
c) lower()
d) reverse()
e) isstring()

strlength("hello")
upper("matlab") → "MATLAB"
lower("MATLAB") → "matlab"
reverse("abc") → "cba"
isstring("Hello") — checks input

## 4) String comparison

### a) Compare two strings

```
str1 = "cat";
str2 = "dog";
isequal(str1, str2) % returns false
```

### b) Case-insensitive comparison

```
strcmpi("Hello", "Hello") % Return false
```

## 5) String concatenation

```
first = "good";
second = "morning";
greeting = first + " " + second;
```

a) using + operator

### b) using strcat() function

```
str = strcat("data", "science");
```

## 6) Extracting & modifying Strings

### a) Extract substring

```
str = "pata science";
substr = extractBetween(str, 6, 12); % "suence"
```

### b) Replace Text

```
newstr = replace("I love coding, "coding", "MATLAB"
    % output "I love Matlab"
```

c) Find substring

```
contains("Hello world", "world") % Returns true
```

d) Joining and splitting strings

```
words = ["Data", "science", "project"];
sentence = strjoin(words, " ");
% "Data science project"
```

```
splitwords = split(sentence);
% ["Data", "science", "project"]
```

* Conclusion

→ Matlab provides powerful tools for string Handling

→ The new string data type is easier & faster for text operations.

→ Mastery of string functions helps in data processing, analysis and automation.

---


Submitted By
Aradhana
22 BCA-DS-007
Lakshika.
22 BCA-DS-023

Submitted To
Ms. Surbhi
Assistant Professor.