

# 21-Day Python Challenge – Day 6

## Strings in Python

### Day 6 Learning Objectives

By the end of today's class, students will be able to:

- Understand what a **String** is.
  - Create and use string variables.
  - Access individual characters using **Indexing**.
  - Extract parts of a string using **Slicing**.
  - Use commonly used **String Methods**.
  - Display text neatly using **String Formatting**.
  - Build simple real-world string programs.
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### What is a String?

A **String** is a collection of characters enclosed in **single quotes** ( ' ') or **double quotes** ( " ").

A string can contain:

- Letters
- Numbers
- Spaces
- Symbols

### Examples

```
name = "Rahul"  
college = "GITAM"  
city = "Visakhapatnam"  
mobile = "9876543210"
```

Everything inside quotes is called a **String**.

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# Why are Strings Important?

Almost every software application works with text.

Examples:

- Student Name
- Password
- Email Address
- Mobile Number
- Address
- Website URL

Strings are used everywhere.

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## Creating Strings

```
name = "Ravi"  
city = "Aganampudi"
```

```
print(name)  
print(city)
```

### Output

```
Ravi  
Aganampudi
```

---

## Part 1 : String Indexing

Every character in a string has a position called an **Index**.

Example

```
name = "PYTHON"
```

| Character | P | Y | T | H | O | N |
|-----------|---|---|---|---|---|---|
|-----------|---|---|---|---|---|---|

|                |   |   |   |   |   |   |
|----------------|---|---|---|---|---|---|
| Positive Index | 0 | 1 | 2 | 3 | 4 | 5 |
|----------------|---|---|---|---|---|---|

|                |    |    |    |    |    |    |
|----------------|----|----|----|----|----|----|
| Negative Index | -6 | -5 | -4 | -3 | -2 | -1 |
|----------------|----|----|----|----|----|----|

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## Example 1

```
name = "PYTHON"

print(name[0])
print(name[1])
print(name[5])
```

### Output

```
P
Y
N
```

## Example 2

```
name = "COMPUTER"

print(name[-1])
print(name[-2])
print(name[-3])
```

### Output

```
R
E
T
```

## Practical 1

```
name = input("Enter Your Name : ")

print("First Letter :", name[0])
print("Last Letter :", name[-1])
```

## Part 2 : String Slicing

Slicing means **taking a part of a string**.

### Syntax

```
string[start : stop]
```

The **stop index is not included**.

## Example

```
name = "PYTHON"
P Y T H O N
0 1 2 3 4 5
```

### Example 1

```
print(name[0:3])
```

Output

```
PYT
```

---

### Example 2

```
print(name[2:6])
```

Output

```
THON
```

---

### Example 3

```
print(name[:4])
```

Output

```
PYTH
```

---

### Example 4

```
print(name[3:])
```

Output

```
HON
```

---

### Example 5

```
print(name[:])
```

Output

```
PYTHON
```

---

## Practical 2

```
college = input("Enter College Name : ")  
  
print("First 3 Letters :", college[:3])  
print("Remaining Letters :", college[3:])
```

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## Part 3 : String Methods

Python provides many built-in methods for working with strings.

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### 1. upper()

Converts all letters to uppercase.

```
name = "python"
print(name.upper())
```

Output

```
PYTHON
```

---

### 2. lower()

Converts all letters to lowercase.

```
name = "PYTHON"
print(name.lower())
```

Output

```
python
```

---

### 3. title()

Converts the first letter of every word into uppercase.

```
name = "gk infotech solutions"
print(name.title())
```

Output

```
Gk Infotech Solutions
```

---

## 4. capitalize()

Converts only the first letter into uppercase.

```
text = "python programming"
print(text.capitalize())
```

Output

```
Python programming
```

---

## 5. replace()

Replaces one word with another.

```
text = "I Love Java"
print(text.replace("Java", "Python"))
```

Output

```
I Love Python
```

---

## 6. find()

Finds the position of a character.

```
word = "PYTHON"
print(word.find("T"))
```

Output

```
2
```

---

## 7. count()

Counts how many times a character appears.

```
word = "MISSISSIPPI"
print(word.count("S"))
```

Output

```
4
```

## 8. len()

Finds the total number of characters.

```
name = "Python"  
print(len(name))
```

Output

6

---

## Practical 3

```
name = input("Enter Your Name : ")  
  
print("Upper :", name.upper())  
print("Lower :", name.lower())  
print("Length :", len(name))
```

## Part 4 : String Formatting

Formatting helps us display output neatly.

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### Method 1

```
name = "Rahul"  
  
print("Welcome", name)
```

Output

Welcome Rahul

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### Method 2 : f-string (Recommended)

```
name = "Rahul"  
age = 18  
  
print(f"My Name is {name}")  
print(f"My Age is {age}")
```

Output

My Name is Rahul  
My Age is 18

## Practical 4

```
name = input("Enter Name : ")
course = input("Enter Course : ")

print(f"Welcome {name}")
print(f"You have joined {course}")
```

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## Real-Time Programs

### Program 1 : Student Identity Card

```
name = input("Student Name : ")
college = input("College : ")
branch = input("Branch : ")

print("\n===== ID CARD =====")

print(f"Name : {name}")
print(f"College : {college}")
print(f"Branch : {branch}")
```

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### Program 2 : Email Checker

```
email = input("Enter Email : ")

print("Total Characters :", len(email))

print("Contains @ :", "@" in email)
```

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### Program 3 : Username Generator

```
first = input("First Name : ")
last = input("Last Name : ")

username = first.lower() + last.lower()

print("Username :", username)
```

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### Program 4 : Password Length

```
password = input("Create Password : ")

if len(password) >= 8:
    print("Strong Password")
else:
    print("Weak Password")
```

## Program 5 : Name Analyzer

```
name = input("Enter Your Name : ")

print("First Letter :", name[0])
print("Last Letter :", name[-1])
print("Length :", len(name))
print("Upper :", name.upper())
print("Lower :", name.lower())
```

---

## Practice Programs

1. Print your name in uppercase.
  2. Print your name in lowercase.
  3. Find the length of your name.
  4. Print the first and last character of your name.
  5. Replace one word in a sentence.
  6. Count the number of "a" letters in your name.
  7. Print the first four letters of your college name.
  8. Create a username using first name and last name.
  9. Check whether an email contains '@'.
  10. Display student details using an f-string.
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## Mini Project

### Student Profile Generator

```
name = input("Student Name : ")
course = input("Course : ")
college = input("College : ")

print("\n===== STUDENT PROFILE =====")

print(f"Name      : {name.title()}")
print(f"Course     : {course.upper()}")
print(f"College    : {college.title()}")
print(f"Characters in Name : {len(name)}")
print(f"First Letter : {name[0]}")
print(f>Last Letter  : {name[-1]}")
```

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# Assignment

Write Python programs to:

1. Display your name in uppercase and lowercase.
  2. Print the first and last character of a string.
  3. Find the length of a string.
  4. Replace "Java" with "Python".
  5. Count the number of vowels in a word.
  6. Create a username from first and last names.
  7. Display student details using f-strings.
  8. Extract the first five characters of a string.
  9. Extract the last four characters using slicing.
  10. Build a student profile generator.
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# Interview Questions

1. What is a string in Python?
  2. How do you create a string?
  3. What is string indexing?
  4. What is the difference between positive and negative indexing?
  5. What is string slicing?
  6. What does `upper()` do?
  7. What is the purpose of `replace()`?
  8. How does `len()` work?
  9. What is an f-string?
  10. Give one real-world example where strings are used.
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## Day 6 Challenge

### Student Email & Username Generator

Write a Python program that:

- Accepts the student's **First Name**.
- Accepts the student's **Last Name**.
- Accepts the student's **College Name**.

The program should display:

- Full Name (Title Case)
- Username (all lowercase, first name + last name)
- College Name (Uppercase)
- Total characters in the full name
- First character of the first name
- Last character of the last name

### Sample Output

```
Student Name : Rahul Kumar
Username      : rahulkumar
College       : GITAM UNIVERSITY
Characters    : 12
First Letter  : R
Last Letter   : r
```

## Day 6 Success Message

**Congratulations!** 

Today you learned how to work with **Strings**, one of the most frequently used data types in Python. You explored:

-  Creating strings
-  String Indexing
-  String Slicing
-  String Methods
-  String Formatting with f-strings

These concepts are used every day in software applications such as **login systems, banking, online shopping, email services, social media, and mobile apps**.

**"Data gives meaning to a program, and strings give meaning to data. Master strings today, and you'll be ready to build smarter Python applications tomorrow."**