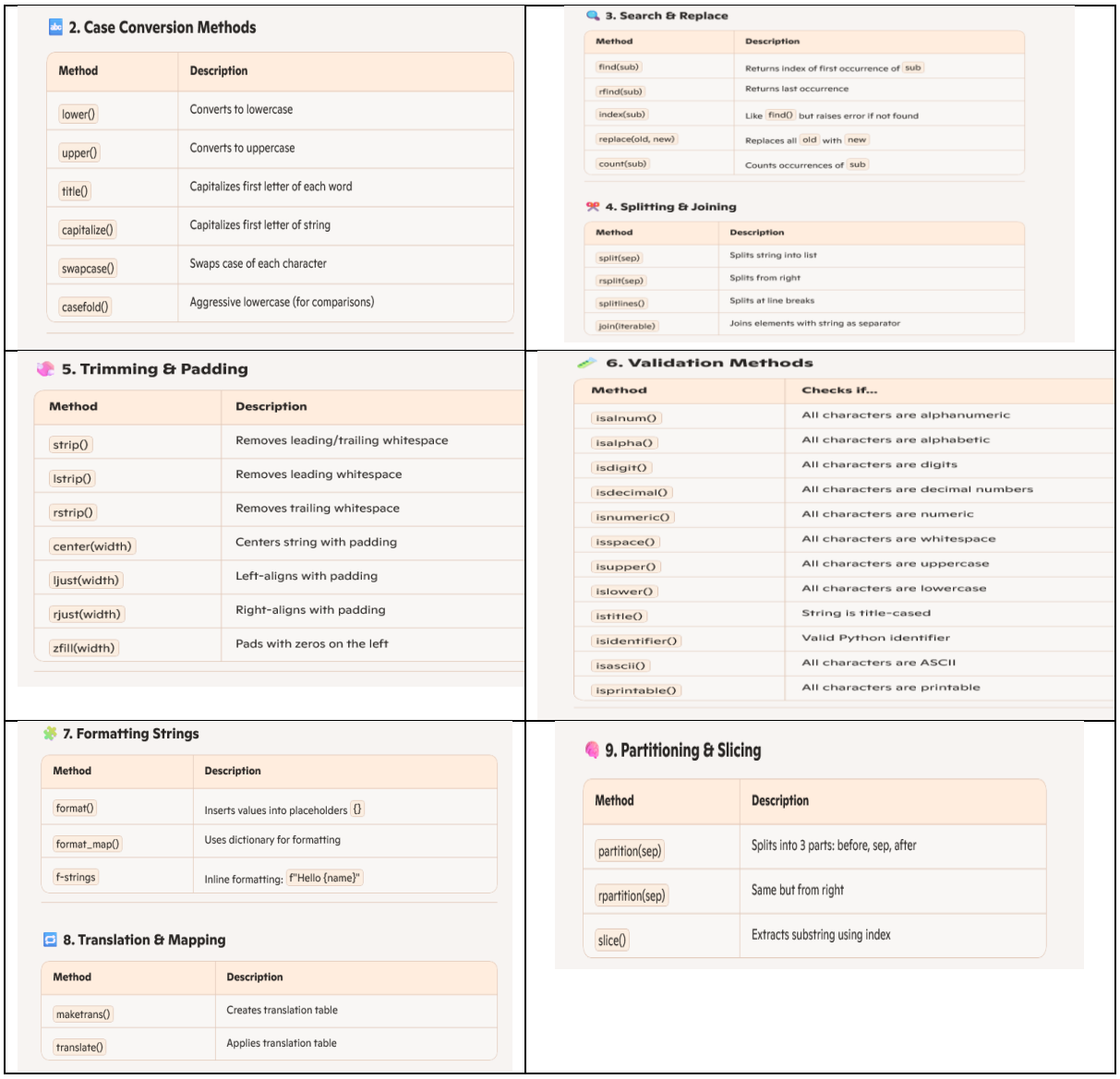
String Operations



2. Case Conversion Methods

Method	Description
lower()	Converts to lowercase
upper()	Converts to uppercase
title()	Capitalizes first letter of each word
capitalize()	Capitalizes first letter of string
swapcase()	Swaps case of each character
casefold()	Aggressive lowercase (for comparisons)

3. Search & Replace

Method	Description
find(sub)	Returns index of first occurrence of sub
rfind(sub)	Returns last occurrence
index(sub)	Like find() but raises error if not found
replace(old, new)	Replaces all old with new
count(sub)	Counts occurrences of sub

4. Splitting & Joining

Method	Description
split(sep)	Splits string into list
rsplit(sep)	Splits from right
splitlines()	Splits at line breaks
join(iterable)	Joins elements with string as separator

5. Trimming & Padding

Method	Description
strip()	Removes leading/trailing whitespace
lstrip()	Removes leading whitespace
rstrip()	Removes trailing whitespace
center(width)	Centers string with padding
ljust(width)	Left-aligns with padding
rjust(width)	Right-aligns with padding
zfill(width)	Pads with zeros on the left

6. Validation Methods

Method	Checks if...
isalnum()	All characters are alphanumeric
isalpha()	All characters are alphabetic
isdigit()	All characters are digits
isdecimal()	All characters are decimal numbers
isnumeric()	All characters are numeric
isspace()	All characters are whitespace
isupper()	All characters are uppercase
islower()	All characters are lowercase
istitle()	String is title-cased
isidentifier()	Valid Python identifier
isascii()	All characters are ASCII
isprintable()	All characters are printable

7. Formatting Strings

Method	Description
format()	Inserts values into placeholders {}
format_map()	Uses dictionary for formatting
f-strings	Inline formatting: f"Hello {name}"

8. Translation & Mapping

Method	Description
maketrans()	Creates translation table
translate()	Applies translation table

9. Partitioning & Slicing

Method	Description
partition(sep)	Splits into 3 parts: before, sep, after
rpartition(sep)	Same but from right
slice()	Extracts substring using index

Questions

1. Count how many vowels are in the word “engineering”.

2. Change “good morning” to “good evening”.
3. Check if “safe” is present in the string “wearable device for safety”.
4. Find the starting index of “Data” in the sentence – programming for data science.
5. Convert list of words into a dash-separated string.
6. Clean up a sentence with unwanted spaces.
7. Check if a PIN code is numeric.
8. Check if a PAN number is alphanumeric.

Project- Mark 20
Programming for Data Science
Dataset – Medical, ISRO, NASA, Govt dataset
Steps :
Explore the dataset
Preprocessing Step
Apply ML or DL
Analyse the Performance
Data Visualization
No. of Students : 2 or 3
Outcome : Book chapter or Conference
No. of Reviews : 2 (After CAT 1 and CAT 2)
Language : Python or Scala
(or)
Create Web Application for Autism or Slow Learners Learning App for any language