CHAPTER-02

STRINGS:

```
#strings
#collection of characters inside single quotes or double quotes

first_name="Abrar"
last_name="Haider"
full_name=first_name+" "+last_name
print(full_name)

#strings only can be added with strings --> [print(full_name+3)--> not
possible]
#possible--> print(full_name+"3")
print(full_name+"3")
#possible--> print(full_name+str(3)) --> [str() = converts to string]
print(full_name+str(3))

print(first_name*3) #first name will print 3 times
```

USER INPUT:

```
#input function is used

name= input("type your name: ")
print("Hello "+ name)

#input function always takes string input from user

age= input("What is your age? =")
print("Your age is "+ age) #here age is a string
```

INT FUNCTION:

```
# Let's try adding two numbers:
# num1=input("enter first number- ")
# num2=input("enter second number- ")
# total= num1+num2
# print("Total is = "+ total) --> it will not give correct result as
the numbers are treated as string

# we have to use int() function
num1=int(input("enter first number- "))
num2=int(input("enter second number- "))
total= num1+num2
print("TOtal is "+ str(total))
# here total is an integer so we need to convert it to string to add
with string

# we can use float() instead of int() to get floating point number

num_1=str(4)
num_2=float(3)
num_3=int(2)
print(num_2+num_3) # we can add integer and float but the result will
be in float
```

VARIABLES:

```
#assigning multiple variables in single line:
name, age= "Abrar", 23
print("hello " + name+ " your age is " + str(age))

#assigning multiple variables same value:
x=y=z=2
print(x+y+z)
```

MORE INPUT:

```
# More than one input in one line using split() function:

name,age=input("Enter your name and age: ").split(",")

# we can give anything instead of "," in the split() fuction
# but we have to write that thing while giving input
# Like, Enter your name and age: Abrar,23
# Or, if we code: name,age=input("Enter your name and age:
").split("/")
# We have to write: Enter your name and age: Abrar/23

print("Your name is " + name)
print("Your age is " +age)
```

STRING FORMATTING:

```
name="Abrar"
age= 23
# print("Hello " +name+ " your age is " + str(age))
# This syntax looks ugly

# Instead of this we can use python 3  syntax
print("Hello {} your age is {} ".format(name,age))
# here we don't need to concern whether the age is in int or string

# Or, we can use python 3.6 syntax

print(f"Hello {name} your age is {age} ")
# {} are called place holder
# just use f before quotes

# we can do calculation also
print(f"Hello {name} your age is {age+3} ")
```

STRING SLICING:

```
# slicing/selecting sub sequences
# to print more than one index
# name[start argument : stop argument+1]

name="Abrar"
print(name[1:4])
print(name[:]) # we will get full string
print(name[1:]) # we will get b to r
print(name[:3]) # we will get A to r
```

STRING INDEXING:

```
name= "Abrar"
# positions or index numbers of Abrar:

# A=0, -5
# b=1, -4
# r=2, -3
# a=3, -2
# r=4, -1

# To write index number we use [] braces.
print(name[2])
#Or,
print(name[-3])
```

EXERCISE 01:

```
# Exercise_01:

# Ask user to input 3 numbers,
# and you have to print average of three number using string
formatting.
# Try to take all three comma separated inputs in one line.

# NORMAL WAY:
num_1=int(input("Enter 1st Number: "))
num_2=int(input("Enter 2nd Number: "))
```

```
num_3=int(input("Enter 3rd Number: "))
avg= (num_1+num_2+num_3)/3
print("The average is "+str(avg))

# Python 3 syntax
num_1,num_2,num_3= input("Enter Three Numbers: ").split(",")
avg= (int(num_1)+int(num_2)+int(num_3))/3
print("The average is {}".format(avg))

#Python 3.6 syntax
num_1,num_2,num_3= input("Enter Three Numbers: ").split(",")
avg= (int(num_1)+int(num_2)+int(num_3))/3
print(f"The average is {avg}")
```

STEP ARGUMENT SLICING:

```
#[start argument : stop argument+1 : step argument]

print("Python"[1:6:2]) # will get yhn
print("Python"[6:0:-2]) # will get nhy (reverse)

print("Abrar"[::1]) # will get Abrar
print("Abrar"[::-1]) # will get rarbA (reverse)
```

EXERCISE 02:

```
# Exercise_02:
# Ask user name and print back user name in reverse order.
# Try to make your program in 2 lines using string formatting.

name=input("Write your name here: ")
print(f"User name in reverse is: {name[::-1]}") #Python 3.6
```

STRING METHODS:

```
# len() --> counts the number of characters in a string.
name="abRar"
print(len(name)) #it counts the spaces also

# Methods:
# lower() Method:
print(name.lower()) #abrar

# upper() Method:
print(name.upper()) #ABRAR

# title() Method:
print(name.title()) #Abrar(first letter will be capital)

# count() Method:
print(name.count("a")) # counts how many a's are there
```

EXERCISE 03:

```
# Exercise_03:
# Take two comma separated inputs from user
# 1. user's name
# 2. a single character

# output: 2 print lines
# 1. user's name length
# 2. count the character that user inputed
# --> case insensitive count(capital,small bosth should be counted)

name,char=input("Enter your name and a character: ").split(",")
print(f"User's name length is {len(name)}")
# print(f"The inputed character repeats
{name.lower().count(char.lower())} times")
# here everything is converted to lower
```

```
# if user put any space while inputting
print(f"The inputed character repeats
{name.strip().lower().count(char.strip().lower())} times")
```

STRIP METHOD:

```
# To solve space problem we use this method.
name="   A b r a r   "
print(name.lstrip()) #Left side spaces will remove
print(name.rstrip()) #Right side spaces will remove
print(name.strip())  #Left and Right side spaces will remove

# To remove inner spaces:
print(name.replace(" ",""))
```

REPLACE AND FIND METHOD:

```
# replace():
name="A b r a r"
print(name.replace(" ",",")) # replace space with comma

string="She is beautiful and she is good teacher"
print(string.replace("is","was",1)) #first one 'is' will be replaced
print(string.replace("is","was",2)) #Both 'is' will be replaced

# find():
# To find the position of character in a string
print(f"The position of first 'is' is {string.find('is')} ")
is_pos1=string.find("is")
is_pos2=is_pos1+1
print(f"The position of second 'is' is {string.find('is',is_pos2)} ")
```

CENTER METHOD:

```
name="Abrar"
#we want to add two stars in left and right--> **Abrar**
print(name.center(9,"*")) #Abrar=5,2stars+2stars=4; 5+4=9

#Input your name and Add two stars left and right:
name= input("Enter your name: ")
x=len(name)
print(f"Adding two stars left and right {name.center(x+4,'*')}")
```

IMMUTABLE STRINGS:

```
# strings are immutable

string="string"
#string[1]="T", we can't replace like this

print(string.replace('t','T'))
#but,
print(string) #it'll remain same
```

OPERATORS:

```
name="Abr"
name+="ar"
print(name)

age=23
age+=1
print(age)
```