Strings

8.1 A string is a sequence

Q1. Declare and initialize a variable with a string and assign the value of "Hello World" to it.
   a) Access the 2nd character of the string. Print the 2nd character.
   b) Access the 6th character of the string. Print the 6th character.

Q2. Write a program that takes two user inputs for first and last name and merge them in a new variable titled fullName. Greet the user using his full name.

Q3. Write a program to display the value of x if a="3" and b="3"?
   x = a + b

8.2 len

Q1. Declare and initialize a variable with a string and assign the value of "CT-1 Programming" to it.
   a) Access the last character of the string using len. Print the last character.
   b) Access the 3rd character of the string using negative index. Print the character.

Q2. Write a program to take a user input about his favorite mobile phone model. Find and display the length of user input.

Q3. Write a program to find the character at 3rd index in the word "Pakistani" and display the result.

Q4. Write a program to find the character at last index in the word "Hello CT-I" and display the result.

8.3 Traversal with a for loop

Q1. Write a function that takes a string as an argument and displays the letters forward, one per line.

Q2. Write a function that takes a string as an argument and displays the letters backward, one per line.

Q3. Write a function that takes a string as an argument and displays the letters on odd index, one per line. Display the number of letters on odd index.

Q4. Write a function that takes a string as an argument and displays the letters on even index, one per line. Display the number of letters on even index.

Q5. Declare a variable prefixes = 'JKLMNOPQ' and suffix= 'ack'. Concatenate each letter of the prefix with suffix to form names of the ducklings:
- Jack
- Kack
- Lack
- Mack
- Nack
- Ouack
- Pack
- Quack

8.4 String Slices

Q1. Declare and initialize a variable greeting = 'Hello CT-I'
   a) Slice and Copy 2nd and 3rd letters from **greeting** to **slicedString**. Print the **slicedString**.
   b) Slice and Copy first 4 letters from **greeting** to **slicedString**. Print the **slicedString**.
   c) Slice and Copy last 3 letters from **greeting** to **slicedString**. Print the **slicedString**.
   d) Slice and Copy all the letters from **greeting** to **slicedString**. Print the **slicedString**.
   e) Slice and Copy "Hello" from **greeting** to **slicedString**. Print the **slicedString**.
   f) Slice and Copy "CT-I" from **greeting** to **slicedString**. Print the **slicedString**.

8.5 Strings are immutable

Q1. Declare and initialize a variable greeting = 'Hello CT-I'
   a) Change character H to J to produce 'Jello CT-I'.
   b) Change CT-I to World to produce 'Hello World'.

8.6 Searching

Q1. Write a function **find** that takes a word and a letter and returns the index on which the letter is found.
   a) Use the function to find the index of letter "n" in the word "Pakistani" and print the result.
   b) Use the function to find the index of letter "i" in the word "Pakistani" and print the result.
   c) Use the function to find the index of letter "o" in the word "Pakistani" and print the result.

Q2. Modify the function **find** so that it has a third parameter, the index in word where it should start looking. Use the function to find the index of letter "i" in the word "Pakistani" by passing.
   a) 0 as third parameter
   b) 3 as third parameter
   c) 5 as third parameter
   d) 8 as third parameter
   e) 9 as third parameter

Q3. Write a function **findLastIndex** that takes a word and a letter and return the last index of the letter. Use the function to find the last index of letter "l" in the word "Hello World" and display the result in your browser.

Q4. Write a program to take user input and store username in a variable. If the username contains any special symbol among [@ . , !], print invalid username else print valid username.
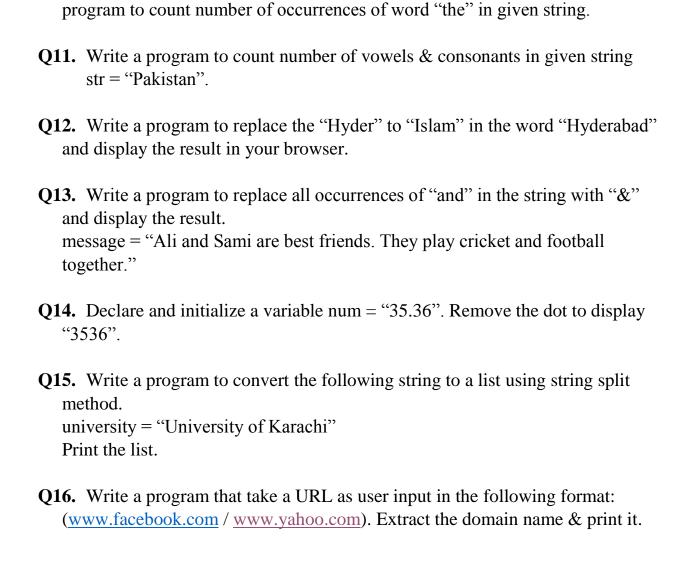
8.7 Looping and counting

Q1. Write a program to count number of vowels & consonants in given string
str = "Pakistan"

Q2. Write a program to take password as an input from user. The password must qualify these requirements:
a) It should contain alphabets and numbers
b) It should not start with a number
c) It must at least 6 characters long
If the password does not meet above requirements, prompt the user to enter a valid password.

8.8 String methods

Q1. Write a program that takes user input. Convert and show the input in capital letters.

Q2. Write a program that takes user input. Convert and show the input in small letters.

Q3. Write a program that takes user input. Convert and show the input in capitalized case.

Q4. Write a program to find the index of letter "n" in the word "Pakistani" and display the result.

Q5. Write a program to find the index of letter "i" in the word "Pakistani" and print the result.

Q6. Write a program to find the index of letter "o" in the word "Pakistani" and print the result.

Q7. Write a program to find the index of letter "CT-I" in the word "Hello CT-I" and display the result.

Q8. Find the index of letter "i" in the word "Pakistani" for the following start indexes:
   a) 0
   b) 3
   c) 5
   d) 8

Q9. Find the index of letter "i" in the word "Pakistani" for the following start (S) and end (E) indexes:
   a) S = 0, E = 2
   b) S=3, E=3
   c) S=5, E=8
   d) S=8, E=10
   e) S=9, E = 15

Q10. You have a string "The quick brown fox jumps over the lazy dog". Write a program to count number of occurrences of word "the" in given string.

Q11. Write a program to count number of vowels & consonants in given string str = "Pakistan".

Q12. Write a program to replace the "Hyder" to "Islam" in the word "Hyderabad" and display the result in your browser.

Q13. Write a program to replace all occurrences of "and" in the string with "&" and display the result.
message = "Ali and Sami are best friends. They play cricket and football together."

Q14. Declare and initialize a variable num = "35.36". Remove the dot to display "3536".

Q15. Write a program to convert the following string to a list using string split method.
university = "University of Karachi"
Print the list.

Q16. Write a program that take a URL as user input in the following format: (www.facebook.com / www.yahoo.com). Extract the domain name & print it.

8.9 The in operator

Q1.   You have a list:
A = ["cake", "apple pie", "cookie", "chips", "patties"]
Write a program to enable "search by user input" in an array. After searching, prompt the user whether the given item is found in the list or not.
Note: Perform case insensitive search. Whether the user enters cookie, Cookie, COOKIE or coOkIE, program should inform about its availability.
Also, print the index on which the item is available.

Q2.   Write a program to take user input and store username in a variable. If the username contains any special symbol among [@ . , !], print invalid username else print valid username.

Q3.   Write a function **exists** that takes a word and a letter and returns True if the string is found and False if the string is not found. Use the function to check existence of :
a) "n" in the word "Pakistani".
b) "i" in the word "Pakistani".
c) "o" in the word "Pakistani".

Q4.   Write a function in_both that takes two strings – string1 and string2 and prints all the letters from string1 that also appear in string2.

8.10 String comparison

Q1.   Write a function that takes two strings & display which string is greater than other or if they both are equal.