



# Bahria University, Lahore Campus

## Department of Computer Science

### Quiz 02 (Spring 2023)

## Solution

Course: Data Structures and Algorithm

Date: 27-March-2023

Course Code: CSC-211

Max Marks: 10

Faculty's Name: Ms. Zupash Awais

### CLOs

CLO1	Explain and compare different data structures and their applications
CLO2	Apply appropriate data structures according to the given scenarios and application domain
CLO3	Analyze time complexity of different algorithms
CLO4	Design efficient algorithm(s) to solve real world problems

### Question 01:

[05]

Convert the Expression from infix to prefix

$$a + b * c / (d - e) * f - 3$$

Handwritten solution for converting the infix expression  $a + b * c / (d - e) * f - 3$  to prefix notation.

Initial expression:  $a + b * c / (d - e) * f - 3$

Intermediate steps shown:

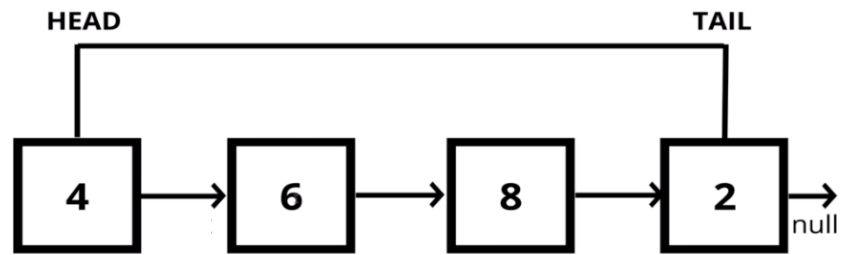
- $\rightarrow 3 - f * (e - d) / c * b + a$
- $\rightarrow 3 - f * (e - d) / c * b + a$

Input	Push()	Pop()	Output
3	-		3
f	-		3f
*	-, *		3f*
(	(		3f*(
e	(		3f*(e
-	(, -		3f*(e-
d	(, -		3f*(e-d
)	/		3f*(e-d-
/	/		3f*(e-d-
c	/		3f*(e-d-c
*	*		3f*(e-d-c/
b	*		3f*(e-d-c/b
+	+		3f*(e-d-c/b*
a	+		3f*(e-d-c/b*a
-			3f*(e-d-c/b*a-

Ans.  $+a*b/c-de-*3f$

**Question 02:****[05]**

Perform the following functions on Linked List.



- 1) head->next->data = 6
- 2) insert\_at\_start(3) = 3 -> 4 -> 6 -> 8 -> 2
- 3) head->data = 3
- 4) head->next->next->next->data = 8
- 5) tail -> data = 2
- 6) insert\_at\_end(9) = 3 -> 4 -> 6 -> 8 -> 2 -> 9
- 7) tail->data = 9
- 8) Length of List = 6