Linked List

Time Span: 1 lab day (a week)

Problem: Write a C program to represent a character string in a linked list.
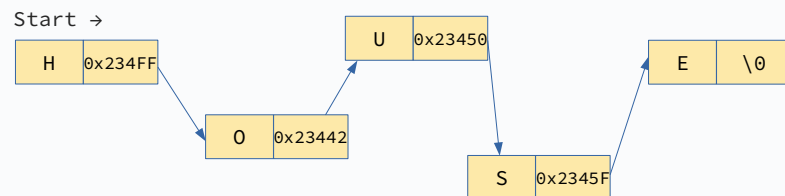
Description:

Suppose that a character string is represented by a linked list of single characters. The array representation of a string in C including the termination '\0' is shown below.

    char word[] = "HOUSE";

Index

0	1	2	3	4	5
H	O	U	S	E	\0

The Linked List representation of the above string would be:

Write a set of routines to manipulate such lists as follows.

Solution:

1. *strcnval(str)* to convert the character string to a linked list. This function returns a pointer to a header(start) node. During conversion, implement insert operation of dynamic list.

2. *strcnvla(start)* to convert the given character linked list to a character string in an array.

3. *strsubl(start, from, to)* to extract the sub-string part of the given start point of the Linked List. The variables from and to are the indices specifying for the sub-string.

An example, *strsubl("qwert", 1, 3)* gives "wer" i.e. 3 character from position 1.

4. *zipll(start1, start2)* combines the two linked lists *start1* and *start2* resulting the linked list as shown below:

    start1 >> [1] → [2] → [3] → [4] → [5] → [\0]

    start2 >> [1] → [2] → [5] → [\0]

    result >> [11] → [22] → [35] → [\0]

Assumptions:

Make your necessary assumptions for representation of character linked list and the final multiple character arrays in solution 4.

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