

Linked List Example Questions

Example 1

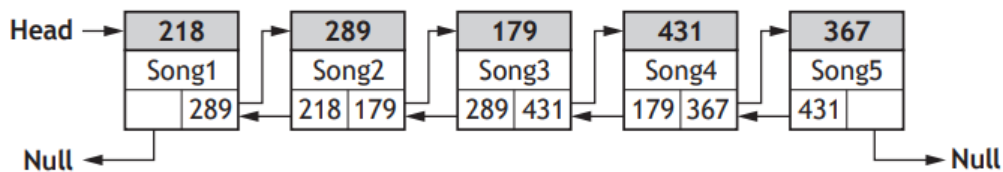
MARKS

A DJ app allows users to create a playlist. The playlist is implemented using a double linked list.

The app provides an ADD SONG option.

When users select the ADD SONG option, a new node is added to the end of the playlist.

An example playlist is shown below. The head of this double linked list points to the node stored at memory location 218.



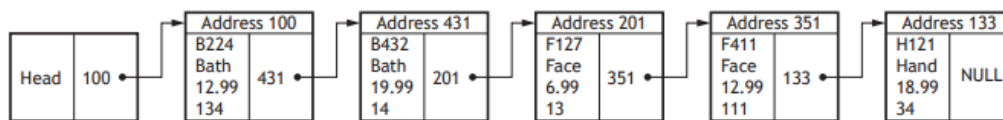
Describe the operations carried out on the double linked list when selecting the ADD SONG option.

3

<p>ADD SONG adds a new node at the end of the linked list. The next pointer of the last item in the playlist, the node at memory location 367, will be changed from NULL to point at the new node. The next pointer of the new node will be set to NULL and its previous pointer will be set to 367.</p>	<p>3</p>	<p>1 mark for description of ADD SONG option that makes appropriate reference to:</p> <ul style="list-style-type: none"> • correct updating of the next pointer of the node at memory location 367 • correct use of NULL as the next pointer of the new node • correct use of memory location 367 as the previous pointer of the new node
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Example 2

The second prototype uses a linked list as shown below.



A new towel ("H128", "Hand", 4.99, 200) is added at address 147.

Describe the changes that will be made to the linked list when this new towel is added.

2

<p>The null pointer on the last node of the linked list is replaced with address of the new node, 147.</p> <p>A new node is created to store the data (H128, Hand, 4, 99, 200) which has the pointer value NULL.</p>	<p>2</p>	<p>1 mark for each point</p> <p>Note: use of a diagram illustrating updating of pointers and use of additional node is acceptable alternative to complete description</p>
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