CSE131 Quiz 7
List Structures
October 28, 2005

1. Draw an object and reference diagram showing the data structure that would result from executing the following statements.

```java
public class ListItem {
    public int number;
    public ListItem next;

    public ListItem(int number, ListItem next) {
        this.number = number;
        this.next = next;
    }

    public String toString() {
        if (this.next == null)
            return "" + number;
        else
            return "" + number + next;
    }
}
```

ListLite a = new ListItem(5, new ListItem(6, null));
ListLite b = new ListItem(2, a.next);
System.out.println("a = " + a);
System.out.println("b = " + b);
a.next = b;
System.out.println("a = " + a);
System.out.println("b = " + b);

![Diagram of object and reference structure]

2. What output would be printed by executing the code fragment from question 1?

```
1  a = 5
  b = 2
1  a = 5 6
  b = 2
```

3. Assuming that memory is allocated starting at memory address 200, complete the table at the right to show how the structure created by the code in question 1 would be represented in memory.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>6</td>
</tr>
<tr>
<td>201</td>
<td>a or null</td>
</tr>
<tr>
<td>202</td>
<td>5</td>
</tr>
<tr>
<td>203</td>
<td>206 204</td>
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<tr>
<td>204</td>
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