Practice Problems 2/8/2016

Part 1: Node Diagrams

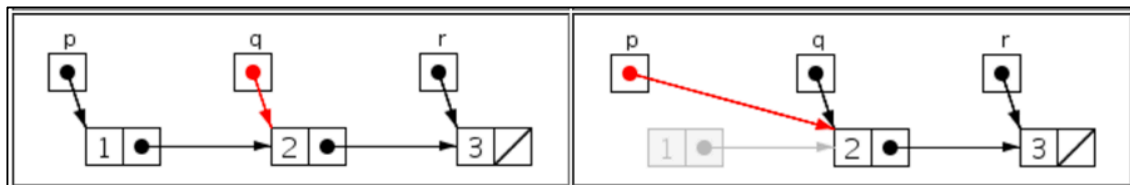All of these problems below were taken from
http://jhave.org/jhavepop/java/exercises.html

1. Use a single assignment statement to make the variable p refer to the
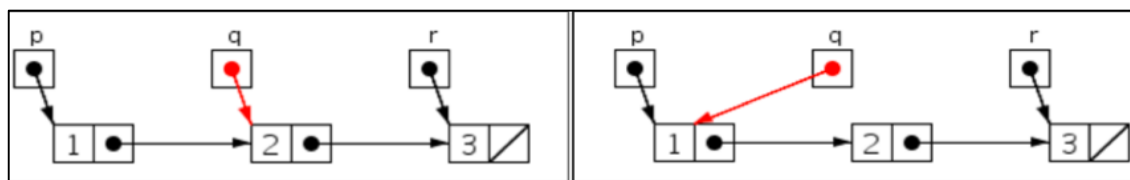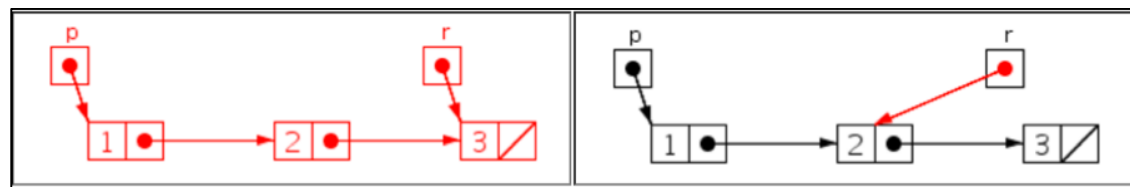Node with info '2'.
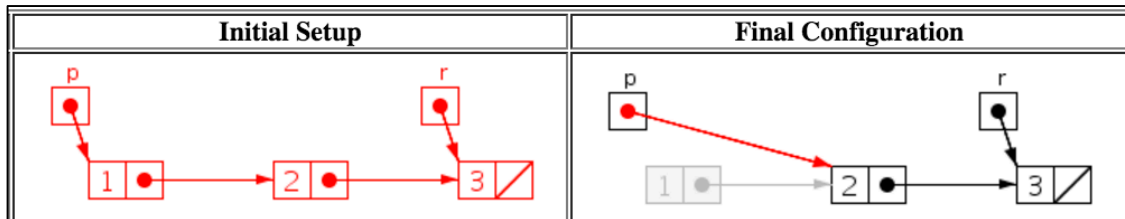
Answer: p = p.next;

2. Redo exercise 1, but this time your assignment statement must refer
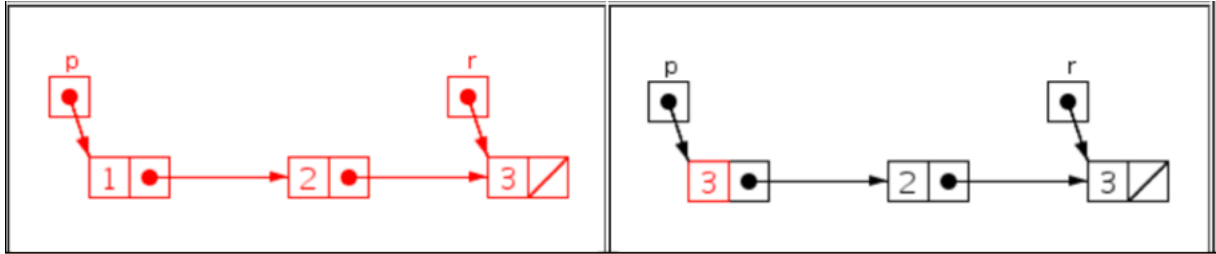to both variables p and q.

3. Use a single assignment statement to make the variable q refer to the
Node with info '1'.

4. Use a single assignment statement to make the variable r refer to the
Node with info '2'.

5. Use a single assignment statement to set the info of the Node referred
to by p equal to the info of the Node referred to by r (you must access
this info through r; do not refer to the character '3' directly).

6. Redo exercise 5 by referring only to variable p (not r). You may not refer to the character '3' directly.
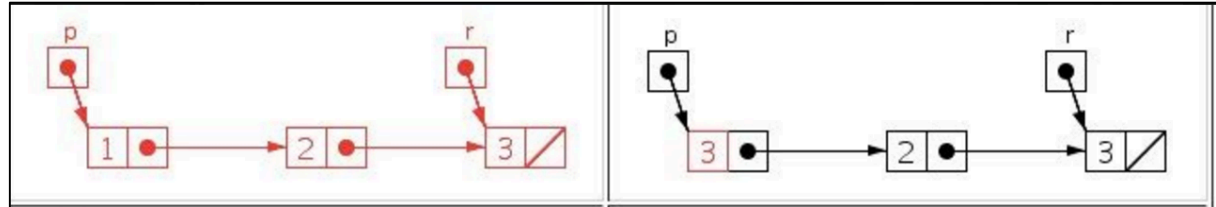
7. Write a single assignment statement to transform the linked list headed by p into a circular linked list. Your assignment statement must refer to both variables p and r.
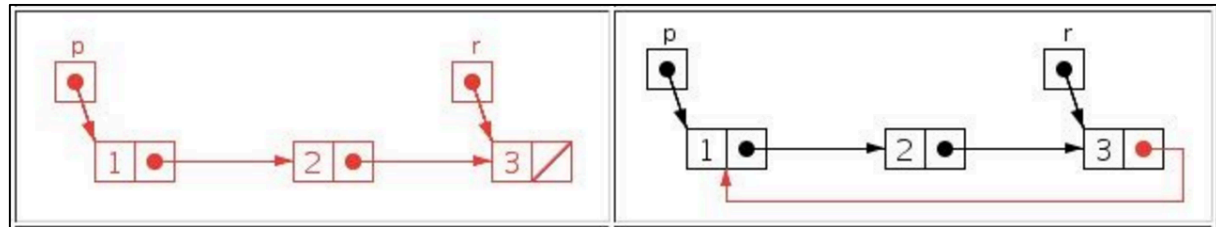
8. Redo exercise 7 but, this time, your assignment statement must refer to both variables p and q.
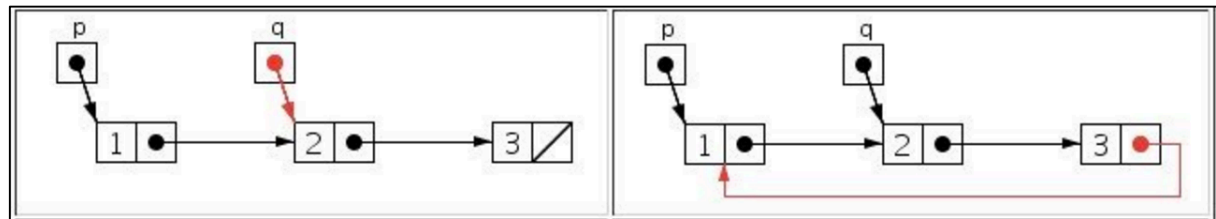
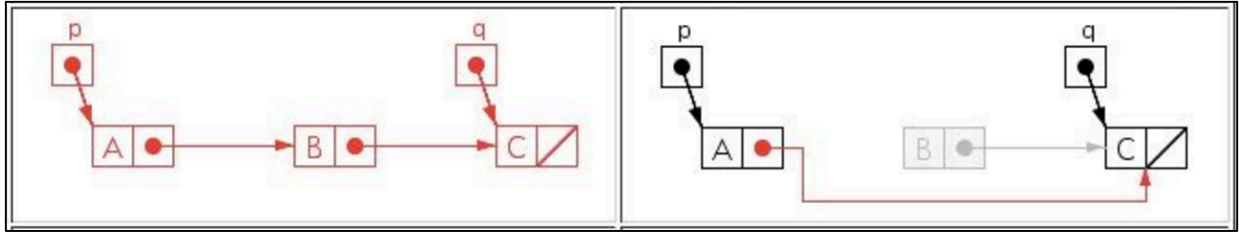9. Redo exercise 7 but, this time, your assignment statement must refer only to variable p.
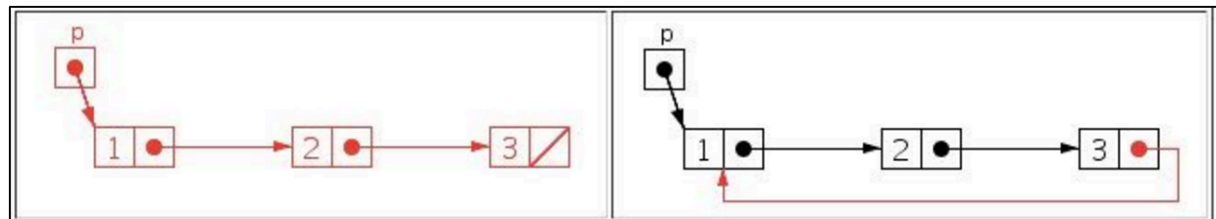
10. Write a single assignment statement to remove the Node with info 'B' from the linked list headed by p. Your assignment statement must refer to both variables p and q.

Part 2: Node Code

1. Given the Node<T> class from the texbook with the setNext(Node<T> nextNode) method; execution of the following code would result in what order of Nodes:

```
Node<String> firstNode = new Node<String>("A");
Node<String> b = new Node<String>("B");
Node<String> c = new Node<String>("C");
firstNode.setNextNode(c);
b.setNextNode(c);
firstNode.setNextNode(b);
```

2. Given that a linked chain exists in memory as represented by the following:

firstNode → "A" → "B" → "C" → "D" → "E"

Consider execution of the following code, upon the linked chain above. What is the resulting order of Nodes?

```
Node<String> p = firstNode;
Node<String> q = firstNode;
Node<String> r = firstNode;
while( r.next != null )
{
    p = q;
    q = r;
    r = r.next;
}
p.next = r;
q.next = null;
r.next = q;
```

3. Given that a linked chain exists in memory as represented by the following:

firstNode → "A" → "B" → "C" → "D"

Consider execution of the following code, upon the linked chain above. What is the resulting order of Nodes?

```
Node<String> x = firstNode.next;
```

```
firstNode.next = x.next;
x.next = firstNode;
firstNode = x;
```

4. Given the Node<T> class from the textbook with the constructor Node(T dataPortion,   Node<T>   nextNode); execution of the following code, would result in what order of Nodes?

```
Node<String> a = new Node<String>("A");
Node<String> b = new Node<String>("B", a);
Node<String> d = new Node<String>("D", b);
Node<String> c = new Node<String>("C", d);
Node<String> firstNode = c;
```

Part 3: Eclipse Shortcuts

Try these out!

1. Move a row of code up/down- alt + up/down arrow

2. Fixes import statement by adding missing ones and deleting unused ones- ctrl/command + shift + o

3. Format code- ctrl/command + shift + f

4. Fixes indentation- ctrl/command + i