Manipulações de lista encadeada

Os primeiros 20 exercícios desta página são bastante curtos. Eles o ajudarão a dominar as operações básicas de lista encadeada. As últimas 2 tarefas de programação são mais desafiadoras. Eles o ajudarão a se sentir confortável projetando e implementando algoritmos robustos para manipular listas encadeadas.

Use esta declaração da classe Node:

```
final class Node
{
    char info;
    Nó seguinte;
    public Node(char letter, Node node)
    {
       info = letter;
       próximo = nó;
    }
}
```

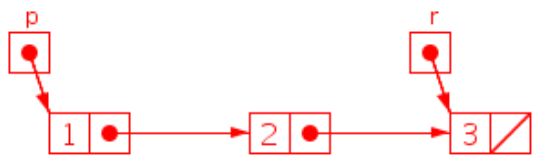
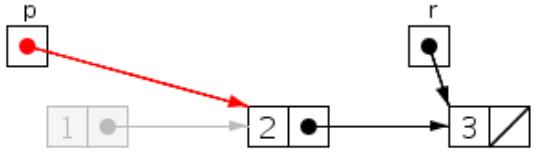
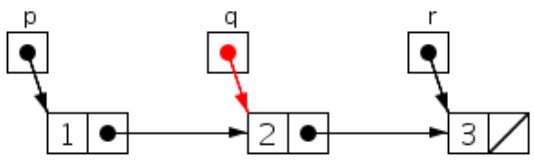
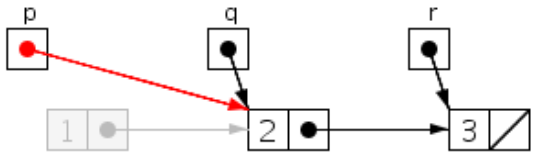
Construir	Exemplos
1. Atribuição	`n1 = n4.próximo; n1.próximo = nulo;`
2. Instanciação de nó	`n3.next.next = new Node('B',null);`
3. Atribuição	`n1.info = n4.next.info; n1.next.info = 'C';`
4. Se declaração	`if (n1==null) {...} else {...}`
5. loop while	`while ( (n1!=null) && (n1.info=='A') ) {...}`

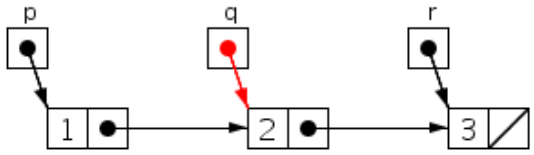
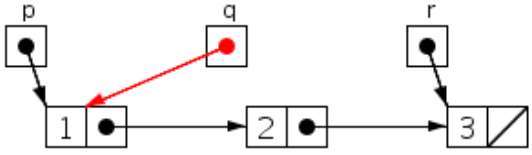
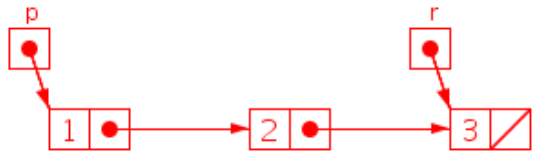
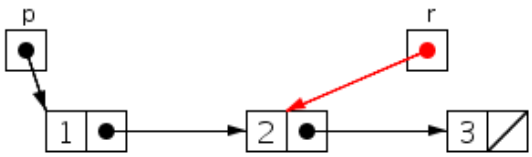
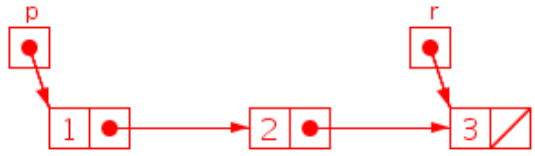
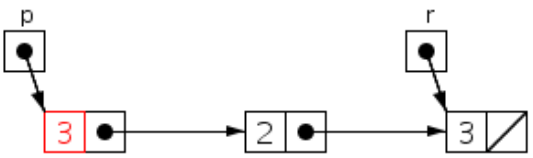
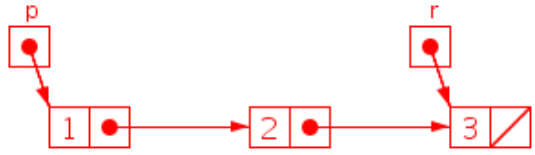
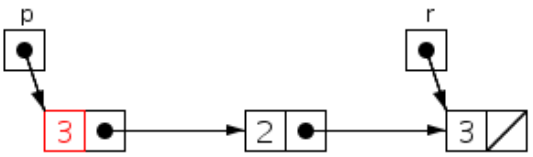
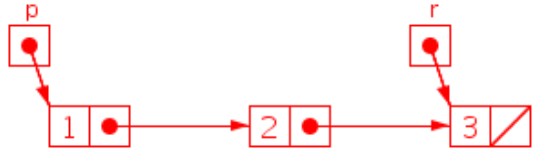
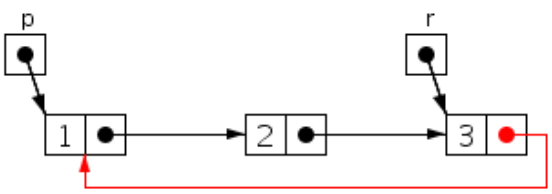
exercícios curtos

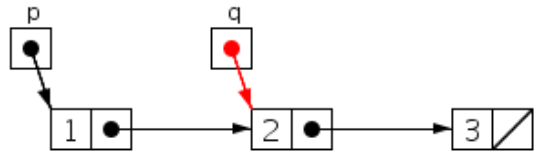
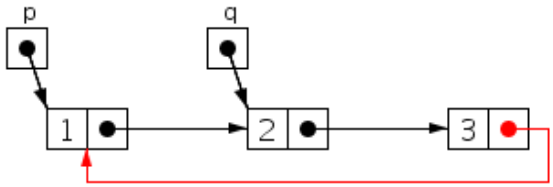
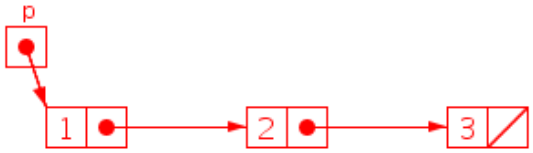
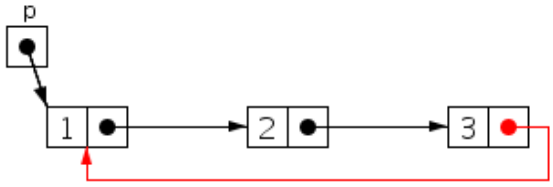
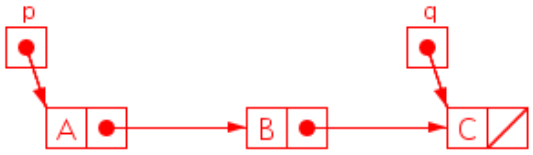
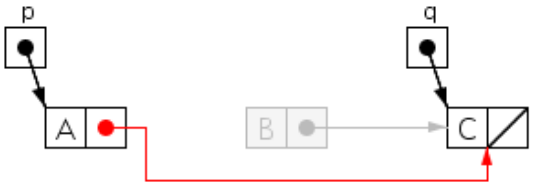
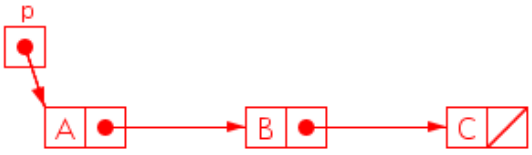
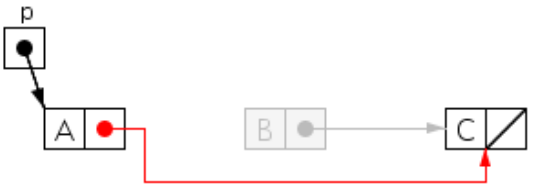
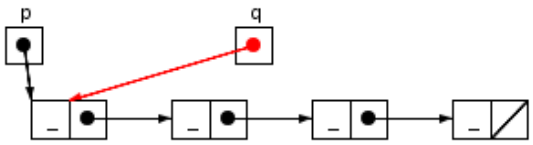
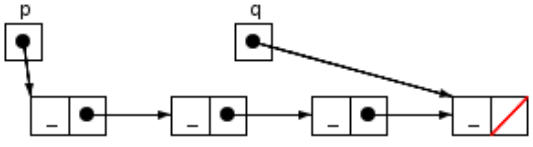
Para cada exercício:

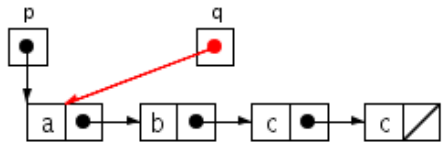
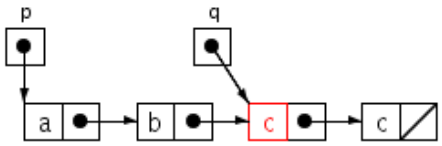
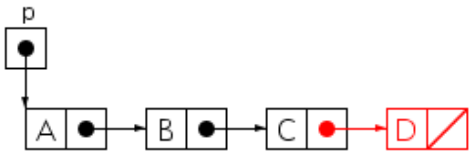
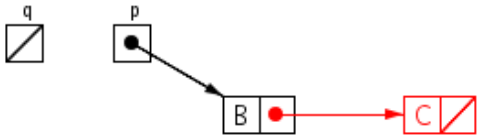
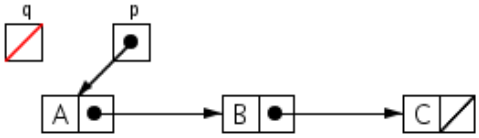
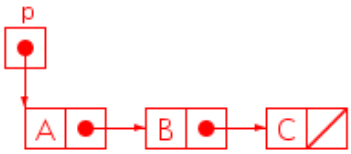
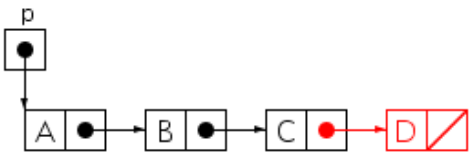
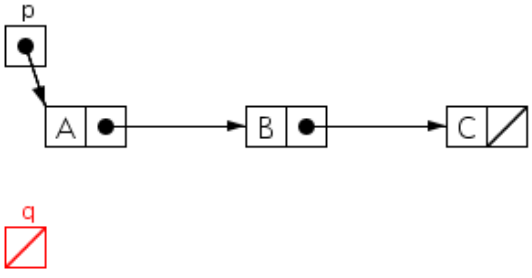
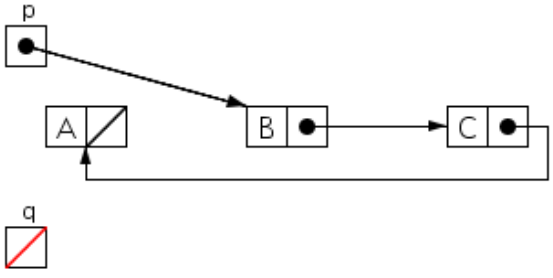
- Escreva as instruções Java que produzirão a "configuração inicial"
- Escreva as instruções Java que transformarão a configuração inicial na "configuração final".

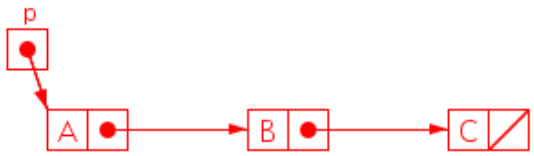
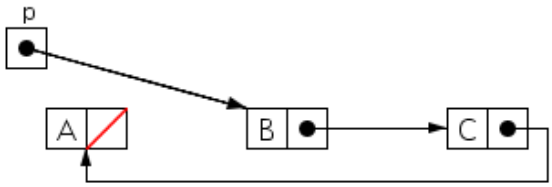
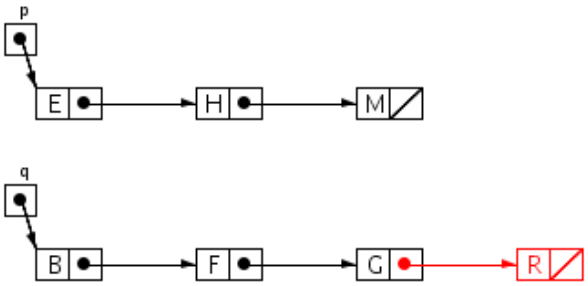
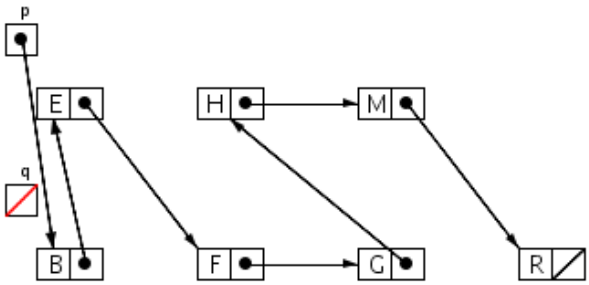
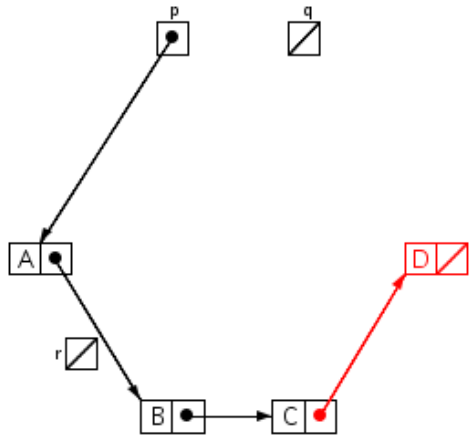
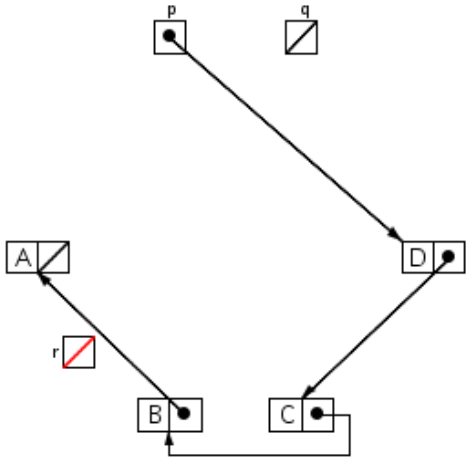
Use o Java Visualizer para executar sua solução e visualizar as estruturas de dados.

	Configuração inicial	Exercício	Configuração final
1		Use uma única instrução de atribuição para fazer a variável p referir-se ao nó com informações '2'	
2		Refaça o exercício 1, mas, desta vez, sua instrução de atribuição *deve* referir-	

		se às variáveis p e q.	
3		Use uma única instrução de atribuição para fazer a variável q referir-se ao nó com a informação '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 to variable r). Again, 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.	
11		Write a single assignment statement to remove the Node with info 'B' from the linked list headed by p.	
12		Write a while loop to make q refer successively to each Node in the linked list headed by p. q must end up referring	

		to the last Node in the list.	
13		Write a while loop to make q refer successively to each Node in the linked list headed by p until q refers to the first Node with info (lowercase) 'c'.	
14		Use four assignment statements, each referring to variable p, to create a linked list headed by p and containing 4 Nodes with info 'A', 'B', 'C', and 'D', in this order.	
15		Create a new Node with info 'A' and insert it at the beginning of the list headed by p.	
16		Create a new Node with info 'D' and insert it at the end of the list headed by p.	
17		Remove the Node at the beginning of the list headed by p and insert it at the end of the same list. Your program *must* refer to both variables p and q.	

18		Refaça o exercício 17 mas, desta vez, seu programa deve se referir *apenas* à variável p.	
19		Mesclar as duas listas encabeçadas por p e q em uma única lista encabeçada por p na qual os nós são classificados em ordem alfabética.	
20		Usando apenas as três variáveis existentes p, q e r, inverta a ordem dos Nodos na lista encabeçada por p.	

Exercícios de programação

- Remova todos os A's
- Opcional: remova todos os elementos duplicados consecutivos

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Para instrutor: Progressão de demonstração: 15, 1, 2, 5, 7, 11, 16, 14, 17, 12, construir alfabeto. Soluções