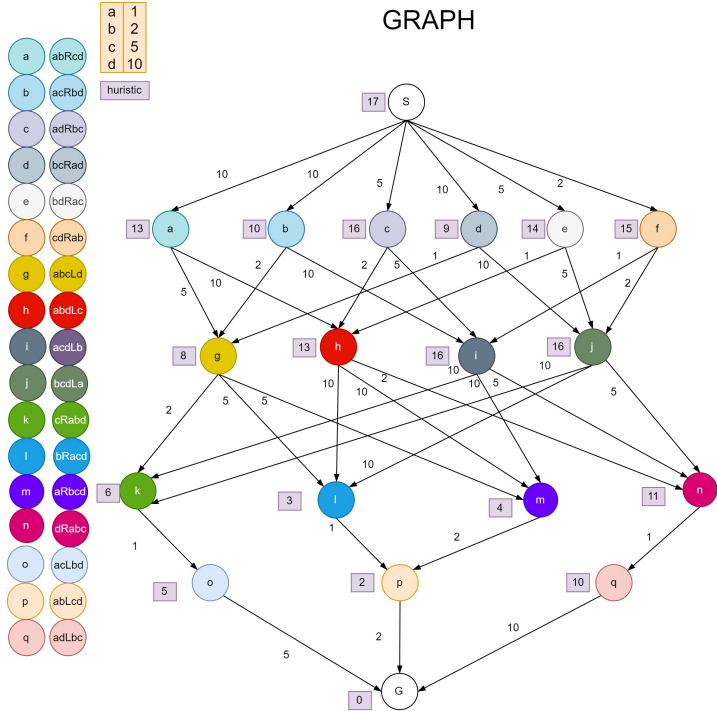


# PR-3-Uniform cost Search

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S = START  
G = GOAL



1

initial step

Visited :

Q : (0, S1)

0

S

uniform cost search

2

repeating step

Visited : S

Q : (2, f, S), (5, e, S), (5, c, S), (10, a, S), (10, b, S), (10, d, S)

uniform cost search

3

repeating step

Visited : S, f

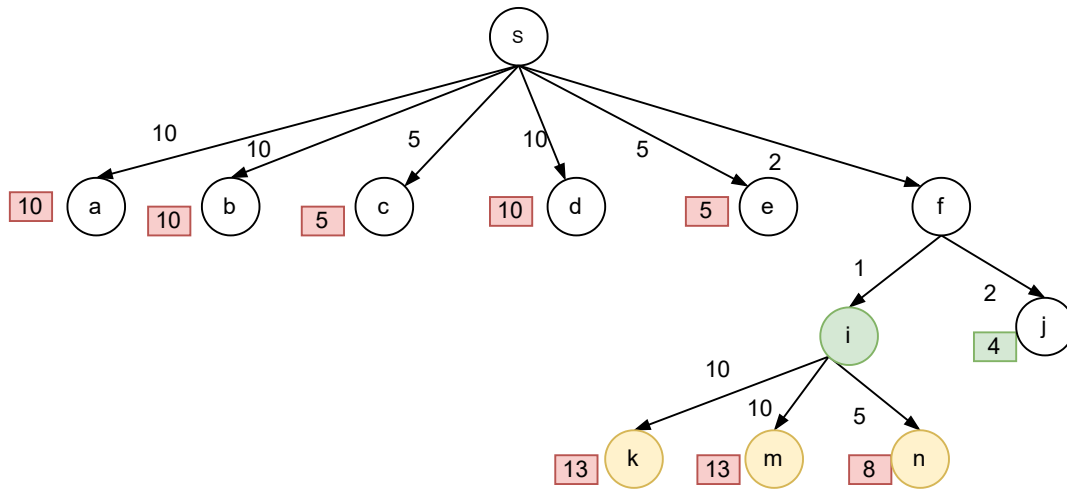
Q : (3, i, f, S), (4, j, f, S), (5, e, S), (5, c, S), (10, a, S), (10, b, S), (10, d, S)

uniform cost search

4 repeating step

Visited : S, f, i

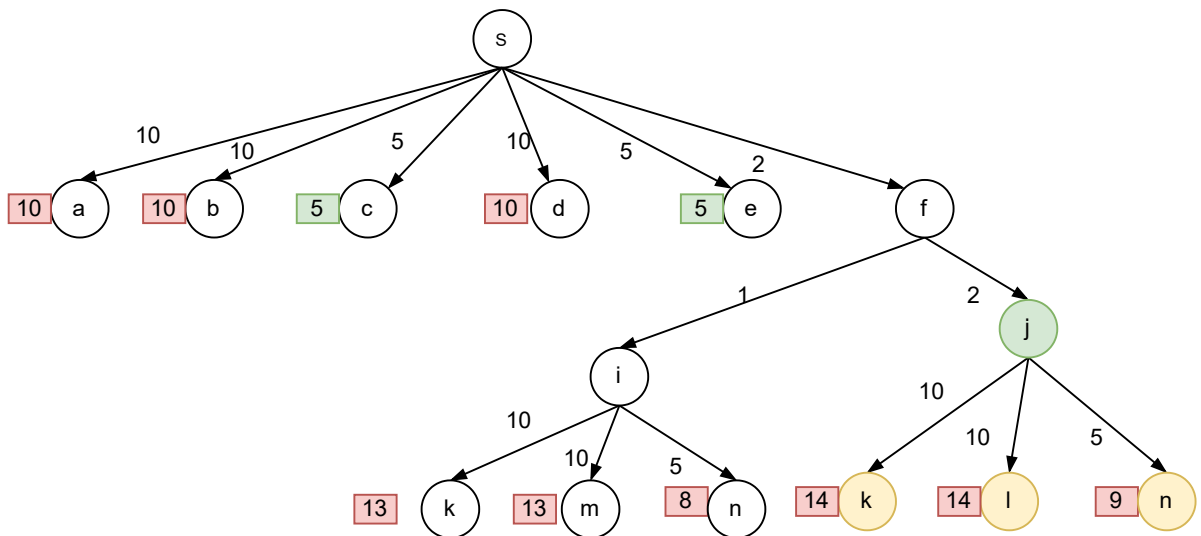
Q : (4, j, f, S), (5, e, S), (5, c, S), (8, n, i, f, S), (10, a, S), (10, b, S), (10, d, S), (13, m, i, f, S), (13, k, i, f, S)



5 repeating step

Visited : S, f, i, j

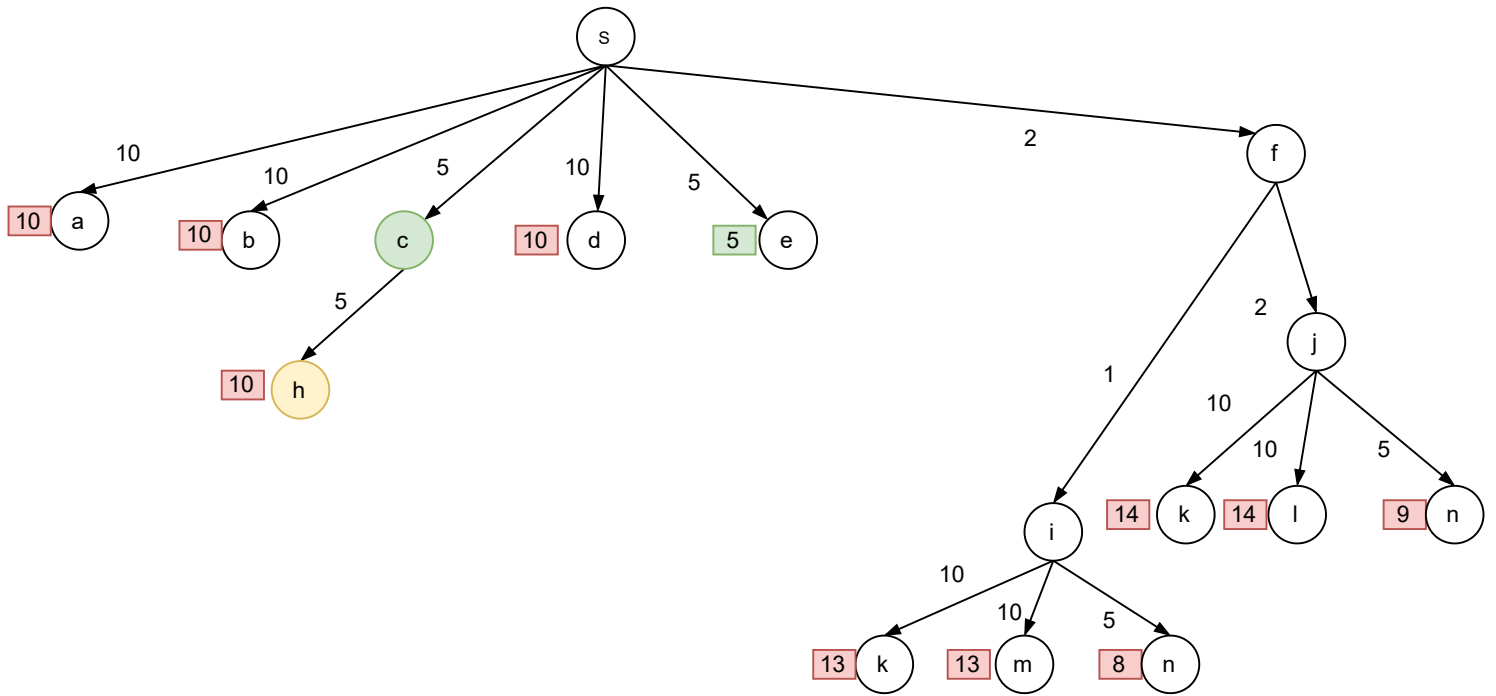
Q : (5, e, S), (5, c, S), (8, n, i, f, S), (9, n, j, f, S), (10, a, S), (10, b, S), (10, d, S), (13, m, i, f, S), (13, k, i, f, S), (14, l, j, f, S), (14, k, j, f, S)



6 repeating step

Visited : S, f, i, j, c

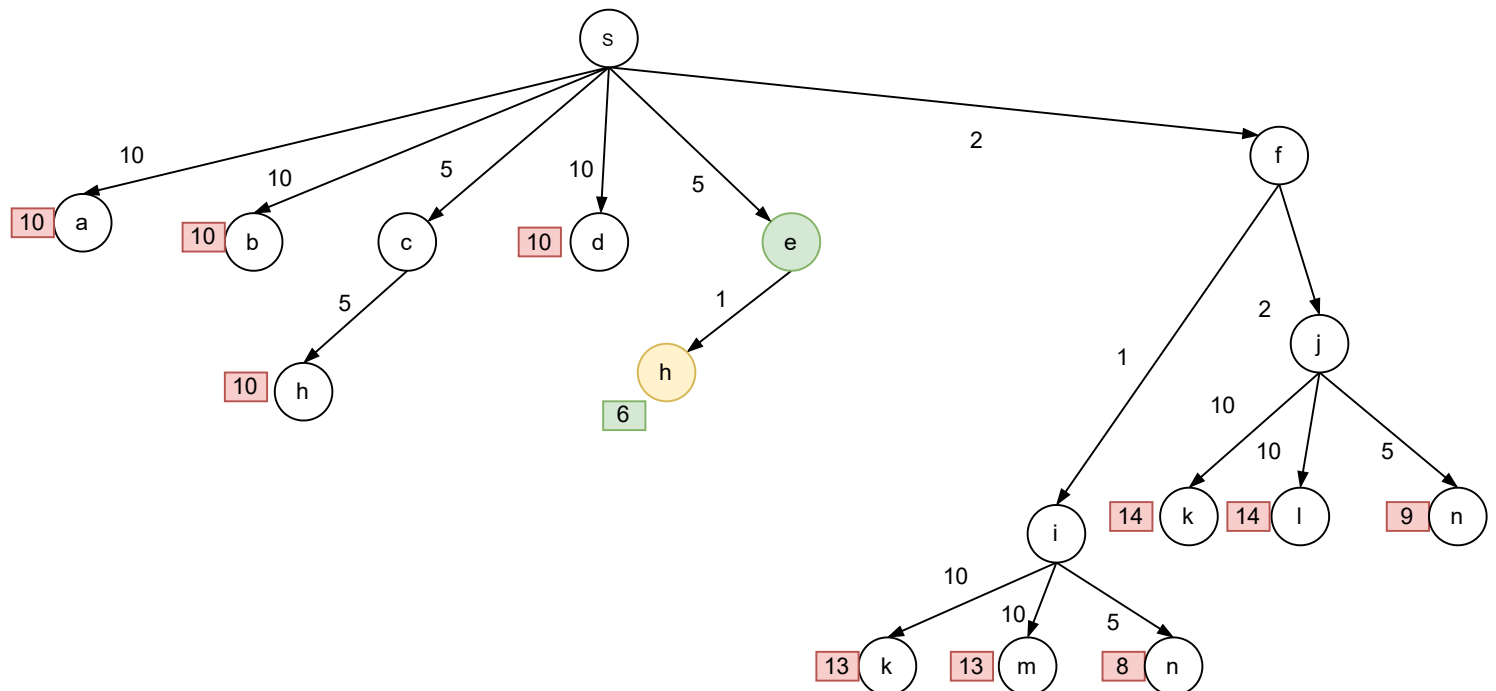
Q : (5, e, S), (8, n, i, f, S), (9, n, j, f, S), (10, a, S), (10, b, S), (10, d, S), (10, h, c, S), (13, m, i, f, S), (13, k, i, f, S), (14, l, j, f, S), (14, k, j, f, S)



7 repeating step

Visited : S, f, i, j, c, e

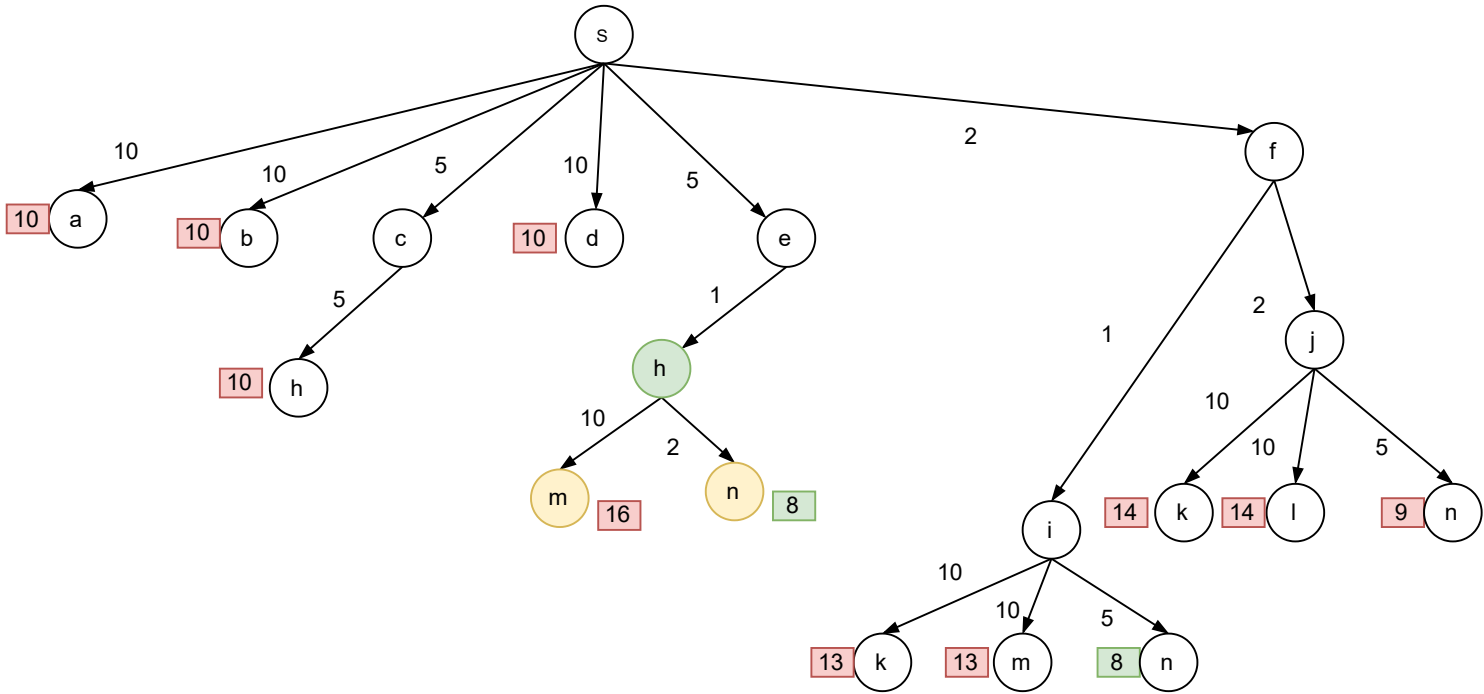
Q : (6, h, e, S), (8, n, i, f, S), (9, n, j, f, S), (10, a, S), (10, b, S), (10, d, S), (10, h, c, S), (13, m, i, f, S), (13, k, i, f, S), (14, l, j, f, S), (14, k, j, f, S)



8 repeating step

Visited : S, f, i, j, c, e, h

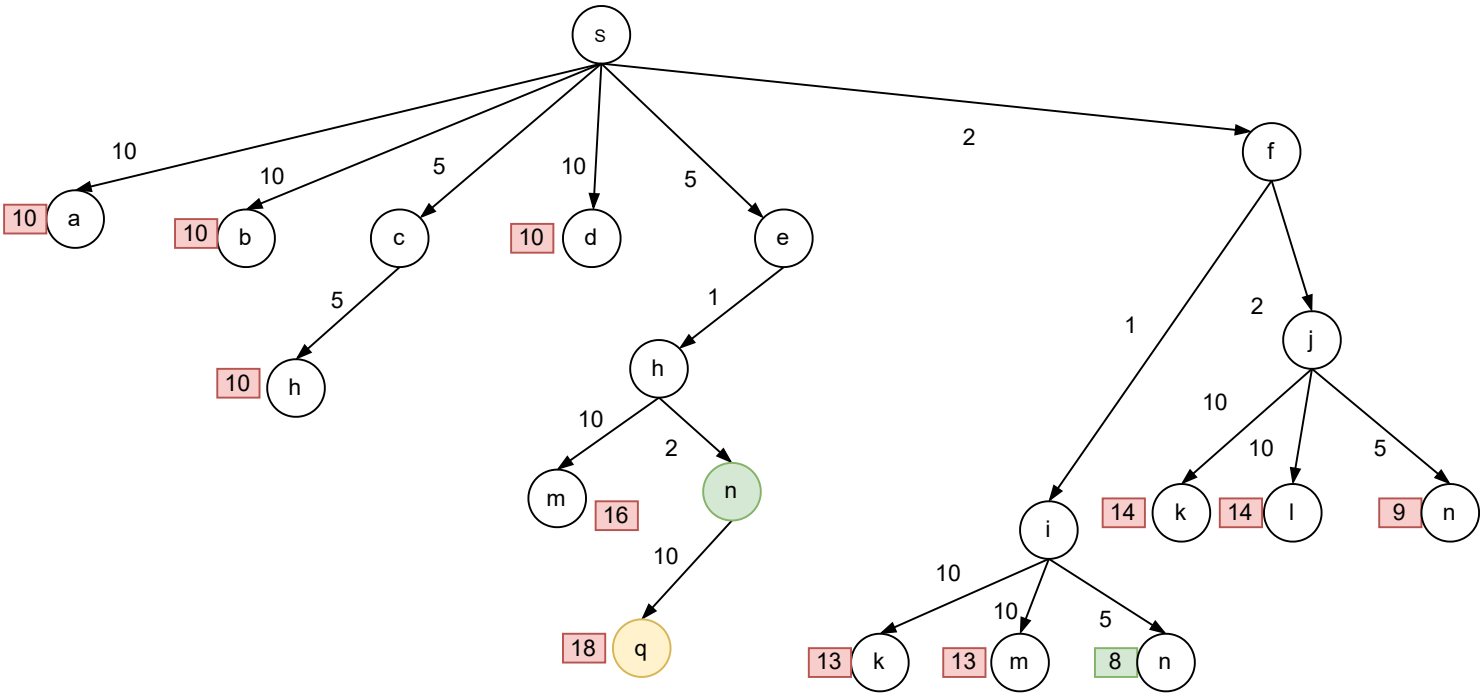
Q : (8, n, h, e, S), (8, n, i, f, S), (9, n, j, f, S), (10, a, S), (10, b, S), (10, d, S), (10, h, c, S),  
(13, m, i, f, S), (13, k, i, f, S), (14, l, j, f, S), (14, k, j, f, S), (16, m, h, e, S)



9 repeating step

Visited : S, f, i, j, c, e, h, n

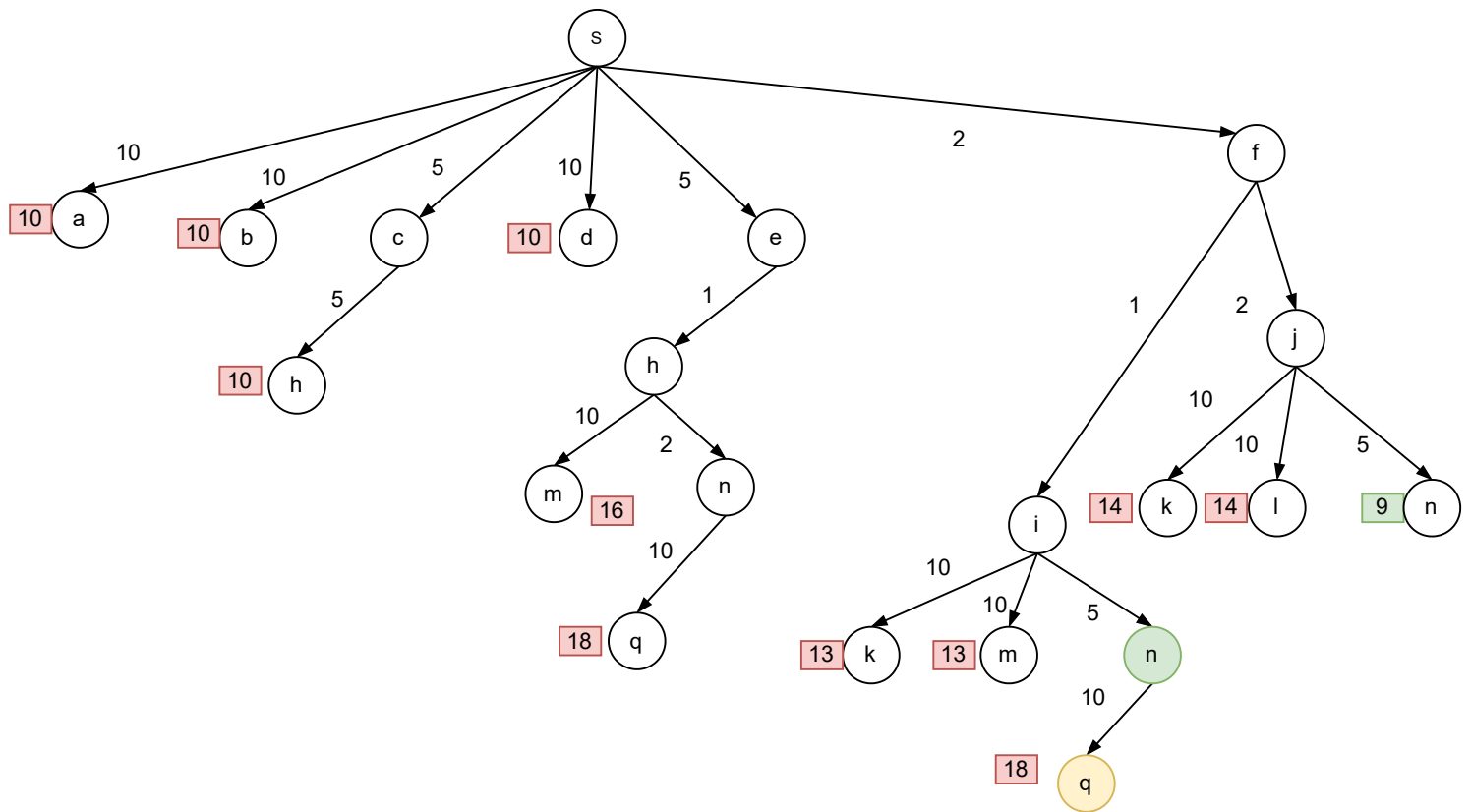
Q : (8, n, i, f, S), (9, n, j, f, S), (10, a, S), (10, b, S), (10, d, S), (10, h, c, S),  
(13, m, i, f, S), (13, k, i, f, S), (14, l, j, f, S), (14, k, j, f, S), (16, m, h, e, S), (18, q, n, h, e, S)



10 repeating step

Visited : S, f, i, j, c, e, h, n

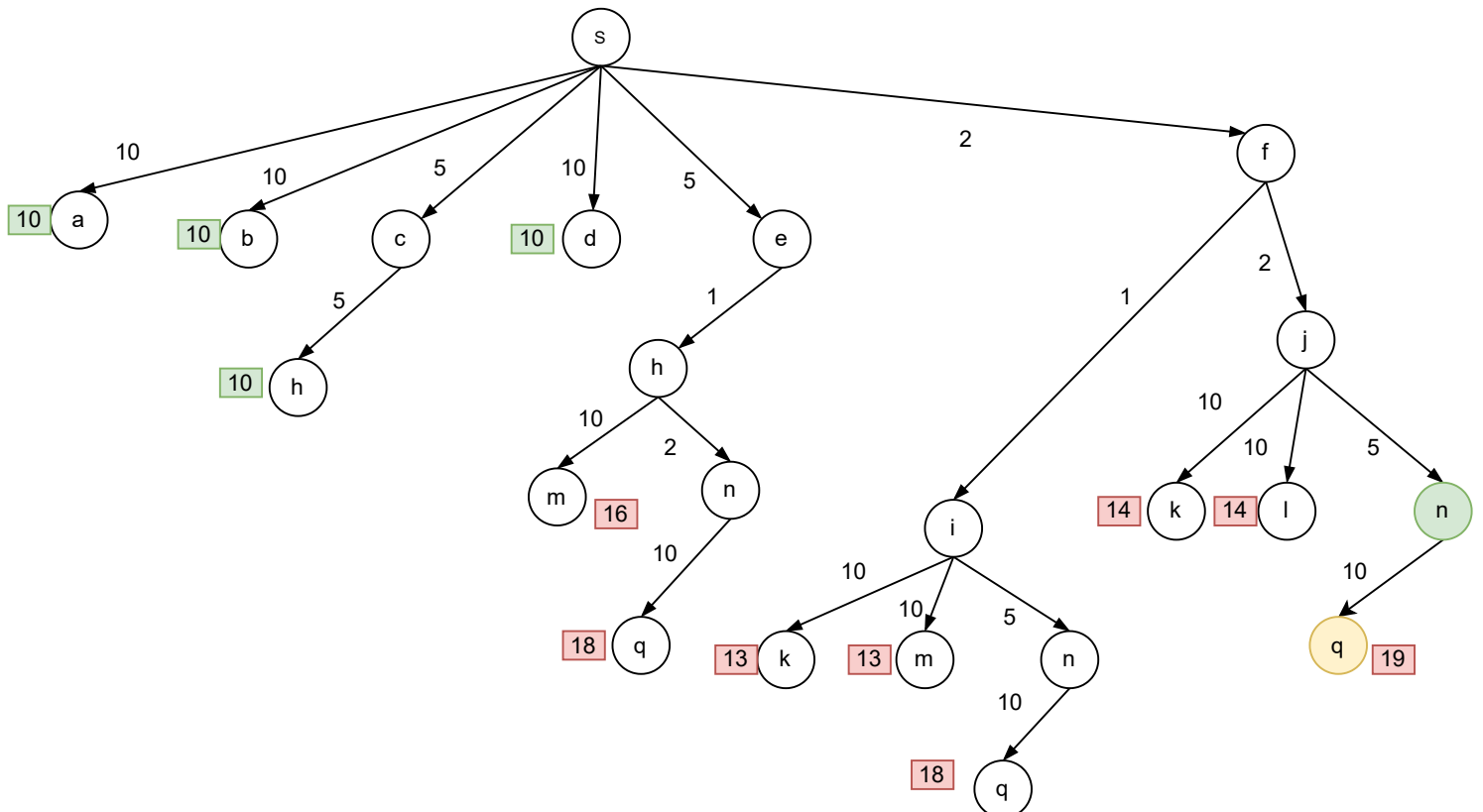
Q : (9, n, j, f, S), (10, a, S), (10, b, S), (10, d, S), (10, h, c, S),  
 (13, m, i, f, S), (13, k, i, f, S), (14, l, j, f, S), (14, k, j, f, S), (16, m, h, e, S), (18, q, n, h, e, S), (18, q, n, i, f, S)



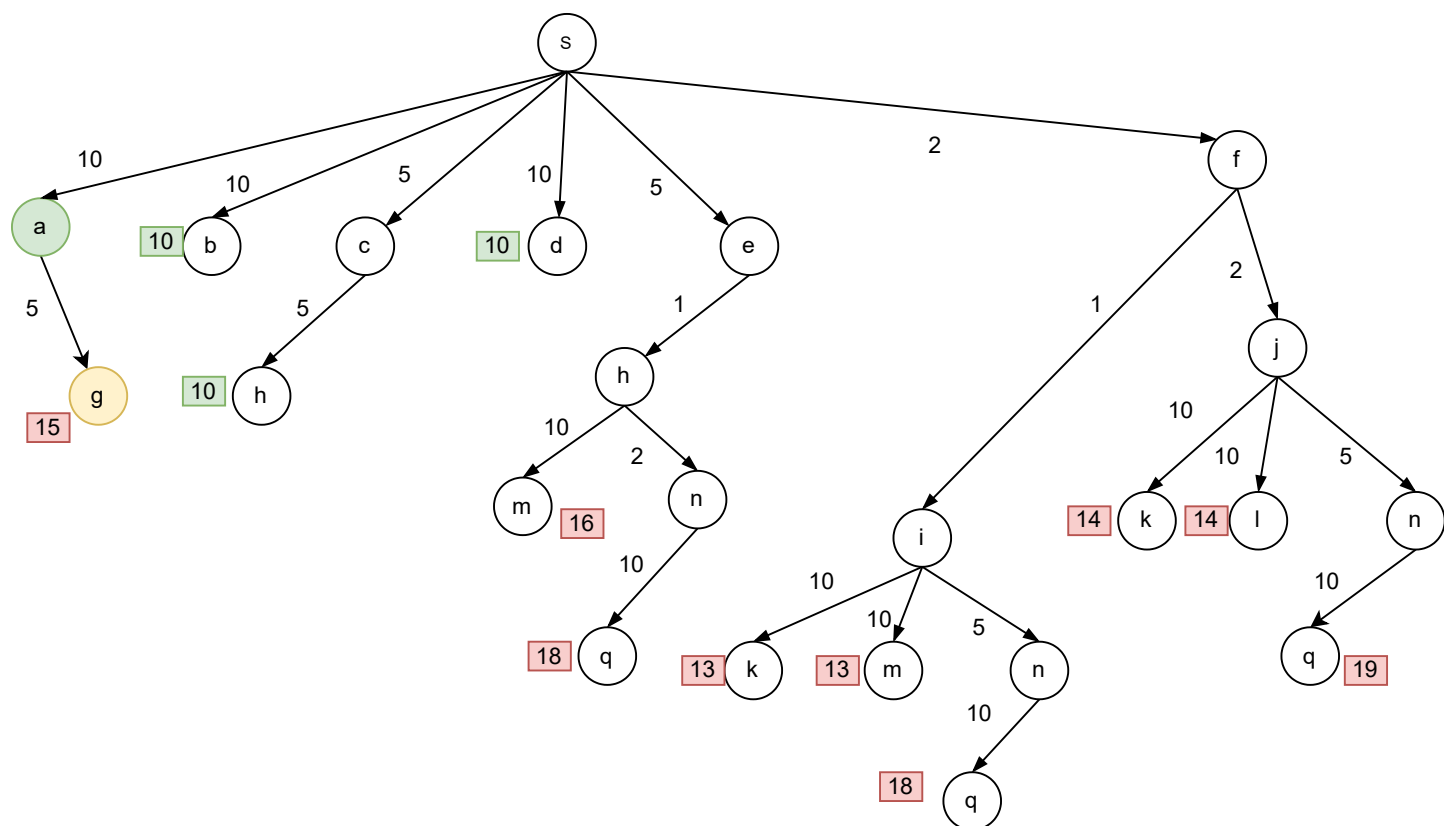
11 repeating step

Visited : S, f, i, j, c, e, h, n

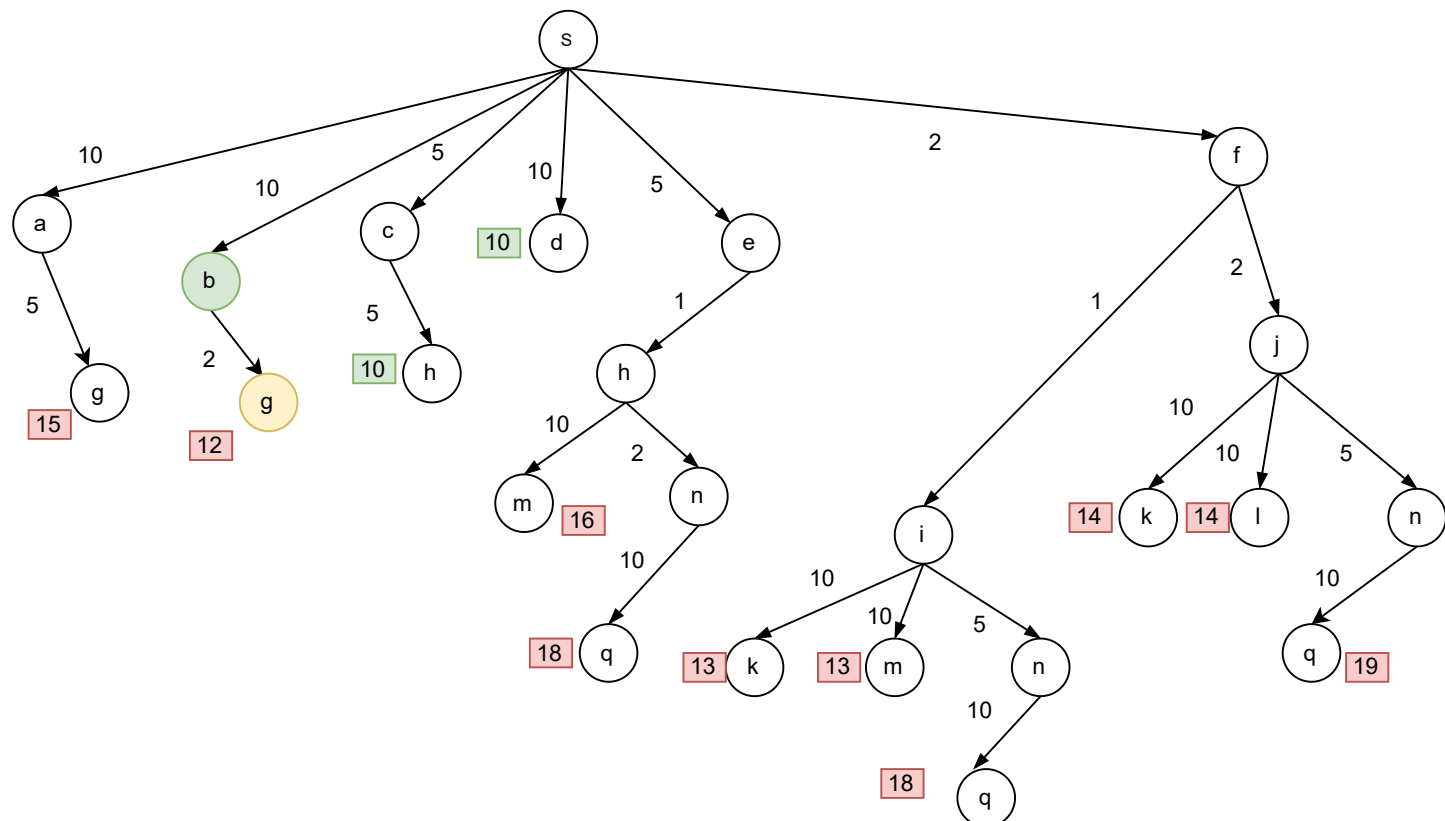
Q : (10, a, S), (10, b, S), (10, d, S), (10, h, c, S),  
 (13, m, i, f, S), (13, k, i, f, S), (14, l, j, f, S), (14, k, j, f, S), (16, m, h, e, S), (18, q, n, h, e, S), (18, q, n, i, f, S), (19, q, n, j, f, S),



Q : (10, b, S), (10, d, S), (10, h, c, S), (13, m, i, f, S), (13, k, i, f, S), (14, l, j, f, S), (14, k, j, f, S), (15, g, a, S), (16, m, h, e, S),  
(18, q, n, h, e, S), (18, q, n, i, f, S), (19, q, n, j, f, S),



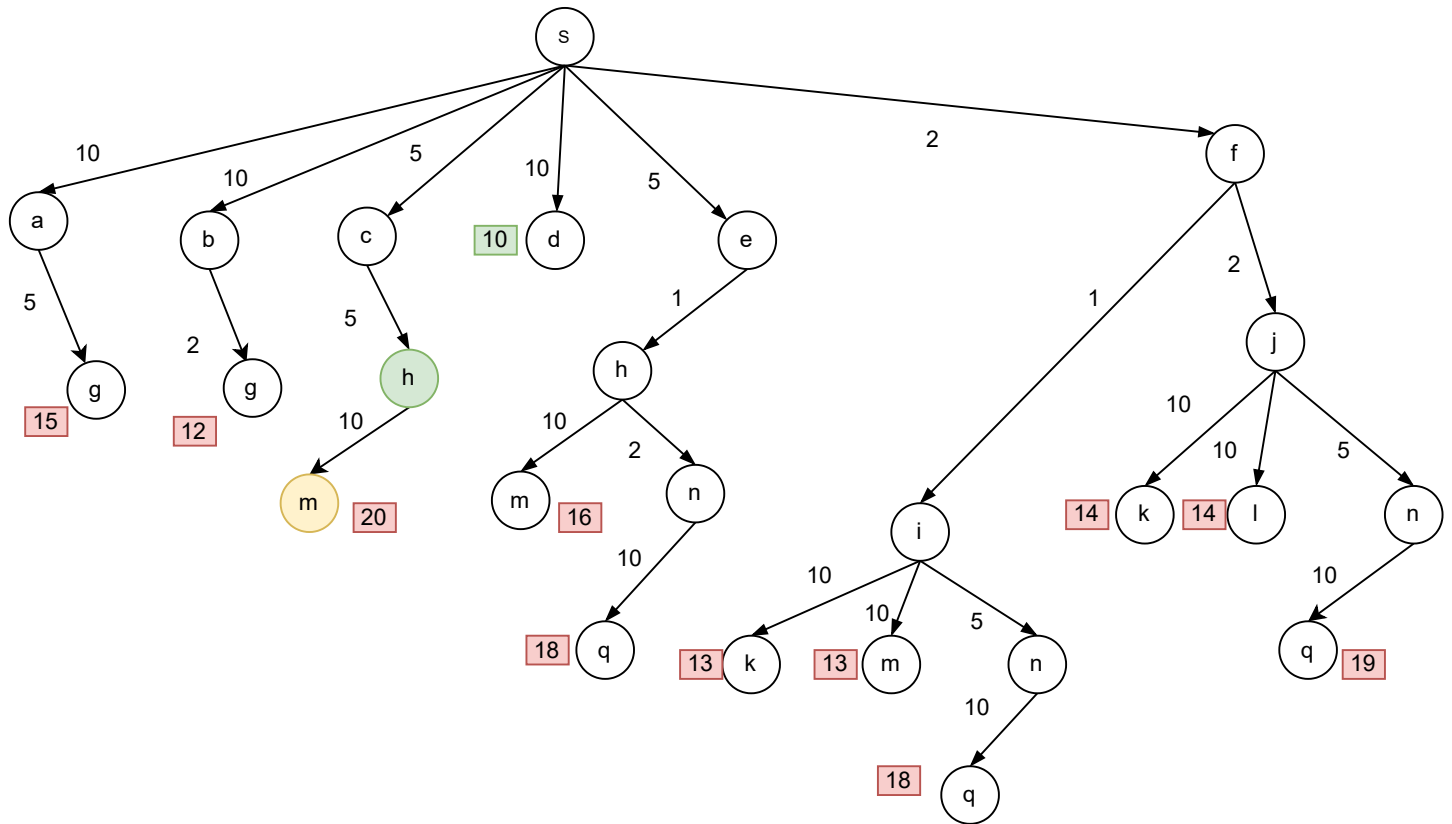
Q : (10, d, S), (10, h, c, S), (12, g, b, S), (13, m, i, f, S), (13, k, i, f, S), (14, l, j, f, S), (14, k, j, f, S), (15, g, a, S), (16, m, h, e, S),  
(18, q, n, h, e, S), (18, q, n, i, f, S), (19, q, n, j, f, S),



14 repeating step

Visited : S, f, i, j, c, e, h, n, a, b

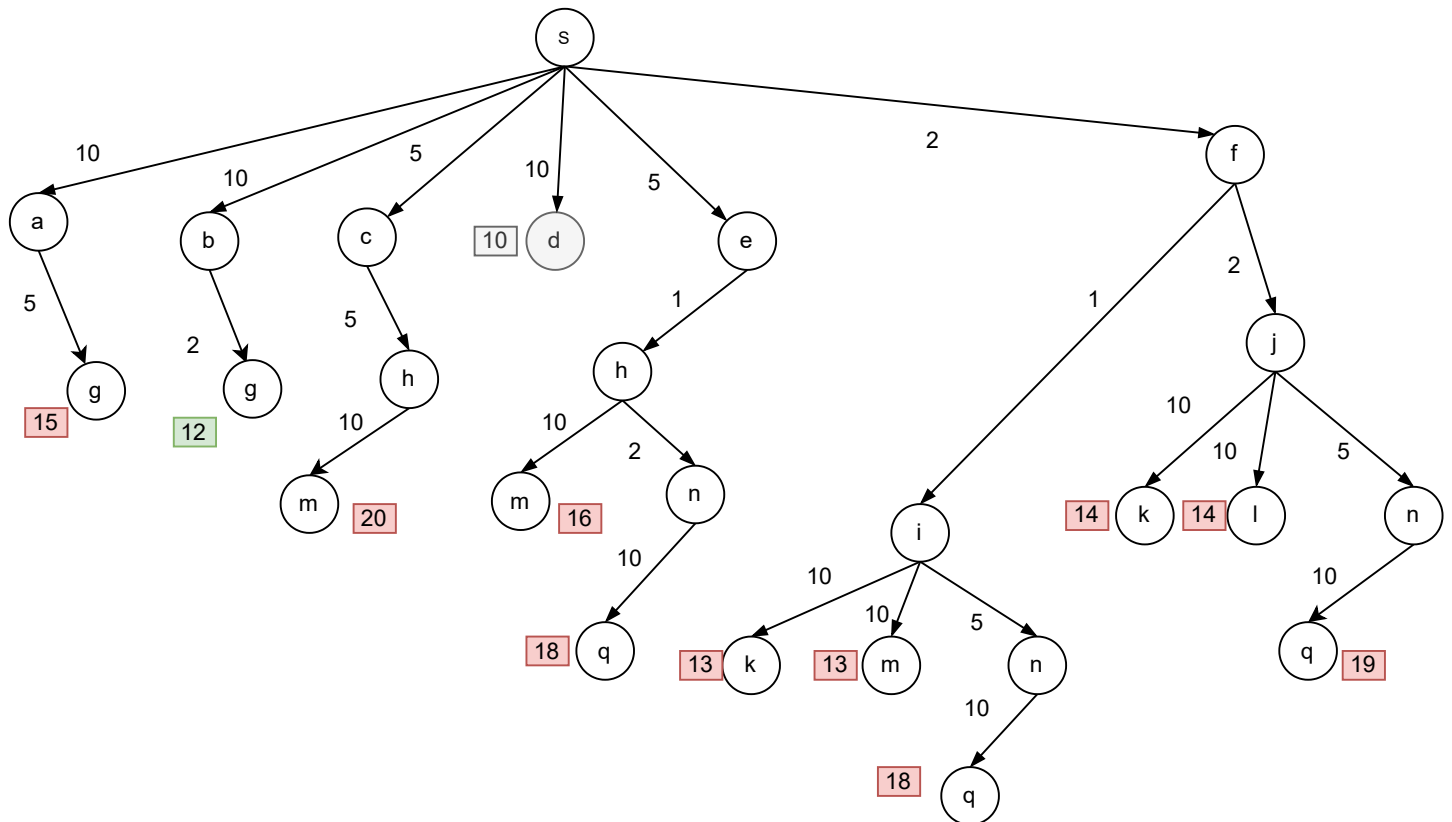
Q : (10, d, S), (12, g, b, S), (13, m, i, f, S), (13, k, i, f, S), (14, l, j, f, S), (14, k, j, f, S), (15, g, a, S), (16, m, h, e, S),  
 (18, q, n, h, e, S), (18, q, n, i, f, S), (19, q, n, j, f, S), (20, m, h, c, S)



15 repeating step

Visited : S, f, i, j, c, e, h, n, a, b, d

Q : (~~10, d, S~~), (12, g, b, S), (13, m, i, f, S), (13, k, i, f, S), (14, l, j, f, S), (14, k, j, f, S), (15, g, a, S), (16, m, h, e, S),  
 (18, q, n, h, e, S), (18, q, n, i, f, S), (19, q, n, j, f, S), (20, m, h, c, S)

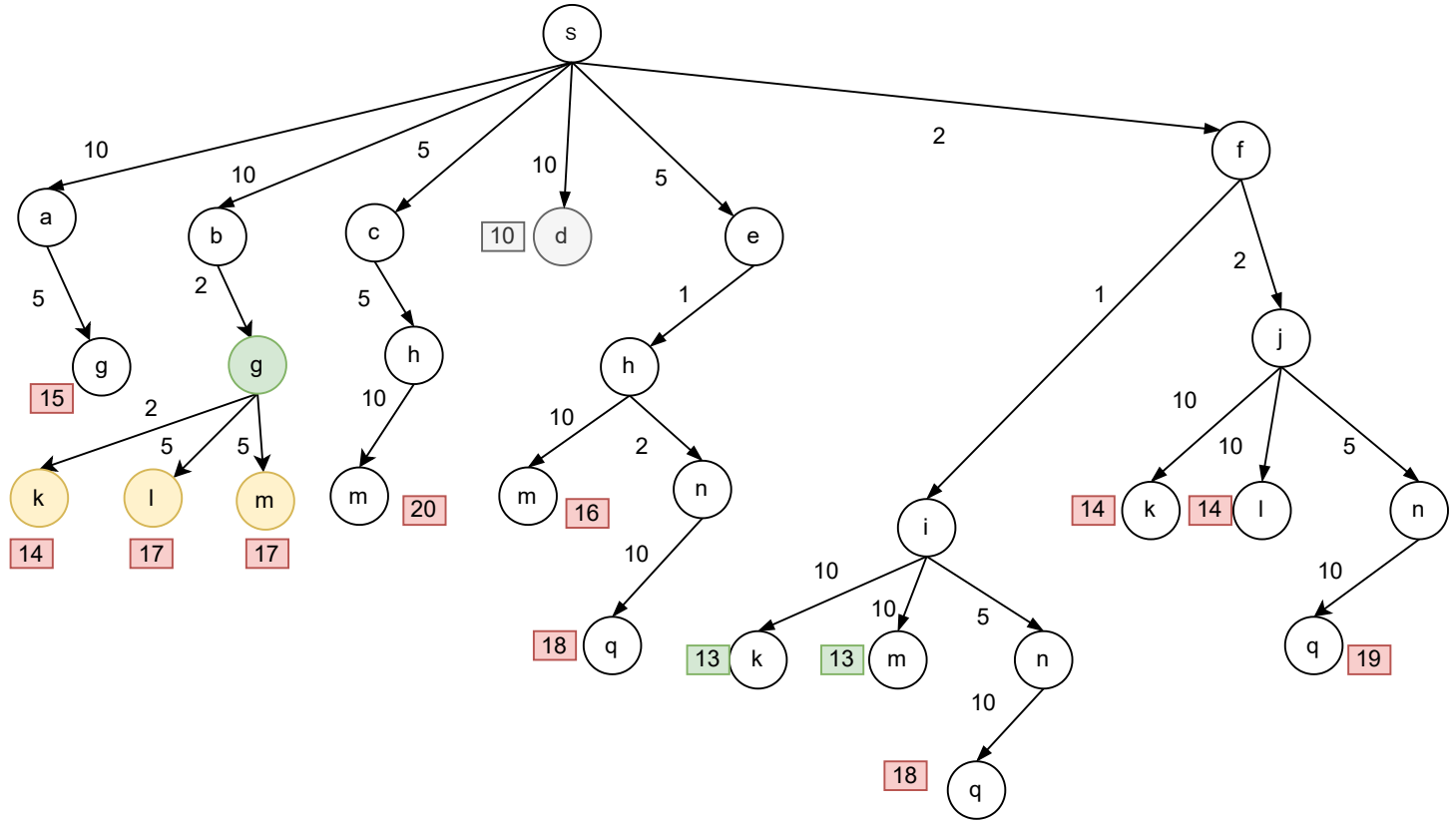


16 repeating step

Visited : S, f, i, j, c, e, h, n, a, b, d, g

uniform cost search

Q : (13, m, i, f, S), (13, k, i, f, S), (14, l, j, f, S), (14, k, j, f, S), (14, k, g, b, S), (15, g, a, S), (16, m, h, e, S), (17, l, g, b, S), (17, m, g, b, S), (18, q, n, h, e, S), (18, q, n, i, f, S), (19, q, n, j, f, S), (20, m, h, c, S)

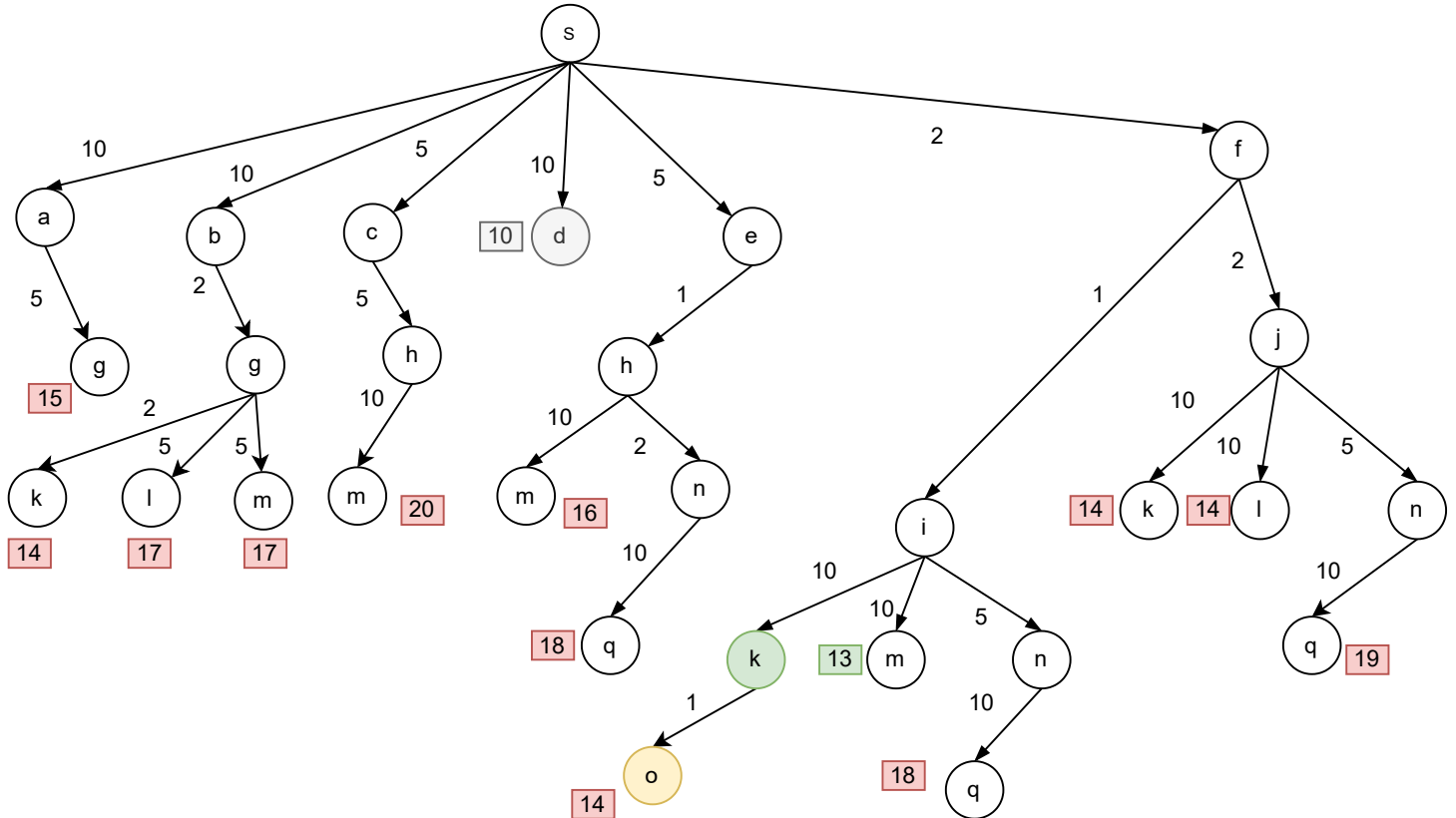


17 repeating step

Visited : S, f, i, j, c, e, h, n, a, b, d, g, k

uniform cost search

Q : (13, m, i, f, S), (14, o, k, i, f, S), (14, l, j, f, S), (14, k, j, f, S), (14, k, g, b, S), (15, g, a, S), (16, m, h, e, S), (17, l, g, b, S), (17, m, g, b, S), (18, q, n, h, e, S), (18, q, n, i, f, S), (19, q, n, j, f, S), (20, m, h, c, S)





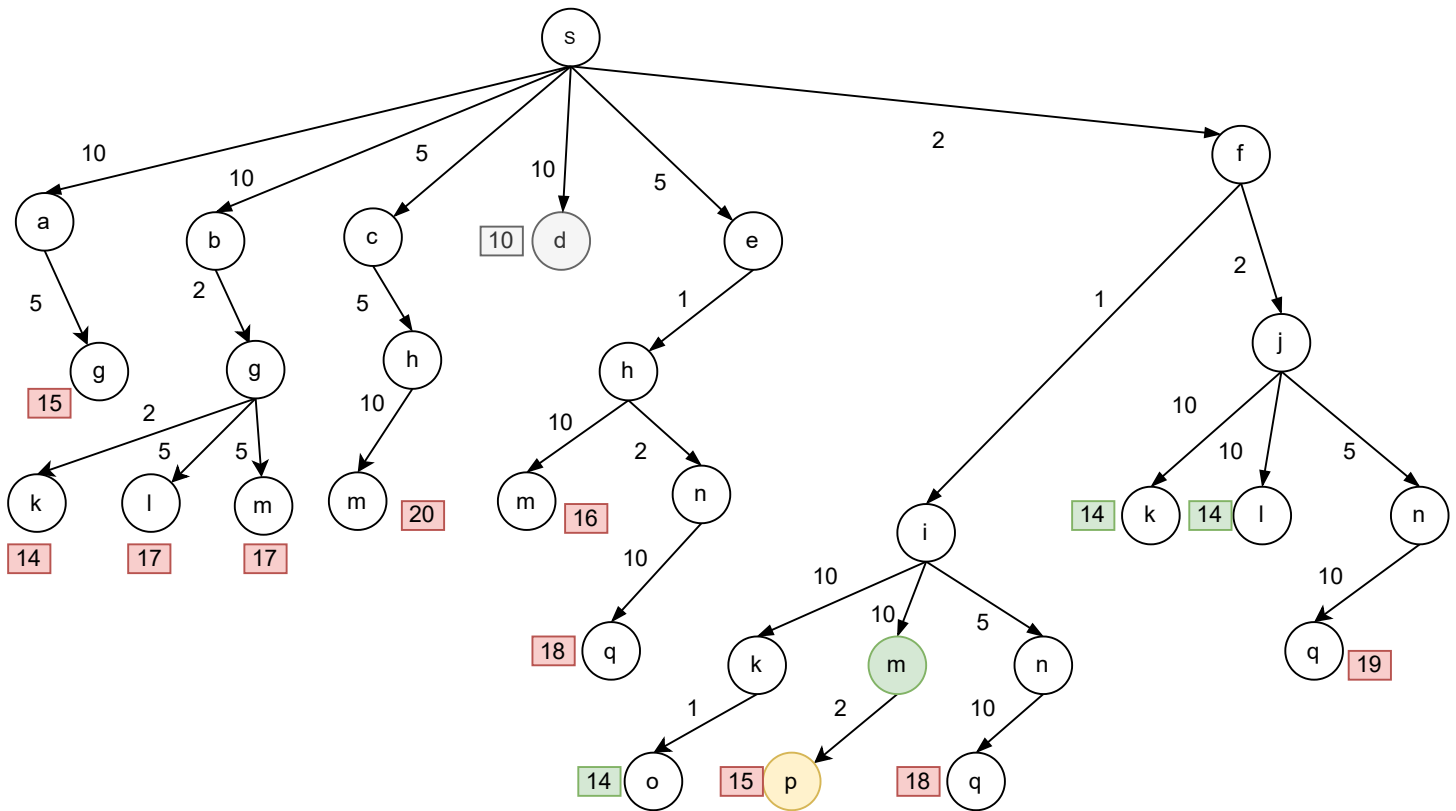
18

repeating step

uniform cost search

Visited : S, f, i, j, c, e, h, n, a, b, d, g, k, m

Q : (14, o, k, i, f, S), (14, l, j, f, S), (14, k, j, f, S), (14, k, g, b, S), (15, g, a, S), (15, p, m, i, f, S),  
 (16, m, h, e, S), (17, l, g, b, S), (17, m, g, b, S), (18, q, n, h, e, S), (18, q, n, i, f, S), (19, q, n, j, f, S), (20, m, h, c, S)



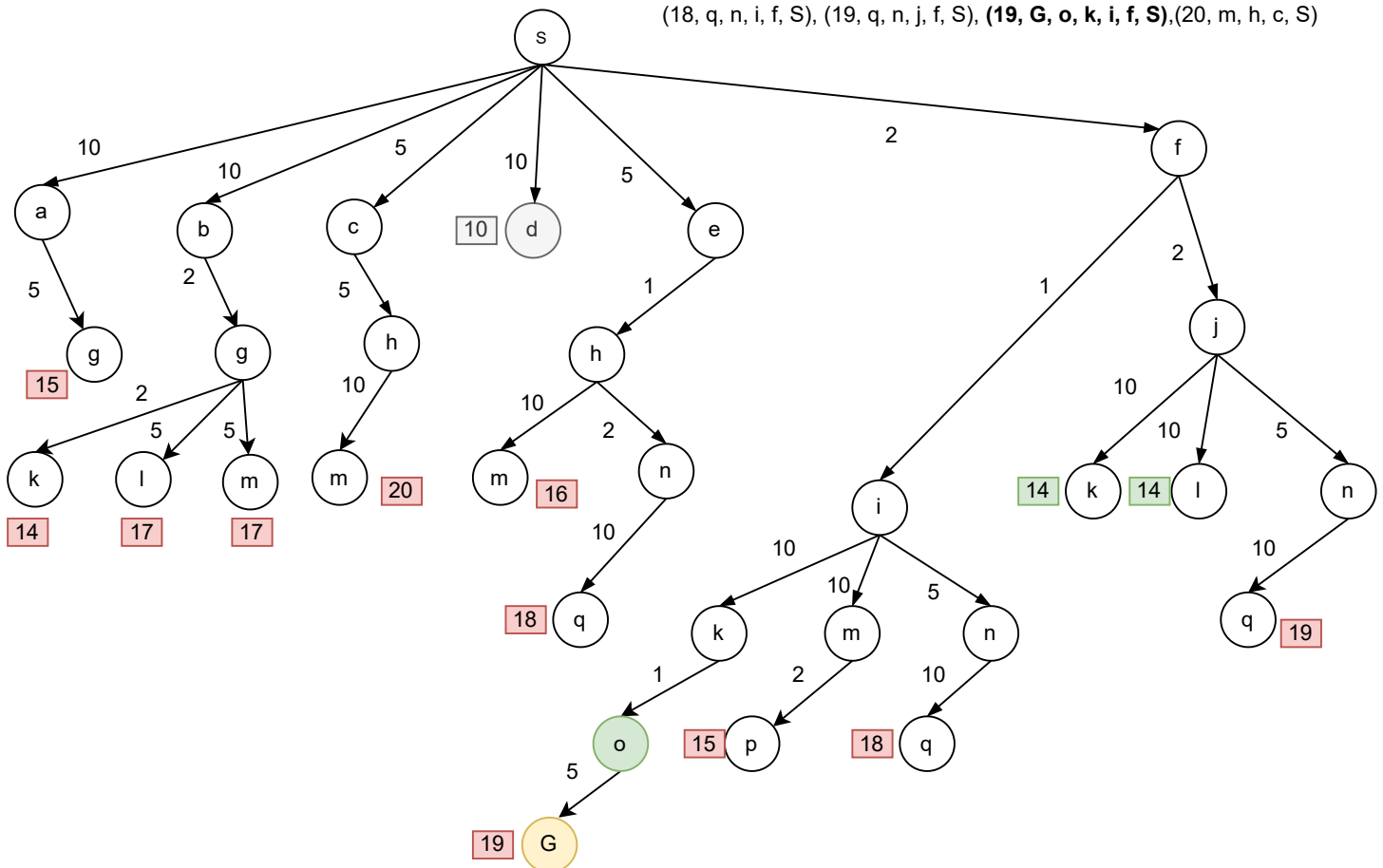
19

repeating step

uniform cost search

Visited : S, f, i, j, c, e, h, n, a, b, d, g, k, m, o

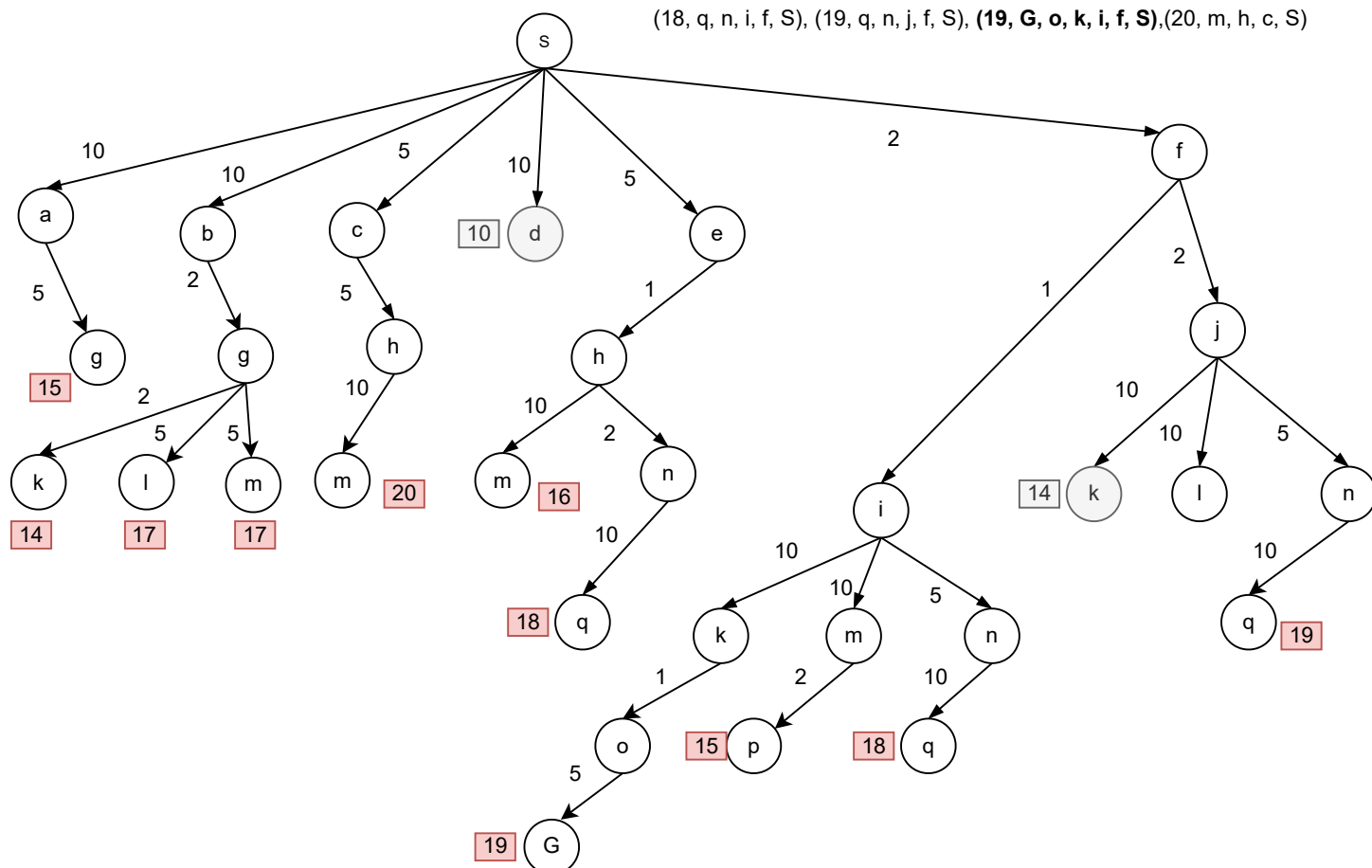
Q : (14, l, j, f, S), (14, k, j, f, S), (14, k, g, b, S), (15, g, a, S), (15, p, m, i, f, S),  
 (16, m, h, e, S), (17, l, g, b, S), (17, m, g, b, S), (18, q, n, h, e, S),  
 (18, q, n, i, f, S), (19, q, n, j, f, S), (19, G, o, k, i, f, S), (20, m, h, c, S)



20 repeating step

Visited : S, f, i, j, c, e, h, n, a, b, d, g, k, m, o

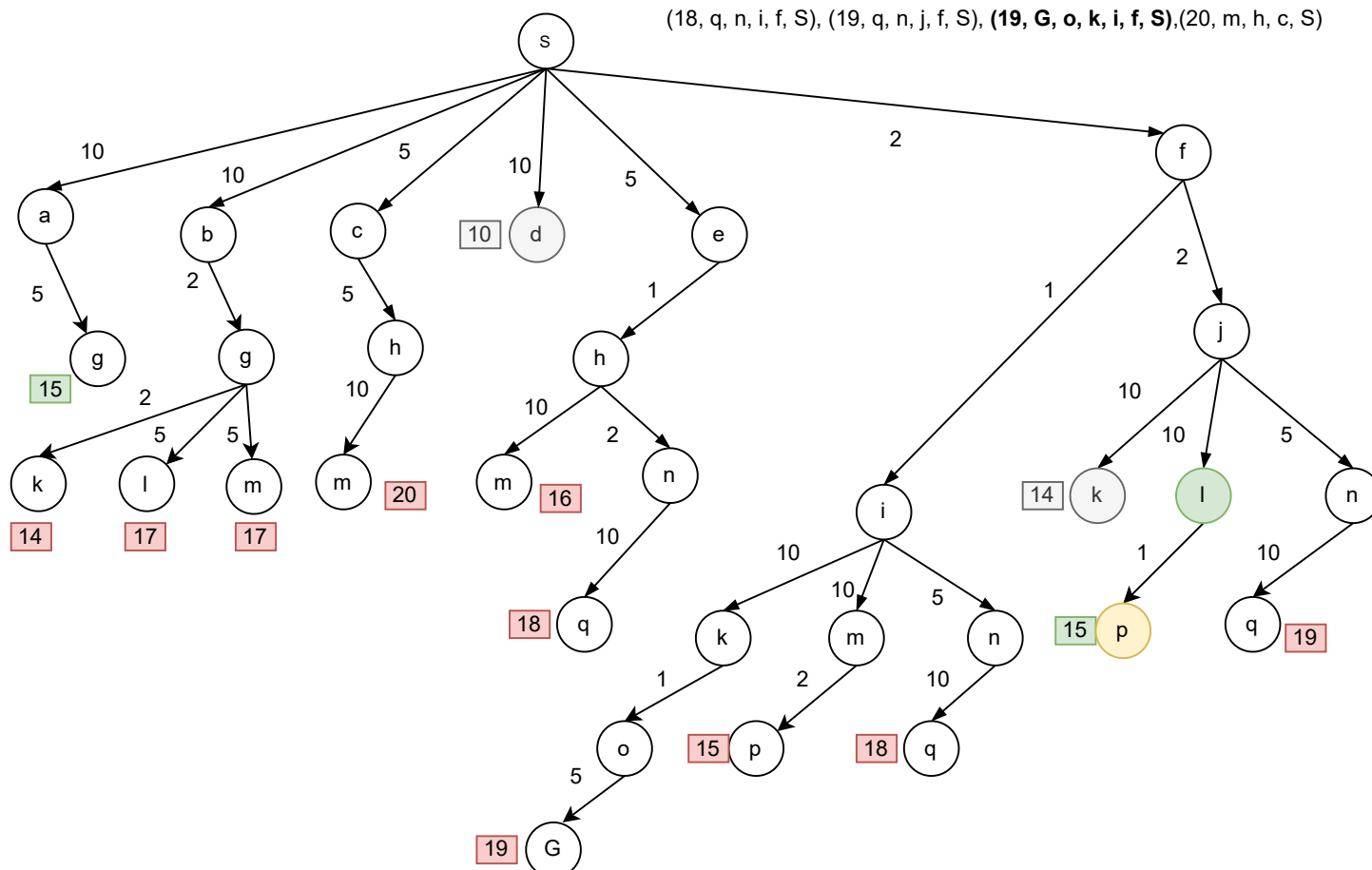
Q : (14, l, j, f, S), (14, k, j, f, S), (14, k, g, b, S), (15, g, a, S), (15, p, m, i, f, S),  
 (16, m, h, e, S), (17, l, g, b, S), (17, m, g, b, S), (18, q, n, h, e, S),  
 (18, q, n, i, f, S), (19, q, n, j, f, S), **(19, G, o, k, i, f, S)**, (20, m, h, c, S)



21 repeating step

Visited : S, f, i, j, c, e, h, n, a, b, d, g, k, m, o, l

Q : (15, p, l, j, f, S), (15, g, a, S), (15, p, m, i, f, S),  
 (16, m, h, e, S), (17, l, g, b, S), (17, m, g, b, S), (18, q, n, h, e, S),  
 (18, q, n, i, f, S), (19, q, n, j, f, S), **(19, G, o, k, i, f, S)**, (20, m, h, c, S)

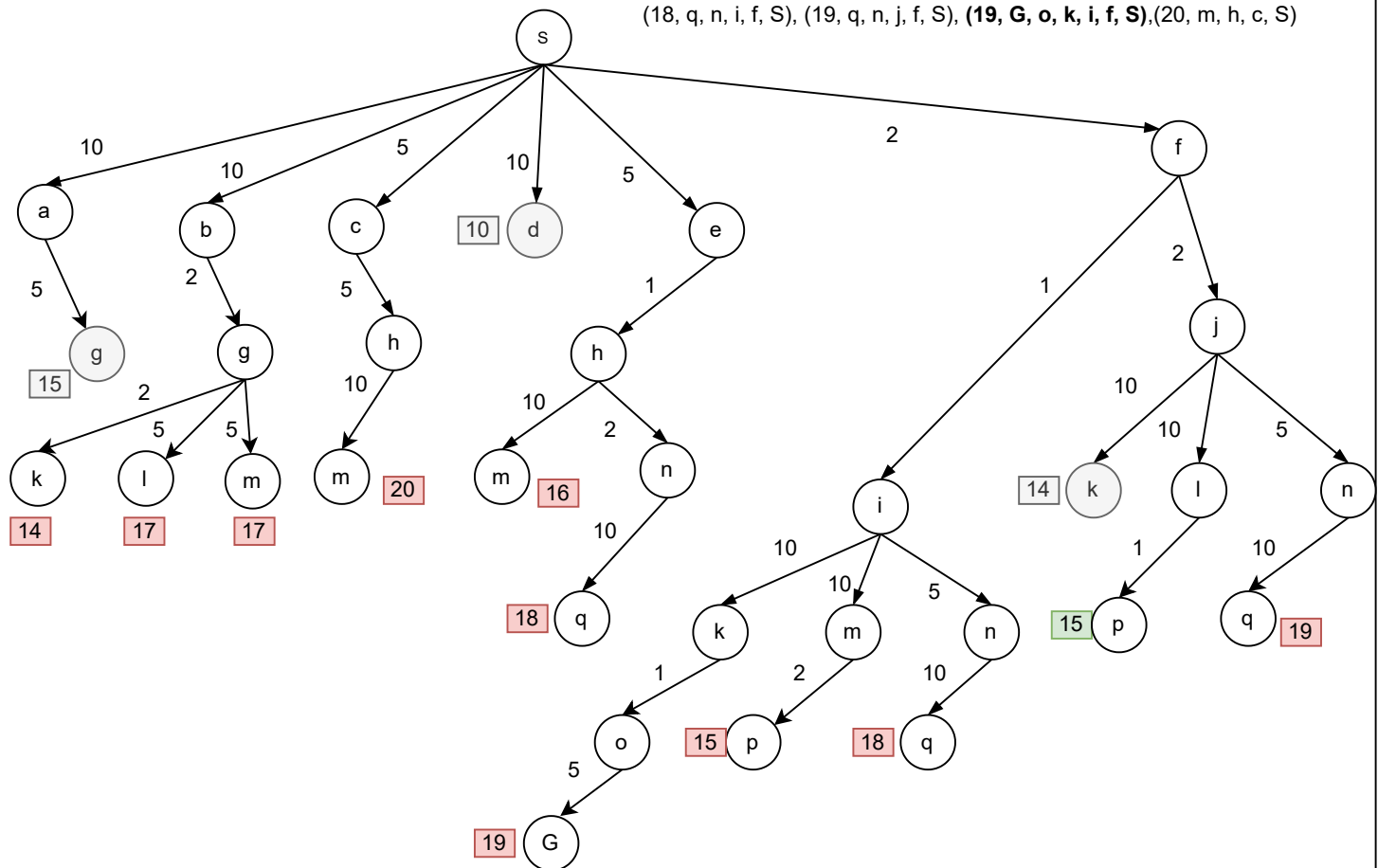


22 repeating step

Visited : S, f, i, j, c, e, h, n, a, b, d, g, k, m, o, l

uniform cost search

Q : ~~(15, p, l, j, f, S)~~, ~~(15, g, a, S)~~, (15, p, m, i, f, S),  
(16, m, h, e, S), (17, l, g, b, S), (17, m, g, b, S), (18, q, n, h, e, S),  
(18, q, n, i, f, S), (19, q, n, j, f, S), **(19, G, o, k, i, f, S)**, (20, m, h, c, S)

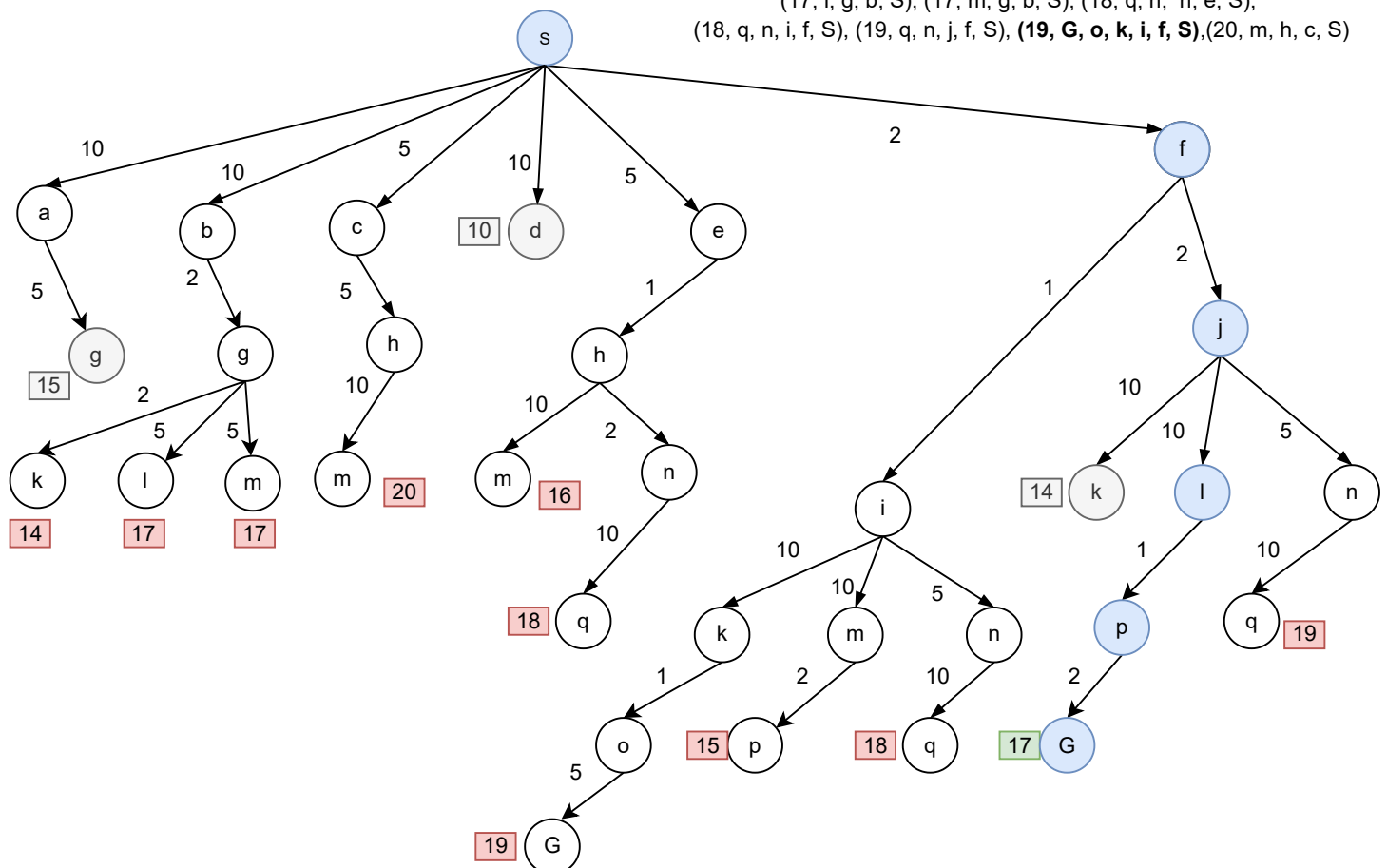


23 repeating step

Visited : S, f, i, j, c, e, h, n, a, b, d, g, k, m, o, l, p

uniform cost search

Q :  
(16, m, h, e, S), (17, G, p, m, i, f, S),  
(17, l, g, b, S), (17, m, g, b, S), (18, q, n, h, e, S),  
(18, q, n, i, f, S), (19, q, n, j, f, S), **(19, G, o, k, i, f, S)**, (20, m, h, c, S)



[illegible]

	Q	Expanded
21	(15, p, l, j, f, S), (15, g, a, S), (15, p, m, i, f, S), (16, m, h, e, S), (17, l, g, b, S), (17, m, g, b, S), (18, q, n, h, e, S), (18, q, n, i, f, S), (19, q, n, j, f, S), (19, G, o, k, i, f, S),(20, m, h, c, S)	S, f, i, j, c, e, h, n, a, b, d, g, k, m, o, l
22	(15, p, m, i, f, S), (16, m, h, e, S), (17, l, g, b, S), (17, m, g, b, S), (18, q, n, h, e, S), (18, q, n, i, f, S), (19, q, n, j, f, S), (19, G, o, k, i, f, S),(20, m, h, c, S)	S, f, i, j, c, e, h, n, a, b, d, g, k, m, o, l
23	(16, m, h, e, S), (17, G, p, m, i, f, S), (17, l, g, b, S), (17, m, g, b, S), (18, q, n, h, e, S), (18, q, n, i, f, S), (19, q, n, j, f, S), (19, G, o, k, i, f, S),(20, m, h, c, S)	S, f, i, j, c, e, h, n, a, b, d, g, k, m, o, l, p
	17, G, p, m, i, f, S)	S, f, i, j, c, e, h, n, a, b, d, g, k, m, o, l, p