Aufgabe 1:

1.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| d | j | i | e | b | g | c | h | a | f |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| j | d | i | e | b | g | c | h | a | f |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| j | d | i | h | b | g | c | e | a | f |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| j | h | i | d | b | g | c | e | a | f |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| j | h | i | e | b | g | c | d | a | f |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| j | h | i | e | f | g | c | d | a | b |

2.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| d | j | i | e | b | g | c | h | a | f |

Pivot-Element = d

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| b | c | a | d | j | i | e | g | h | f |

Aufgabe 2:

n ∈ ℕ

h := log2(n + 1) – 1

b := 2 ^ h – 1

r := n - 1 - 2 \* b

r1 := r - floor(r / 2 ^ h) \* (r - 2 ^ h)

r2 := r - r1

hc(n) = binomial(n - 1, b + r1) \* a[b + r1] \* a[b + r2] for n > 1, hc(0) = hc(1) = 1

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| n | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| hc(n) | 1 | 1 | 1 | 2 | 3 | 8 | 20 | 80 | 210 | 896 | 3360 |

|  |  |  |
| --- | --- | --- |
| n | 18 | 36 |
| hc(n) | 5227622400 | 22776026674855816986624000000 |