**TUGAS DESAIN DAN ANALISA ALGORITMA (KJ001)**

# N-Queens Problem

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**DISUSUN OLEH:**

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1. n = 14

**-**  Modulus n dengan 12. Remainder = 2

**-** List = (2,4,6,8,10,12)

**-** List = (2,4,6,8,10,12,14,1,3,5,7,9,11,13)

**-** List = (2,4,6,8,10,12,14,3,1,7,9,11,13,5)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 1 |  |  |  |  |  |  |  |  | \* |  |  |  |  |  |
| 2 | \* |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |  | \* |  |  |  |  |  |  |
| 4 |  | \* |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 |  |  |  |  |  |  |  |  |  |  |  |  |  | \* |
| 6 |  |  | \* |  |  |  |  |  |  |  |  |  |  |  |
| 7 |  |  |  |  |  |  |  |  |  | \* |  |  |  |  |
| 8 |  |  |  | \* |  |  |  |  |  |  |  |  |  |  |
| 9 |  |  |  |  |  |  |  |  |  |  | \* |  |  |  |
| 10 |  |  |  |  | \* |  |  |  |  |  |  |  |  |  |
| 11 |  |  |  |  |  |  |  |  |  |  |  | \* |  |  |
| 12 |  |  |  |  |  | \* |  |  |  |  |  |  |  |  |
| 13 |  |  |  |  |  |  |  |  |  |  |  |  | \* |  |
| 14 |  |  |  |  |  |  | \* |  |  |  |  |  |  |  |

2. n = 20

**-** Modulus n dengan 12. Remainder = 8

**-** List = (2,4,6,8,10,12,14,16,18,20)

**-** List = (2,4,6,8,10,12,14,16,18,20,3,1,7,5,11,9,15,13,19,17)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 1 |  |  |  |  |  |  |  |  |  |  |  | \* |  |  |  |  |  |  |  |  |
| 2 | \* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |  |  |  |  | \* |  |  |  |  |  |  |  |  |  |
| 4 |  | \* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 |  |  |  |  |  |  |  |  |  |  |  |  |  | \* |  |  |  |  |  |  |
| 6 |  |  | \* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7 |  |  |  |  |  |  |  |  |  |  |  |  | \* |  |  |  |  |  |  |  |
| 8 |  |  |  | \* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | \* |  |  |  |  |
| 10 |  |  |  |  | \* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | \* |  |  |  |  |  |
| 12 |  |  |  |  |  | \* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 13 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | \* |  |  |
| 14 |  |  |  |  |  |  | \* |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 15 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | \* |  |  |  |
| 16 |  |  |  |  |  |  |  | \* |  |  |  |  |  |  |  |  |  |  |  |  |
| 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | \* |
| 18 |  |  |  |  |  |  |  |  | \* |  |  |  |  |  |  |  |  |  |  |  |
| 19 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | \* |  |
| 20 |  |  |  |  |  |  |  |  |  | \* |  |  |  |  |  |  |  |  |  |  |

# Puzzle 3 x 3

**Nilai awal : Goal :**

|  |  |  |
| --- | --- | --- |
| 1 | 2 | 3 |
| 8 |  | 4 |
| 7 | 6 | 5 |

|  |  |  |
| --- | --- | --- |
| 2 | 8 | 3 |
| 1 | 6 | 4 |
| 7 |  | 5 |

# 

f(n) = g(n) + h(n)

g(n) = kedalaman pohon

h(n) = jumlah angka yang salah posisi

**Jawab**

(2,8,3,1,6,4,7,blank,5)

f(n)=0+5=5

|  |  |  |
| --- | --- | --- |
| 2 | 8 | 3 |
| 1 | 6 | 4 |
| 7 |  | 5 |

|  |  |  |
| --- | --- | --- |
| 2 | 8 | 3 |
| 1 |  | 4 |
| 7 | 6 | 5 |

|  |  |  |
| --- | --- | --- |
| 2 | 8 | 3 |
| 1 | 6 | 4 |
|  | 7 | 5 |

|  |  |  |
| --- | --- | --- |
| 2 | 8 | 3 |
| 1 | 6 | 4 |
| 7 | 5 |  |

Level 1

(2,8,3,1,blank,4,7,6,5) (2,8,3,1,6,4,blank7,5) (2,8,3,1,6,4,7,5,blank)

f(n) = 1+4 f(n) = 1+6=7 f(n) = 1+6=7

|  |  |  |
| --- | --- | --- |
| 2 |  | 3 |
| 1 | 8 | 4 |
| 7 | 6 | 5 |

|  |  |  |
| --- | --- | --- |
| 2 | 8 | 3 |
|  | 1 | 4 |
| 7 | 6 | 5 |

|  |  |  |
| --- | --- | --- |
| 2 | 8 | 3 |
| 1 | 4 |  |
| 7 | 6 | 5 |

Level 2

(2,blank,3,1,8,4,7,6,5) (2,8,3,blank,1,4,7,6,5) (2,8,3,1,4,blank,7,6,5)

f(n) = 1+4= 5 f(n)= 2+4=6 f(n)=2+5=7

|  |  |  |
| --- | --- | --- |
|  | 2 | 3 |
| 1 | 8 | 4 |
| 7 | 6 | 5 |

|  |  |  |
| --- | --- | --- |
| 2 | 3 |  |
| 1 | 8 | 4 |
| 7 | 6 | 5 |

|  |  |  |
| --- | --- | --- |
|  | 8 | 3 |
| 2 | 1 | 4 |
| 7 | 6 | 5 |

|  |  |  |
| --- | --- | --- |
| 2 | 8 | 3 |
| 7 | 1 | 4 |
|  | 6 | 5 |

Level 3

(blank,2,3,1,8,4,7,6,5) (2,3,blank,1,8,4,7,6,5) (blank,8,3,2,1,4,7,6,5) (2,8,3,7,1,4,blank,6,5)

f(n)= 3+3=6 f(n)= 3+5=8 f(n)= 3+4=7 f(n)=3+4=7

|  |  |  |
| --- | --- | --- |
| 1 | 2 | 3 |
|  | 8 | 4 |
| 7 | 6 | 5 |

Level 4

|  |  |  |
| --- | --- | --- |
| 1 | 2 | 3 |
| 8 |  | 4 |
| 7 | 6 | 5 |

(1,2,3,blank,8,4,7,6,5)

f(n) = 4+2=6

Level 5

(1,2,3,8,blank,4,7,6,5)

f(n) = 5+0=5