Bài tập kiểm thử dòng dữ liệu

Bài 1:

Các bước trong quy trình kiểm thử dòng dữ liệu động:

* Vẽ đồ thị luồng điều khiển (CFG).
* Lựa chọn tiêu chí kiểm thử luồng dữ liệu.
* Xác định các đường đi trên CFG thoả mãn tiêu chí kiểm thử đã chọn.
* Sinh các ca kiểm thử tương ứng.

Bài 2:

A diagram of a function

Description automatically generatedCFG:

def(x) = {1, 5} c-use(x) = {4, 6} p-use(x) = {3}

def(y) = {1, 4} c-use(y) = {4, 6} p-use(y) = {2}

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | Du-pair | Def-clear path | Complete path | Test case |
| x | (1, 4) | 1, 2 (T), 3 (T), 4 | 1, 2 (T), 3 (T), 4, 2 (F), 6 | input(3, 2) |
| (1, 6) | 1, 2 (T), 3 (T), 2 (F), 6 | 1, 2 (T), 3 (T), 4, 2 (F), 6 | input(3, 2) |
| (1, 3(T)) | 1, 2 (T), 3 (T) | 1, 2 (T), 3 (T), 4, 2 (F), 6 | input(3, 2) |
| (1, 3(F)) | 1, 2 (T), 3 (F) | 1, 2 (T), 3 (F), 5, 2 (T), 3 (T), 4, 2(F), 6 | input(-1, 3)  input(4) |
| (5, 4) | 5, 2 (T), 3 (T), 4 | 1, 2 (T), 3 (F), 5, 2 (T), 3 (T), 4, 2 (F), 6 | input(-1, 3)  input(4) |
| (5, 6) | 5, 2 (F), 6 | 1, 2 (T), 3 (F), 5, 2 (T), 3 (T), 4, 2 (F), 6 | input(-1, 3)  input(4) |
| (5, 3(T)) | 5, 2 (T), 3 (T) | 1, 2 (T), 3 (F), 5, 2 (T), 3 (T), 4, 2(F), 6 | input(-1, 3)  input(4) |
| (5, 3(F)) | 5, 2 (T), 3 (F) | 1, 2 (T), 3 (F), 5, 2(T), 3(F), 5, 2 (F), 6 | input(-1, 3)  input(-2)  input(4) |
| y | (1, 4) | 1, 2 (T), 3 (T), 4 | 1, 2 (T), 3 (T), 4, 2 (F), 6 | input(3, 2) |
| (1, 6) | 1, 2 (T), 3 (T), 2 (F), 6 | 1, 2 (T), 3 (T), 4, 2 (F), 6 | input(3, 2) |
| (1, 2(T)) | 1, 2 (T), 3 (T), 2 (F), 6 | 1, 2 (T), 3 (T), 4, 2 (F), 6 | input(3, 2) |
| (1, 2(F)) | 1, 2 (F) | 1, 2(F), 6 | input(3,0) |
| (4, 4) | 4, 2 (T), 3 (T), 4 | 1, 2 (T), 3 (T), 4, 2 (F), 6 | input(5, 4) |
| (4, 6) | 4, 2 (F), 6 | 1, 2 (T), 3 (T), 4, 2 (F), 6 | input(5, 4) |
| (4, 2(T)) | 4, 2 (T) | 1, 2 (T), 3 (T), 4, 2 (T), 3 (T), 4, 2 (F), 6 | input (3, 5) |
| (4, 2(F) | 4, 2 (F) | 1, 2 (T), 3 (T), 4, 2 (F), 6 | input(5, 4) |

Bài 3:

Def(n): calFactorial(int n)

p-use(n): while (i <= n)

def(result):

* int result = 1
* result = result \* i

c-use(result):

* result = result \* i
* return result

def(i):

* int i = 1
* i++

c-use(i):

* result = result \* i
* i++

p-use(i): while (i <= n)

A diagram of a algorithm

Description automatically generatedCFG:

Bài 4:

Def-clear-path(x):

* 0 🡪 1 (T)
* 0 🡪 1 (F)
* 0 🡪 1 🡪 2 🡪 4 (T)
* 0 🡪 1 🡪 2 🡪 4 (F)
* 0 🡪 1 🡪 2 🡪 4 🡪 5
* 3 🡪 4 (T)
* 3 🡪 4 (F)
* 3 🡪 4 🡪 5

Def-clear-path(y)

* 0 🡪 1 (T)
* 0 🡪 1 (F)
* 0 🡪 1 🡪 3 🡪 4 (T)
* 0 🡪 1 🡪 3 🡪 4 (F)
* 0 🡪 1 🡪 3 🡪 4 🡪 6
* 2 🡪 4 (T)
* 2 🡪 4 (F)
* 2 🡪 4 🡪 6
* 5 🡪 6

Du-path(x):

* 0 🡪 1 (T)
* 0 🡪 1 (F)
* 0 🡪 1 🡪 3
* 0 🡪 1 🡪 2 🡪 4 (T)
* 0 🡪 1 🡪 2 🡪 4 (F)
* 0 🡪 1 🡪 2 🡪 4 🡪 5
* 3 🡪 4 (T)
* 3 🡪 4 (F)
* 3 🡪 4 🡪 5

Du-path(y):

* 0 🡪 1 (T)
* 0 🡪 1 (F)
* 0 🡪 1 🡪 3 🡪 4 (T)
* 0 🡪 1 🡪 3 🡪 4 (F)
* 0 🡪 1 🡪 3 🡪 4 🡪 6
* 2 🡪 4 (T)
* 2 🡪 4 (F)
* 2 🡪 4 🡪 6
* 5 🡪 6

Với x + y = 4, x2 + y2 > 17

* 1 (T) 🡪 3, 4 (T) 🡪 5: Có thể xảy ra do hệ có nghiệm.
* 1 (T) 🡪 3, 4 (F) 🡪 5: Có thể xảy ra do hệ có nghiệm
* 1 (F) 🡪 3, 4 (F) 🡪 5: Có thể xảy ra do hệ có nghiệm
* 1 (F) 🡪 3, 4 (T) 🡪 5: Có thể xảy ra do hệ có nghiệm

Vậy đường đi 0 🡪 1 🡪 3 🡪 4 🡪 5 🡪 6 có thể được thực thi

Không tồn tại mối quan hệ def – use là 3 – 3 do không có du-path thoả mãn 3 – 3.

A diagram of a flowchart

Description automatically generatedBài 5:

Đường đi và các ca kiểm thử ứng với độ phủ C2:

* 0 🡪 1 (F) 🡪 3 (T) 🡪 4 🡪 5 (T) 🡪 6. UCLN(0, -3)
* 0 🡪 1 (T) 🡪 3 (F) 🡪 5 (F) 🡪 7 (T) 🡪 8. UCLN(-2, 0)
* 0 🡪 1 (F) 🡪 3 (F) 🡪 5 (F) 🡪 7 (F) 🡪 9 (F) 🡪 13. UCLN(9, 9)
* 0 🡪 1 (F) 🡪 3 (F) 🡪 5 (F) 🡪 7 (F) 🡪 9 (T) 🡪 10 (T) 🡪 11 🡪 9 (F) 🡪 13. UCLN(18, 9)
* 0 🡪 1 (F) 🡪 3 (F) 🡪 5 (F) 🡪 7 (F) 🡪 9 (T) 🡪 10 (F) 🡪 12 🡪 9 (F) 🡪 13. UCLN(10, 20)

Đường đi và ca kiểm thử với độ đo all-def:

Def(m) = {0, 2, 11} c-use(m) = {2, 8, 11, 12, 13} p-use(m) = {1, 5, 9, 10}

Def(n) = {0, 4, 12} c-use(n) = {4, 6, 11, 12} p-use(n) = {3, 7, 9, 10}

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | du-pair | def-clear path | Complete path | Test case |
| m | (0, 2) | 0 🡪 1 (T) 🡪 2 | 0 🡪 1 (T) 🡪 2 🡪 3 (F) 🡪 5 (F) 🡪 7 (T) 🡪 8 | UCLN(-9, 0) |
| (2, 8) | 2 🡪 3 (F) 🡪 5 (F) 🡪 7 (T) 🡪 8 | 0 🡪 1 (T) 🡪 2 🡪 3 (F) 🡪 5 (F) 🡪 7 (T) 🡪 8 | UCLN(-9, 0) |
| (11, 13) | 11 🡪 9 (F) 🡪 13 | 0 🡪 1 (F) 🡪 3 (F) 🡪 5 (F) 🡪 7 (F) 🡪 9 (T) 🡪 10 (T) 🡪 11 🡪 9 (F) 🡪 13 | UCLN(10, 5) |
| n | (0, 4) | 0 🡪 1 (F) 🡪 3 (T) 🡪 4 | 0 🡪 1 (F) 🡪 3 (T) 🡪 4 🡪 5 (T) 🡪 6 | UCLN(0, -8) |
| (4, 6) | 4 🡪 5 (T) 🡪 6 | 0 🡪 1 (F) 🡪 3 (T) 🡪 4 🡪 5 (T) 🡪 6 | UCLN(0, -8) |
| (12, 13) | 12 🡪 9 (F) 🡪 13 | 0 🡪 1 (F) 🡪 3 (F) 🡪 5 (F) 🡪 7 (F) 🡪 9 (T) 🡪 10 (F) 🡪 12 🡪 9 (F) 🡪 13 | UCLN(6, 12) |

Bài 6:

Các ca kiểm thử được viết tại file TestCase4.java

A diagram of a flowchart

Description automatically generatedHàm isLeapYear(int year)

def(year) = {0} c-use(year) = {2, 5, 6, 8, 9} p-use(year) = {1, 3, 4, 7}

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | du-pair | def-clear path | Complete path | Test case |
| year | (0, 2) | 0 🡪 1 (T) 🡪 2 | 0 🡪 1 (T) 🡪 2 | isLeapYear(1918) |
| (0, 5) | 0 🡪 1 (F) 🡪 3 (T) 🡪 4 (T) 🡪 5 | 0 🡪 1 (F) 🡪 3 (T) 🡪 4 (T) 🡪 5 | isLeapYear(1906) |
| (0, 6) | 0 🡪 1 (F) 🡪 3 (T) 🡪 4 (F) 🡪 6 | 0 🡪 1 (F) 🡪 3 (T) 🡪 4 (F) 🡪 6 | isLeapYear(1905) |
| (0, 8) | 0 🡪 1 (F) 🡪 3 (F) 🡪 7 (T) 🡪 8 | 0 🡪 1 (F) 🡪 3 (F) 🡪 7 (T) 🡪 8 | isLeapYear(2000) |
| (0, 9) | 0 🡪 1 (F) 🡪 3 (F) 🡪 7 (F) 🡪 9 | 0 🡪 1 (F) 🡪 3 (F) 🡪 7 (F) 🡪 9 | isLeapYear(2001) |
| (0, 1(T)) | 0 🡪 1 (T) | 0 🡪 1 (T) 🡪 2 | isLeapYear(1918) |
| (0, 1(F)) | 0 🡪 1 (F) | 0 🡪 1 (F) 🡪 3 (T) 🡪 4 (T) 🡪 5 | isLeapYear(1905) |
| (0, 3(T)) | 0 🡪 1 (F) 🡪 3 (T) | 0 🡪 1 (F) 🡪 3 (T) 🡪 4 (T) 🡪 5 | isLeapYear(1905) |
| (0, 3(F)) | 0 🡪 1 (F) 🡪 3 (F) | 0 🡪 1 (F) 🡪 3 (F) 🡪 7 (F) 🡪 9 | isLeapYear(2001) |
| (0, 4(T)) | 0 🡪 1 (F) 🡪 3 (T) 🡪 4 (T) | 0 🡪 1 (F) 🡪 3 (T) 🡪 4 (T) 🡪 5 | isLeapYear(1905) |
| (0, 4(F)) | 0 🡪 1 (F) 🡪 3 (T) 🡪 4 (F) | 0 🡪 1 (F) 🡪 3 (T) 🡪 4 (F) 🡪 6 | isLeapYear(1905) |
| (0, 7(T)) | 0 🡪 1 (F) 🡪 3 (F) 🡪 7 (T) | 0 🡪 1 (F) 🡪 3 (F) 🡪 7 (T) 🡪 8 | isLeapYear(2000) |
| (0, 7(F)) | 0 🡪 1 (F) 🡪 3 (F) 🡪 7 (F) | 0 🡪 1 (F) 🡪 3 (F) 🡪 7 (F) 🡪 9 | isLeapYear(2001) |

A diagram of a flowchart

Description automatically generatedHàm getDaysInMonth(int year, int month)

Chú thích:

array1 = {31, 15, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31}

array2 = {31, 28, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31}

def(year) = {0} c-use(year) = {2} p-use(year) = {3}

def(month) = {0} p-use(month) = {6}

def(daysInMonth) = {1, 4, 5} c-use(daysInMonth) = {8}

def(isLeapYear) = {2} p-use(isLeapYear) = {6}

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | du-pair | def-clear path | Complete path | Test case |
| year | (0, 2) | 0 🡪 1 🡪 2 | 0 🡪 1 🡪 2 🡪 3 (F) 🡪 5 🡪 6 (T) 🡪 7 | getDaysInMonth(2000, 2) |
| (0, 3(T)) | 0 🡪 1 🡪 2 🡪 3 (T) | 0 🡪 1 🡪 2 🡪 3 (T) 🡪 4 🡪 6 (F) 🡪 8 | getDaysInMonth(1918, 9) |
| (0, 3(F)) | 0 🡪 1 🡪 2 🡪 3 (F) | 0 🡪 1 🡪 2 🡪 3 (F) 🡪 5 🡪 6 (T) 🡪 7 | getDaysInMonth(2000, 2) |
| month | (0, 6(T)) | 0 🡪 1 🡪 2 🡪 3 (F) 🡪 5 🡪 6 (T) | 0 🡪 1 🡪 2 🡪 3 (F) 🡪 5 🡪 6 (T) 🡪 7 | getDaysInMonth(2000, 2) |
| (0, 6(F)) | 0 🡪 1 🡪 2 🡪 3 (T) 🡪 4 🡪 6 (F) | 0 🡪 1 🡪 2 🡪 3 (T) 🡪 4 🡪 6 (F) 🡪 8 | getDaysInMonth(1918, 9) |
| dayInMonth | (1, 8) | 0 🡪 1 🡪 2 🡪 3 (T) 🡪 4 🡪 6 (F) 🡪 8 | 0 🡪 1 🡪 2 🡪 3 (T) 🡪 4 🡪 6 (F) 🡪 8 | getDaysInMonth(1918, 9) |
| (4, 8) | 4 🡪 6 (F) 🡪 8 | 0 🡪 1 🡪 2 🡪 3 (T) 🡪 4 🡪 6 (F) 🡪 8 | getDaysInMonth(1918, 9) |
| (5, 8) | 5 🡪 6 (F) 🡪 8 | 0 🡪 1 🡪 2 🡪 3 (F) 🡪 5 🡪 6 🡪 (F) 🡪 8 | getDaysInMonth(2005, 9) |
| isLeapYear | (2, 6(T)) | 2 🡪 3 (F) 🡪 5 🡪 6 (T) | 0 🡪 1 🡪 2 🡪 3 (F) 🡪 5 🡪 6 (T) 🡪 7 | getDaysInMonth(2000, 2) |
|  | (2, 6(F)) | 2 🡪 3 (T) 🡪 4 🡪 6 (F) | 0 🡪 1 🡪 2 🡪 3 (T) 🡪 4 🡪 6 (F) 🡪 8 | getDaysInMonth(1918, 9) |

A diagram of a flowchart

Description automatically generatedHàm getDaysInYear(int year)

def(year) = {0} p-use(year) = {2}

def(isLeapYear) = {1} p-use(isLeapYear) = {3}

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | du-pair | def-clear path | Complete path | Test case |
| year | (0, 2(T)) | 0 🡪 1 🡪 2 (T) | 0 🡪 1 🡪 2 (T) 🡪 3 | getDaysInYear(1918) |
| (0, 2(F)) | 0 🡪 1 🡪 2 (F) | 0 🡪 1 🡪 2 (F) 🡪 3 (T) 🡪 4 | getDaysInYear(2004) |
| isLeapYear | (1, 3(T)) | 1 🡪 2 (F) 🡪 3 (T) | 0 🡪 1 🡪 2 (F) 🡪 3 (T) 🡪 4 | getDaysInYear(2004) |
| (1, 3(F)) | 1 🡪 2 (F) 🡪 3 (F) | 0 🡪 1 🡪 2 (F) 🡪 3 (F) 🡪 5 | getDaysInYear(2003) |

A diagram of a flowchart

Description automatically generatedHàm calculateNthDay(int year, int n)

(13) month = month + 1

def(year) = {0} c-use(year) = {1, 8, 9} p-use(year) = {4}

def(n) = {0, 12} c-use(n) = {11, 12} p-use(n) = {2, 10}

def(daysInYear) = {1} p-use(daysInYear) = {2}

def(month) = {6, 13} c-use(month) = (8, 9) p-use(month) = {7}

def(day) = {6, 11} c-use(day) = {8}

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | du-pair | def-clear path | Complete path | Test case |
| year | (0, 1) | 0 🡪 1 | 0 🡪 1 🡪 2(T) 🡪 3 | calculateNthDay(2000, 0) |
| (0, 8) | 0 🡪 1 🡪 2 (F) 🡪 4 (F) 🡪 6 🡪 7 (T) 🡪 9 🡪 10 (T) 🡪 11 🡪 8 | 0 🡪 1 🡪 2 (F) 🡪 4 (F) 🡪 6 🡪 7 (T) 🡪 9 🡪 10 (T) 🡪 11 🡪 8 | calculateNthDay(2003, 16) |
| (0, 9) | 0 🡪 1 🡪 2 (F) 🡪 4 (F) 🡪 6 🡪 7 (T) 🡪 9 | 0 🡪 1 🡪 2 (F) 🡪 4 (F) 🡪 6 🡪 7 (T) 🡪 9 🡪 10 (T) 🡪 11 🡪 8 | calculateNthDay(2003, 16) |
| (0, 4(T)) | 0 🡪 1 🡪 2 (F) 🡪 4 (T) | 0 🡪 1 🡪 2 (F) 🡪 4 (T) 🡪 5 | calculateNthDay(1200, 30) |
| (0, 4 (F)) | 0 🡪 1 🡪 2 (F) 🡪 4 (F) | 0 🡪 1 🡪 2 (F) 🡪 4 (F) 🡪 6 🡪 7 (T) 🡪 9 🡪 10 (T) 🡪 11 🡪 8 | calculateNthDay(2003, 16) |
| n | (0, 11) | 0 🡪 1 🡪 2 (F) 🡪 4 (F) 🡪 6 🡪 7 (T) 🡪 9 🡪 10 (T) 🡪 11 | 0 🡪 1 🡪 2 (F) 🡪 4 (F) 🡪 6 🡪 7 (T) 🡪 9 🡪 10 (T) 🡪 11 🡪 8 | calculateNthDay(2003, 16) |
| (0, 12) | 0 🡪 1 🡪 2 (F) 🡪 4 (F) 🡪 6 🡪 7 (T) 🡪 9 🡪 10 (F) 🡪 12 | 0 🡪 1 🡪 2 (F) 🡪 4 (F) 🡪 6 🡪 7 (T) 🡪 9 🡪 10 (F) 🡪 12 🡪 13 🡪 7 (T) 🡪 9 🡪 10 (T) 🡪 11🡪 8 | calculateNthDay(2009, 40) |
| (0, 2(T)) | 0 🡪 1 🡪 2 (T) | 0 🡪 1 🡪 2 (T) 🡪 3 | calculateNthDay(2000, 0) |
| (0, 2(F)) | 0 🡪 1 🡪 2 (F) | 0 🡪 1 🡪 2 (F) 🡪 4 (T) 🡪 5 | calculateNthDay(1200, 30) |
| (0, 10(T)) | 0 🡪 1 🡪 2 (F) 🡪 4 (F) 🡪 6 🡪 7 (T) 🡪 9 🡪 10 (T) | 0 🡪 1 🡪 2 (F) 🡪 4 (F) 🡪 6 🡪 7 (T) 🡪 9 🡪 10 (T) 🡪 11 🡪 8 | calculateNthDay(2003, 16) |
| (0, 10(F)) | 0 🡪 1 🡪 2 (F) 🡪 4 (F) 🡪 6 🡪 7 (T) 🡪 9 🡪 10 (F) | 0 🡪 1 🡪 2 (F) 🡪 4 (F) 🡪 6 🡪 7 (T) 🡪 9 🡪 10 (F) 🡪 12 🡪 13 🡪 7 (T) 🡪 9 🡪 10 (T) 🡪 11🡪 8 | calculateNthDay(2009, 40) |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | du-pair | def-clear path | Complete path | Test case |
| n | (12, 11) | 12 🡪 13 🡪 9 🡪 10 (T) 🡪 11 | 0 🡪 1 🡪 2 (F) 🡪 4 (F) 🡪 6 🡪 7 (T) 🡪 9 🡪 10 (F) 🡪 12 🡪 13 🡪 7 (T) 🡪 9 🡪 10 (T) 🡪 11🡪 8 | calculateNthDay(2009, 40) |
| (12, 12) | 12 🡪 13 🡪 7 (T) 🡪 9 🡪 10 (F) 🡪 12 | 0 🡪 1 🡪 2 (F) 🡪 4 (F) 🡪 6 🡪 7 (T) 🡪 9 🡪 10 (F) 🡪 12 🡪 13 🡪 7 (T) 🡪 9 🡪 10 (F) 🡪 12 🡪 13 🡪 7 (T) 🡪 9 🡪 10 (T) 🡪 11 🡪 8 | calculateNthDay(2010, 65) |
| (12, 10(T)) | 12 🡪 13 🡪 9 🡪 10 (T) | 0 🡪 1 🡪 2 (F) 🡪 4 (F) 🡪 6 🡪 7 (T) 🡪 9 🡪 10 (F) 🡪 12 🡪 13 🡪 7 (T) 🡪 9 🡪 10 (T) 🡪 11🡪 8 | calculateNthDay(2009, 40) |
| (12, 10(F)) | 12 🡪 13 🡪 7 (T) 🡪 9 🡪 10 (F) | 0 🡪 1 🡪 2 (F) 🡪 4 (F) 🡪 6 🡪 7 (T) 🡪 9 🡪 10 (F) 🡪 12 🡪 13 🡪 7 (T) 🡪 9 🡪 10 (F) 🡪 12 🡪 13 🡪 7 (T) 🡪 9 🡪 10 (T) 🡪 11 🡪 8 | calculateNthDay(2010, 65) |
| daysInYear | (1, 2(T)) | 1 🡪 2 (T) | 0 🡪 1 🡪 2 (T) 🡪 3 | calculateNthDay(2000, 0) |
| (1, 2(F)) | 1 🡪 2 (F) | 0 🡪 1 🡪 2 (F) 🡪 4 (T) 🡪 5 | calculateNthDay(1200, 30) |
| month | (6, 8) | 6 🡪 7 (T) 🡪 9 🡪 10 (T) 🡪 11 🡪 8 | 0 🡪 1 🡪 2 (F) 🡪 4 (F) 🡪 6 🡪 7 (T) 🡪 9 🡪 10 (T) 🡪 11 🡪 8 | calculateNthDay(2003, 16) |
| (6, 9) | 6 🡪 7 (T) 🡪 9 | 0 🡪 1 🡪 2 (F) 🡪 4 (F) 🡪 6 🡪 7 (T) 🡪 9 🡪 10 (T) 🡪 11 🡪 8 | calculateNthDay(2003, 16) |
| (6, 7(T)) | 6 🡪 7 (T) | 0 🡪 1 🡪 2 (F) 🡪 4 (F) 🡪 6 🡪 7 (T) 🡪 9 🡪 10 (T) 🡪 11 🡪 8 | calculateNthDay(2003, 16) |
| (13, 8) | 13 🡪 7 (T) 🡪 9 🡪 10 (T) 🡪 11🡪 8 | 0 🡪 1 🡪 2 (F) 🡪 4 (F) 🡪 6 🡪 7 (T) 🡪 9 🡪 10 (F) 🡪 12 🡪 13 🡪 7 (T) 🡪 9 🡪 10 (T) 🡪 11🡪 8 | calculateNthDay(2009, 40) |
| (13, 9) | 13 🡪 7 (T) 🡪 9 | 0 🡪 1 🡪 2 (F) 🡪 4 (F) 🡪 6 🡪 7 (T) 🡪 9 🡪 10 (F) 🡪 12 🡪 13 🡪 7 (T) 🡪 9 🡪 10 (T) 🡪 11🡪 8 | calculateNthDay(2009, 40) |
| (13, 7(T)) | 13 🡪 7 (T) | 0 🡪 1 🡪 2 (F) 🡪 4 (F) 🡪 6 🡪 7 (T) 🡪 9 🡪 10 (F) 🡪 12 🡪 13 🡪 7 (T) 🡪 9 🡪 10 (T) 🡪 11🡪 8 | calculateNthDay(2009, 40) |
| (13, 7(F)) | 13 🡪 7 (F) | 0 🡪 1 🡪 2 (F) 🡪 4 (F) 🡪 6 🡪 (7 (T) 🡪 9 🡪 10 (F) 🡪 12 🡪 13) \* 12 🡪 7 (F) 🡪 8 | calculateNthDay(2010, 360) |
| day | (6, 8) | 6 🡪 7 (T) 🡪 9 🡪 10 (T) 🡪 11 🡪 8 | 0 🡪 1 🡪 2 (F) 🡪 4 (F) 🡪 6 🡪 7 (T) 🡪 9 🡪 10 (T) 🡪 11 🡪 8 | calculateNthDay(2003, 16) |
| (11, 8) | 11 🡪 8 | 0 🡪 1 🡪 2 (F) 🡪 4 (F) 🡪 6 🡪 7 (T) 🡪 9 🡪 10 (T) 🡪 11 🡪 8 | calculateNthDay(2003, 16) |

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