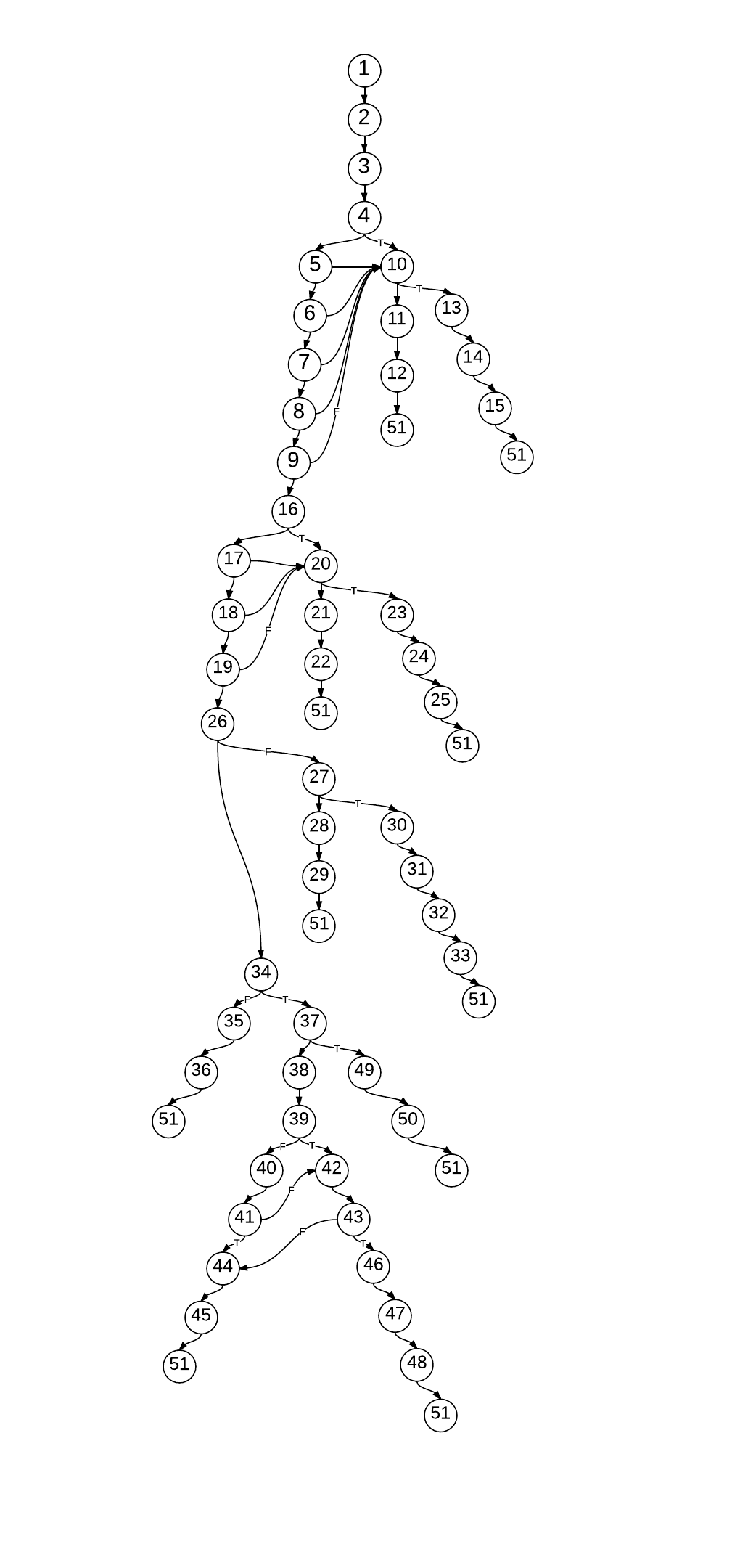
**Java Code**

1. public int test(int m, int d, int y){
2. if((m == 1)||(m == 3)||(m == 5)||(m == 7)||(m == 8)||(m == 10)){
3. if(d < 31){
4. d = d + 1;
5. }
6. else{
7. m = m + 1;
8. d = 1;
9. }
10. }
11. else if((m == 4)||(m == 6)||(m == 9)||(m == 11)){
12. if(d < 30){
13. d = d + 1;
14. }
15. else{
16. m = m + 1;
17. d = 1;
18. }
19. }
20. else if(m == 12){
21. if(d < 31){
22. d = d + 1;
23. }
24. else{
25. m = 1;
26. d = 1;
27. y = y + 1;
28. }
29. }
30. else{
31. if(d < 28){
32. d = d + 1;
33. }
34. else if(d == 28){
35. if((y % 4 == 0 && y % 100 != 0) || y % 400 == 0){
36. d = d + 1;
37. }
38. else{
39. m = m + 1;
40. d = 1;
41. }
42. }
43. else{
44. m = m+1;
45. d = 1;
46. }
47. }
48. return 0;
49. }

**Jimple Code**

1. i0 := @parameter0: int
2. i1 := @parameter1: int
3. i2 := @parameter2: int
4. if i0 == 1 goto (branch)
5. if i0 == 3 goto (branch)
6. if i0 == 5 goto (branch)
7. if i0 == 7 goto (branch)
8. if i0 == 8 goto (branch)
9. if i0 != 10 goto (branch)
10. if i2 >= 31 goto i4 = i0 + 1
11. i3 = i2 + 1
12. goto [?= return 0]
13. i4 = i0 + 1
14. z0 = 1
15. goto [?= return 0]
16. if i0 == 4 goto (branch)
17. if i0 == 6 goto (branch)
18. if i0 == 9 goto (branch)
19. if i0 != 11 goto (branch)
20. if i2 >= 30 goto i6 = i0 + 1
21. i5 = i2 + 1
22. goto [?= return 0]
23. i6 = i0 + 1
24. z1 = 1
25. goto [?= return 0]
26. if i0 != 12 goto (branch)
27. if i2 >= 31 goto z2 = 1
28. i7 = i2 + 1
29. goto [?= return 0]
30. z2 = 1
31. z3 = 1
32. i8 = i1 + 1
33. goto [?= return 0]
34. if i2 >= 28 goto (branch)
35. i9 = i2 + 1
36. goto [?= return 0]
37. if i2 != 28 goto i15 = i0 + 1
38. $i10 = i1 % 4
39. if $i10 != 0 goto $i12 = i1 % 400
40. $i11 = i1 % 100
41. if $i11 != 0 goto i13 = i2 + 1
42. $i12 = i1 % 400
43. if $i12 != 0 goto i14 = i0 + 1
44. i13 = i2 + 1
45. goto [?= return 0]
46. i14 = i0 + 1
47. z4 = 1
48. goto [?= return 0]
49. i15 = i0 + 1
50. z5 = 1
51. return 0



**Condition Extraction**

|  |  |  |
| --- | --- | --- |
| Node No. | Jimple Statement | Condition |
| 4 | i0==1 | m=1 |
| 5 | i0==3 | m=3 |
| 6 | i0==5 | m=5 |
| 7 | i0==7 | m=7 |
| 8 | i0==8 | m=8 |
| 9 | i0!=10 | m!=10 |
| 10 | i2>=31 | d>=31 |
| 16 | i0==4 | m=4 |
| 17 | i0==6 | m=6 |
| 18 | i0==9 | m=9 |
| 19 | i0!=11 | m!=11 |
| 20 | i2>=30 | d>=30 |
| 26 | i0!=12 | m!=12 |
| 27 | i2>=31 | d>=31 |
| 34 | i2>=28 | d>=28 |
| 37 | i2!=28 | d!=28 |
| 39 | $i10 != 0 | y%4!=0 |
| 41 | $i11 != 0 | y%100!=0 |
| 43 | $i12 != 0 | y%400!=0 |

**Statement Coverage**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | Covered nodes | Input | Output |
| 1 | P1 | 1,2,3,4,10,11,12,51 | 01 20 2011 | 01 21 2011 |
| P2 | 1,2,3,4,10,13,14,15,51 | 01 31 1998 | 02 01 1998 |
| P3 | 1,2,3,4,5,6,7,8,9,16,20,21,22,51 | 04 09 1978 | 04 10 1978 |
| P4 | 1,2,3,4,5,6,7,8,9,16,20,23,24,25,51 | 04 30 1983 | 05 01 1983 |
| P5 | 1,2,3,4,5,6,7,8,9,16,17,18,19,26,27,28,29,51 | 12 07 2000 | 12 08 2000 |
| P6 | 1,2,3,4,5,6,7,8,9,16,17,18,19,26,27,30,31,32,33,51 | 12 31 1999 | 01 01 2000 |
| P7 | 1,2,3,4,5,6,7,8,9,16,17,18,19,26,34,35,36,51 | 02 17 1991 | 02 18 1991 |
| P8 | 1,2,3,4,5,6,7,8,9,16,17,18,19,26,34,37,38,39,40,41,44,45,51 | 02 28 2004 | 02 29 2004 |
| P9 | 1,2,3,4,5,6,7,8,9,16,17,18,19,26,34,37,38,39,42,43,46,47,48,51 | 02 28 1997 | 03 01 1997 |
| P10 | 1,2,3,4,5,6,7,8,9,16,17,18,19,26,34,37,49,50,51 | 02 29 1992 | 03 01 1992 |
| 2 | P1 | 1,2,3,4,5,10,11,12,51 | 03 30 2007 | 03 31 2007 |
| P2 | 1,2,3,4,5,10,13,14,15,51 | 03 31 1993 | 04 01 1993 |
| P3 | 1,2,3,4,5,6,7,8,9,16,17,20,21,22,51 | 06 25 1875 | 06 26 1875 |
| P4 | 1,2,3,4,5,6,7,8,9,16,17,20,23,24,25,51 | 06 30 1990 | 07 01 1990 |
| P5 | 1,2,3,4,5,6,7,8,9,16,17,18,19,26,27,28,29,51 | 12 09 1999 | 12 10 1999 |
| P6 | 1,2,3,4,5,6,7,8,9,16,17,18,19,26,27,30,31,32,33,51 | 12 31 2005 | 01 01 2006 |
| P7 | 1,2,3,4,5,6,7,8,9,16,17,18,19,26,34,35,36,51 | 02 07 1893 | 02 08 1893 |
| P8 | 1,2,3,4,5,6,7,8,9,16,17,18,19,26,34,37,38,39,40,41,44,45,51 | 02 28 1908 | 02 29 1908 |
| P9 | 1,2,3,4,5,6,7,8,9,16,17,18,19,26,34,37,38,39,42,43,46,47,48,51 | 02 28 1981 | 03 01 1981 |
| P10 | 1,2,3,4,5,6,7,8,9,16,17,18,19,26,34,37,49,50,51 | 02 29 1960 | 03 01 1960 |

**Decision Coverage**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | D4 | D5 | D6 | D7 | D8 | D9 | D10 | Input | Output |
| 1 | 1 | T | / | / | / | / | / | F | 01 20 1997 | 01 21 1997 |
| 2 | T | / | / | / | / | / | T | 01 31 1986 | 02 01 1986 |
| 3 | F | T | / | / | / | / | F | 03 28 1966 | 03 29 1966 |
| 4 | F | T | / | / | / | / | T | 03 31 1921 | 04 01 1921 |
| 5 | F | F | T | / | / | / | F | 05 19 1897 | 05 20 1897 |
| 6 | F | F | T | / | / | / | T | 05 31 1988 | 06 01 1988 |
| 7 | F | F | F | T | / | / | F | 07 25 1934 | 07 26 1934 |
| 8 | F | F | F | T | / | / | T | 07 31 1986 | 08 01 1986 |
| 9 | F | F | F | F | T | / | F | 08 17 1923 | 08 18 1923 |
| 10 | F | F | F | F | T | / | T | 08 31 1936 | 09 01 1936 |
| 11 | F | F | F | F | F | F | F | 10 11 1882 | 10 12 1882 |
| 12 | F | F | F | F | F | F | T | 10 31 1837 | 11 01 1837 |
| 2 | 1 | T | / | / | / | / | / | F | 01 19 1993 | 01 20 1993 |
| 2 | T | / | / | / | / | / | T | 01 31 1955 | 02 01 1955 |
| 3 | F | T | / | / | / | / | F | 03 20 1958 | 03 21 1958 |
| 4 | F | T | / | / | / | / | T | 03 31 1966 | 04 01 1966 |
| 5 | F | F | T | / | / | / | F | 05 15 1972 | 05 16 1972 |
| 6 | F | F | T | / | / | / | T | 05 31 1981 | 06 01 1981 |
| 7 | F | F | F | T | / | / | F | 07 30 1978 | 07 31 1978 |
| 8 | F | F | F | T | / | / | T | 07 31 1982 | 08 01 1982 |
| 9 | F | F | F | F | T | / | F | 08 28 1954 | 08 29 1954 |
| 10 | F | F | F | F | T | / | T | 08 31 1960 | 09 01 1960 |
| 11 | F | F | F | F | F | F | F | 10 21 1959 | 10 22 1959 |
| 12 | F | F | F | F | F | F | T | 10 31 1876 | 11 01 1876 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | D9 | D16 | D17 | D18 | D19 | D20 | Input | Output |
| 1 | 1 | T | T | / | / | / | F | 04 07 2002 | 04 08 2002 |
| 2 | T | T | / | / | / | T | 04 30 2001 | 05 01 2001 |
| 3 | T | F | T | / | / | F | 06 03 2003 | 06 04 2003 |
| 4 | T | F | T | / | / | T | 06 30 1995 | 07 01 1995 |
| 5 | T | F | F | T | / | F | 09 05 1987 | 09 06 1987 |
| 6 | T | F | F | T | / | T | 09 30 1999 | 10 01 1999 |
| 7 | T | F | F | F | F | F | 11 20 1992 | 11 21 1992 |
| 8 | T | F | F | F | F | T | 11 30 1978 | 12 01 1978 |
| 2 | 1 | T | T | / | / | / | F | 04 18 1955 | 04 19 1955 |
| 2 | T | T | / | / | / | T | 04 30 1971 | 05 01 1971 |
| 3 | T | F | T | / | / | F | 06 20 1932 | 06 21 1932 |
| 4 | T | F | T | / | / | T | 06 30 1933 | 07 01 1933 |
| 5 | T | F | F | T | / | F | 09 08 1944 | 09 09 1944 |
| 6 | T | F | F | T | / | T | 09 30 1959 | 10 01 1959 |
| 7 | T | F | F | F | F | F | 11 27 1875 | 11 28 1875 |
| 8 | T | F | F | F | F | T | 11 30 1869 | 12 01 1869 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | D19 | D26 | D27 | Input | Output |
| 1 | 1 | T | F | F | 12 23 2003 | 12 24 2003 |
| 2 | T | F | T | 12 31 2005 | 01 01 2006 |
| 2 | 1 | T | F | F | 12 20 1988 | 12 21 1988 |
| 2 | T | F | T | 12 31 2007 | 01 01 2008 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | D26 | D34 | D37 | D39 | D41 | D43 | Input | Output |
| 1 | 1 | T | F | / | / | / | / | 02 22 1977 | 02 23 1977 |
| 2 | T | T | T | / | / | / | 02 29 1992 | 03 01 1992 |
| 3 | T | T | F | F | T | / | 02 28 1996 | 02 29 1996 |
| 4 | T | T | F | F | F | F | 02 28 1200 | 02 29 1200 |
| 5 | T | T | F | F | F | T | 02 28 1800 | 03 01 1800 |
| 6 | T | T | F | T | / | T | 02 28 1991 | 03 01 1991 |
| 2 | 1 | T | F | / | / | / | / | 02 27 1981 | 02 28 1981 |
| 2 | T | T | T | / | / | / | 02 29 1940 | 03 01 1940 |
| 3 | T | T | F | F | T | / | 02 28 1976 | 02 29 1976 |
| 4 | T | T | F | F | F | F | 02 28 1600 | 02 29 1600 |
| 5 | T | T | F | F | F | T | 02 28 1900 | 03 01 1900 |
| 6 | T | T | F | T | / | T | 02 28 1901 | 03 01 1901 |

**Unreduced Decision Coverage**

Decision 4

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | m = 1 | Input | Output |
| 1 | 1 | T | 01 22 2012 | 01 23 2012 |
| 2 | F | 03 20 1999 | 03 21 1999 |
| 2 | 1 | T | 01 30 1978 | 01 31 1978 |
| 2 | F | 11 17 1758 | 11 18 1758 |

Decision 5

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | m = 3 | Input | Output |
| 1 | 1 | T | 03 21 1997 | 03 22 1997 |
| 2 | F | 02 27 1996 | 02 28 1996 |
| 2 | 1 | T | 03 30 1978 | 03 31 1978 |
| 2 | F | 04 11 1986 | 04 12 1986 |

Decision 6

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | m = 5 | Input | Output |
| 1 | 1 | T | 05 24 1989 | 05 25 1989 |
| 2 | F | 08 11 1973 | 08 12 1973 |
| 2 | 1 | T | 05 09 1923 | 05 10 1923 |
| 2 | F | 10 13 1935 | 10 14 1935 |

Decision 7

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | m = 7 | Input | Output |
| 1 | 1 | T | 07 21 1929 | 07 22 1929 |
| 2 | F | 10 23 1937 | 10 24 1937 |
| 2 | 1 | T | 07 18 1944 | 07 19 1944 |
| 2 | F | 04 29 2000 | 04 30 2000 |

Decision 8

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | m = 8 | Input | Output |
| 1 | 1 | T | 08 20 1943 | 08 21 1943 |
| 2 | F | 04 16 1948 | 04 17 1948 |
| 2 | 1 | T | 08 31 1939 | 09 01 1939 |
| 2 | F | 11 07 1973 | 11 08 1973 |

Decision 9

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | m = !10 | Input | Output |
| 1 | 1 | T | 02 25 2002 | 02 26 2002 |
| 2 | F | 10 30 1998 | 10 31 1998 |
| 2 | 1 | T | 12 13 2018 | 12 14 2018 |
| 2 | F | 10 07 1991 | 10 08 1991 |

Decision 10

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | d >= 31 | Input | Output |
| 1 | 1 | T | 01 31 1962 | 02 01 1962 |
| 2 | F | 01 27 1963 | 01 28 1963 |
| 2 | 1 | T | 03 31 1988 | 04 01 1988 |
| 2 | F | 03 18 1985 | 03 19 1985 |

Decision 16

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | m = 4 | Input | Output |
| 1 | 1 | T | 04 15 2005 | 04 16 2005 |
| 2 | F | 09 20 1997 | 09 21 1997 |
| 2 | 1 | T | 04 18 1957 | 04 19 1957 |
| 2 | F | 11 23 1979 | 11 24 1979 |

Decision 17

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | m = 6 | Input | Output |
| 1 | 1 | T | 06 30 1995 | 07 01 1995 |
| 2 | F | 02 23 1934 | 02 24 1934 |
| 2 | 1 | T | 06 17 1912 | 06 18 1912 |
| 2 | F | 11 30 2010 | 12 01 2010 |

Decision 18

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | m = 9 | Input | Output |
| 1 | 1 | T | 09 21 1922 | 09 22 1922 |
| 2 | F | 12 03 2007 | 12 04 2007 |
| 2 | 1 | T | 09 30 1937 | 10 01 1937 |
| 2 | F | 11 17 1953 | 11 18 1953 |

Decision 19

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | m = !11 | Input | Output |
| 1 | 1 | T | 02 26 1943 | 02 27 1943 |
| 2 | F | 11 02 1982 | 11 03 1982 |
| 2 | 1 | T | 12 20 2003 | 12 21 2003 |
| 2 | F | 11 22 2009 | 11 23 2009 |

Decision 20

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | d >= 30 | Input | Output |
| 1 | 1 | T | 04 30 1922 | 05 01 1922 |
| 2 | F | 04 20 1940 | 04 21 1940 |
| 2 | 1 | T | 06 30 1982 | 07 01 1982 |
| 2 | F | 06 11 1977 | 06 12 1977 |

Decision 26

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | m != 12 | Input | Output |
| 1 | 1 | T | 02 11 2015 | 02 12 2015 |
| 2 | F | 12 23 2010 | 12 24 2010 |
| 2 | 1 | T | 02 01 1999 | 02 02 1999 |
| 2 | F | 12 30 1980 | 12 31 1980 |

Decision 27

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | d >= 31 | Input | Output |
| 1 | 1 | T | 12 31 1951 | 01 01 1952 |
| 2 | F | 12 25 1940 | 12 26 1940 |
| 2 | 1 | T | 12 31 1988 | 01 01 1989 |
| 2 | F | 12 16 1963 | 12 17 1963 |

Decision 34

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | d >= 28 | Input | Output |
| 1 | 1 | T | 02 28 2002 | 03 01 2002 |
| 2 | F | 02 13 1927 | 02 14 1927 |
| 2 | 1 | T | 02 29 1980 | 03 01 1980 |
| 2 | F | 02 09 1911 | 02 10 1911 |

Decision 37

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | d != 28 | Input | Output |
| 1 | 1 | T | 02 29 1960 | 03 01 1960 |
| 2 | F | 02 28 1965 | 03 01 1965 |
| 2 | 1 | T | 02 29 1968 | 03 01 1968 |
| 2 | F | 02 28 1982 | 03 01 1982 |

Decision 39

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | y%4 != 0 | Input | Output |
| 1 | 1 | T | 02 28 1993 | 03 01 1993 |
| 2 | F | 02 28 1944 | 02 29 1944 |
| 2 | 1 | T | 02 28 1997 | 03 01 1997 |
| 2 | F | 02 28 1900 | 03 01 1900 |

Decision 41

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | y%100 != 0 | Input | Output |
| 1 | 1 | T | 02 28 1972 | 02 29 1972 |
| 2 | F | 02 28 1800 | 03 01 1800 |
| 2 | 1 | T | 02 28 1968 | 02 29 1968 |
| 2 | F | 02 28 1900 | 03 01 1900 |

Decision 43

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | y%400 != 0 | Input | Output |
| 1 | 1 | T | 02 28 1985 | 03 01 1985 |
| 2 | F | 02 28 2400 | 02 29 2400 |
| 2 | 1 | T | 02 28 1700 | 03 01 1700 |
| 2 | F | 02 28 2000 | 02 29 2000 |