Functional Testing

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1 Input Domain

The input domain of the unit `nextDate` consists of dates formatted as follows: $DD/MM/YYYY$. For months, MM, the input condition specifies the range $[1, 12]$. If $MM = 2$ and the year is not a leap year, then the input condition range for dates, DD is $[1, 28]$ (a year is a leap year if divisible by 4 and not divisible by 100 (unless divisible by 400)). If $MM = 2$ and the year is a leap year, then the input condition range for DD is $[1, 29]$. If $MM = 4, 6, 9$, or 11, then the input condition range for DD is $[1, 30]$. If $MM = 1, 3, 5, 7, 8, 10$, or 12, then the input condition range for DD is $[1, 31]$.

2 Equivalence Classes

In order to identify equivalence classes (ECs), the following strategy was used: input conditions typically specified a range $[a, b]$, thus one EC was identified for $a \leq X \leq b$, and two others were identified for $X < a$ and $b < X$.

2.1 Months

- EC-01: $01 \leq MM \leq 12$
- EC-02: $MM < 01$
- EC-03: $12 < MM$

2.2 Dates

2.2.1 MM = 2, YY is not a leap year

- EC-04: $01 \leq DD \leq 28$
- EC-05: $DD < 01$
- EC-06: $28 < DD$

2.2.2 MM = 2, YY is a leap year

- EC-07: $01 \leq DD \leq 29$
- EC-08: $DD < 01$
- EC-09: $29 < DD$

2.2.3 MM = 4, 6, 9, or 11

- EC-10: $01 \leq DD \leq 30$
- EC-11: $DD < 01$
- EC-12: $30 < DD$

2.2.4 MM = 1, 3, 5, 7, 8, 10, or 12

- EC-13: $01 \leq DD \leq 31$
- EC-14: $DD < 01$
- EC-15: $31 < DD$

2.3 Years

- EC-13: $1900 \leq YYYY \leq 2099$
- EC-14: $YYYY < 1900$
- EC-15: $2099 < YYYY$

3 Test Cases

3.1 Test Cases from Equivalence Classes

3.2 Test Cases for Boundary Value Analysis

3.3 Test Cases for Random Testing