針對 p400 nextday(), 進行 all du test (JUnit, gradle)
p421, mutant exercise

nextDate

```java
public String nextDate(int month, int day) {

        if (day == 28) {
            if (month == 2) {
                month++;
                day = 1;
            } else {
                day++;
            }
        }
        else if (day == 30) {
            if (month == 4 || month == 6 || month == 9 || month ==
11) {
                month++;
                day = 1;
            } else {
                day++;
            }
        }
        else if (day == 31) {
            if (month == 1 || month == 3 || month == 5 || month ==
8 || month == 10) {
                day = 1;
                month++;
            } else if (month == 12) {
                day = 1;
                month = 1;
            }
        }
        else {
            day++;
        }


        return String.format("%02d/%02d", month, day);
    }
```
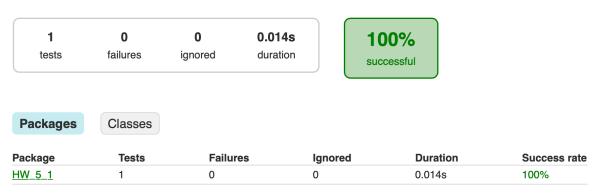
nextDate Test

```java
@Test void nextDateAllDUTest() {
    App app = new App();
    assertEquals("03/01", app.nextDate(2, 28));
    assertEquals("01/29", app.nextDate(1, 28));
    assertEquals("05/01", app.nextDate(4, 30));
    assertEquals("01/31", app.nextDate(1, 30));
    assertEquals("02/01", app.nextDate(1, 31));
    assertEquals("01/01", app.nextDate(12, 31));
    assertEquals("01/28", app.nextDate(1, 27));
}
```

	Def	C-use	P-use			
read(m, d);	m, d					
if(d == 28)			D			
if(m == 2)			M			
m++;	M	M				
d = 1;	D					
Else d++;	D	D				
Else if (d == 30)			D			
if(m ==4 or 6 or 9 or 11)			M			
m++;	M	M				
D = 1;	D					
Else d++;	D	D				
Else if (d == 31)			D			
if (m == 1 or 3 or 5 or 7 or 8 or 10)			M			
d = 1;	D					
m++;	M	M				
else if(m == 12)			M			
d = 1;	D					
m=1;	M					
Else d++;	D	D				
m	3,5|3,10||3,15|3,18					
D	3,4|3,8|3,9|3,13| 3,14|3,16|3,19|3,21					
M == 2, d == 28	3,4|3,5					
M == 1, d == 28	3,8					
M == 4, d == 30	3,9|3,10					
M == 1, d == 30	3,13					
M == 1, d == 31	3,14|3,15|3,16					
M == 12, d == 31	3,18|3,19					
M == 1, d == 27	3,21					

根據上方的圖表找出要對應的Def, C-use及P-use的測試集合，並產生測試資料。

測試結果

Test Summary

1	0	0	0.014s
tests	failures	ignored	duration

100%
successful

Packages Classes

Package	Tests	Failures	Ignored	Duration	Success rate
HW_5_1	1	0	0	0.014s	100%

Exercise 針對以下程式 P 及其變異，回答 (1) 哪些是被刪除變異體? (2) 這些這是案例有效嗎？變異刪除率為何？(3) 承 2, 如果測試案例不有效，請新增測試案例。

P:
```
r=1
for i = 2 to 3 do
    if a[i] > a[r] then r = i;
```

t1 = {1,2,3}
t2 = {1,2,1}
t3 = {3,1,2}

P1:
```
r = 1;
for i = 1 to 3 do
    if a[i] > a[r] then r = i;
```

P2:
```
r = 1;
for i = 2 to 3 do
    if i > a[r] then r = i;
```

P3:
```
r = 1;
for i = 2 to 3 do
    if a[i] >= a[r] then r = i;
```

P4:
```
r = 1;
for i = 2 to 3 do
    if true then r = i;
```

P :
T1: r=3
T2: r=2
T3: r=1

P1:
T1: r=3
T2: r=2
T3: r=1

P2:
T1: r=2
T2: r=3
T3: r=1

P3:
T1: r=3
T2: r=2
T3: r=1

P4:
T1: r=3
T2: r=3
T3: r=3

（1）P2,P4是會被刪除

（2）
P1是等價變異

ms = 2/(4−1)
ms = 0.5
測試案例有待改善

(3)
t4={3,3,1}
P: P3:
T4:r=1 T4:r=2