

Lab Session – Specification-based Test Case Generation

Q1)

[201801028, 201801455, 201801262, 201801165, 201801116]

In this question, we assume all months have 31 days. No leap year case:

Constraints:

Day: [1,31]

Month: [1,12]

Year: [1900,2015]

Equivalence classes:

Day-

- | | |
|-------------------------------------|---------|
| (1) D1: $1 \leq \text{day} \leq 28$ | valid |
| (2) D2: $\text{day} < 1$ | invalid |
| (3) D3: $\text{day} > 31$ | invalid |

Month-

- | | |
|---------------------------------------|---------|
| (1) M1: $1 \leq \text{month} \leq 12$ | valid |
| (2) M2: $\text{month} < 1$ | invalid |
| (3) M3: $\text{month} > 12$ | invalid |

Year-

- | | |
|---|---------|
| (1) Y1: $1900 \leq \text{year} \leq 2015$ | valid |
| (2) Y2: $\text{year} < 1900$ | invalid |
| (3) Y3: $\text{year} > 2015$ | invalid |

Boundary Value Analysis:

Day:

- | | |
|------------------------------------|---------|
| 1) $\text{day} = 1, 2, 15, 30, 31$ | valid |
| 2) $\text{day} = 0, 32$ | invalid |

Month:

- | | |
|-------------------------------------|---------|
| 1) $\text{month} = 1, 2, 6, 11, 12$ | valid |
| 2) $\text{month} = 0, 13$ | invalid |

Year:

- | | |
|---|---------|
| 1) $\text{year} = 1900, 1901, 1970, 2014, 2015$ | valid |
| 2) $\text{year} = 1899, 2016$ | invalid |

ID	Days	Month	Year	Result
1	D1	M1	Y1	Valid
2	D1	M1	Y2	Invalid
3	D1	M1	Y3	Invalid
4	D2	M1	Y1	Invalid
5	D2	M1	Y2	Invalid
6	D2	M1	Y3	Invalid
7	D3	M1	Y1	Invalid
8	D3	M1	Y2	Invalid
9	D3	M1	Y3	Invalid
10	D1	M2	Y1	Invalid
11	D1	M2	Y2	Invalid
12	D1	M2	Y3	Invalid
13	D2	M2	Y1	Invalid
14	D2	M2	Y2	Invalid
15	D2	M2	Y3	Invalid
16	D3	M2	Y1	Invalid
17	D3	M2	Y2	Invalid
18	D3	M2	Y3	Invalid
19	D1	M3	Y1	Invalid
20	D1	M3	Y2	Invalid
21	D1	M3	Y3	Invalid
22	D2	M3	Y1	Invalid
23	D2	M3	Y2	Invalid
24	D2	M3	Y3	Invalid

25	D3	M3	Y1	Invalid
26	D3	M3	Y2	Invalid
27	D3	M3	Y3	Invalid

Algorithm for determining the previous date-

- 1) if the date, month and year do not belong to equivalence class D1, M1 and respectively, the input is invalid.
- 2) Else If the date is 1 January i.e. 1/1/yyyy, decrease the year by 1 and make date 31 & month 12.
- 3) Else If the date is 31 i.e. last date, make day to 1 and decrement the month by 1.
- 4) Else Decrement the date by 1.

Q2)

[201801025, 201801052, 201801210, 201801153]

Given Constraints:

Item_id : 00000 to 99999

Quantity : 1 to 99

Cart Total <= \$999.99

Assumptions:

- Cart total can't be less than zero.

Final Constraints:

Item_id : [00000 , 99999]

Quantity : [1, 99]

Cart Total : [\$0, \$999.99]

Equivalence class :

Item_id (ID)

1. $00000 \leq ID \leq 99999$
2. $ID < 00000$
3. $ID > 99999$

Quantity(Qty)

1. $1 \leq \text{Quantity} \leq 99$
2. Quantity = 0
3. Quantity > 99
4. Quantity < 0

Item Total (Item Total = Item Price * Quantity)

1. $\$0 \leq \text{I.T} \leq \999.99
2. I.T < \$0
3. I.T > \$999.99

Test cases having (boundary) below  are boundary value cases.

TEST CASES	INPUT	EXPECTED RESULT
Item_id < 00000	-10101	Invalid
Item_id = 00000(boundary)	00000	Valid
Item_id = 000001 (boundary)	000001	Valid
Item_id = 99998(boundary)	99998	Valid
Item_id = 99999(boundary)	99999	Valid
Item_id > 99999	254189	Invalid
I.T < \$0	- \$123.25	Invalid
I.T = \$1(boundary)	\$1	Valid
I.T = \$2(boundary)	\$2	Valid
I.T > \$999.99	\$1254	Invalid
I.T = \$999.99 (boundary)	\$999.99	Valid
I.T = \$998.99(boundary)	\$998.99	Valid
Qty < 0	-4	Invalid
Quantity = 0 (boundary)	0	Invalid
User modifies the quantity of some item from a valid number to 0	0	Delete item from shopping cart

Quantity=1 (boundary)	1	Valid
1<= Quantity <= 99	70	Valid
Quantity = 99 (boundary)	99	Valid
Quantity = 100 (boundary)	100	Invalid