IT314 Software Engineering

Group: 22
Specification Based Test Case Generation

Question 1

Constraints are as given:

- 1900 <= year <= 2015
- 1 <= month <= 12
- 1 <= day <= 31

Equivalence Test Case Partitions

Year:

- year1 - year < 1900
- year2 - year > 2015
- year3 - if(year == LEAP) AND if(1900 <= year <= 2015)
- year4 - if(year != LEAP) AND if(1900 <= year <= 2015)

Month:

- month1 - month < 1
- month2 - month > 12
- month3 - month = 2
- month4 - month = 1 | 3 | 5 | 7 | 8 | 10 | 12
- month5 - month = 4 | 6 | 9 | 11

Day:

- day1 - day < 1
- day2 - day > 31
- day3 - 1 <= day <= 28
- day4 - day = 29
- day5 - day = 30
- day6 - day = 31

Testing

Sr. No.	Year	Month	Day	Output	Boundary Check
1	year1	Any	Any	Invalid Date	• year = 1899, 1900, 1901
2	year2	Any	Any	Invalid Date	• year = 2014, 2015, 2016
3	Any	month1	Any	Invalid Date	• month = 0, 1, 2
4	Any	month2	Any	Invalid Date	• month = 11, 12, 13
5	Any	Any	day1	Invalid Date	• day = 0, 1, 2
6	Any	Any	day2	Invalid Date	• day = 30, 31, 32
7	year3	month3	day3	Prev Date	• year = 2014, 2015, 2016, 1899, 1900, 1901 • day = 0, 1, 2, 27, 28, 29
8	year3	month3	day4	Prev Date	• year = 2014, 2015, 2016, 1899, 1900, 1901
9	year3	month3	day5	Invalid Date	• year = 2014, 2015, 2016, 1899, 1900, 1901
10	year3	month3	day6	Invalid Date	• year = 2014, 2015, 2016, 1899, 1900, 1901
11	year3	month4	day3	Prev Date	• year = 2014, 2015, 2016, 1899, 1900, 1901 • day = 0, 1, 2, 27, 28, 29
12	year3	month4	day4	Prev Date	• year = 2014, 2015, 2016, 1899, 1900, 1901
13	year3	month4	day5	Prev Date	• year = 2014, 2015, 2016, 1899, 1900, 1901

14	year3	month4	day6	Prev Date	• year = 2014, 2015, 2016, 1899, 1900, 1901
15	year3	month5	day3	Prev Date	• year = 2014, 2015, 2016, 1899, 1900, 1901 • day = 0, 1, 2, 27, 28, 29
16	year3	month5	day4	Prev Date	• year = 2014, 2015, 2016, 1899, 1900, 1901
17	year3	month5	day5	Prev Date	• year = 2014, 2015, 2016, 1899, 1900, 1901
18	year3	month5	day6	Invalid Date	• year = 2014, 2015, 2016, 1899, 1900, 1901
19	year4	month3	day3	Prev Date	• year = 2014, 2015, 2016, 1899, 1900, 1901 • day = 0, 1, 2, 27, 28, 29
20	year4	month3	day4	Invalid Date	• year = 2014, 2015, 2016, 1899, 1900, 1901
21	year4	month3	day5	Invalid Date	• year = 2014, 2015, 2016, 1899, 1900, 1901
22	year4	month3	day6	Invalid Date	• year = 2014, 2015, 2016, 1899, 1900, 1901
23	year4	month4	day3	Prev Date	• year = 2014, 2015, 2016, 1899, 1900, 1901 • day = 0, 1, 2, 27, 28, 29
24	year4	month4	day4	Prev Date	• year = 2014, 2015, 2016, 1899, 1900, 1901
25	year4	month4	day5	Prev Date	• year = 2014, 2015,

					2016, 1899, 1900, 1901
26	year4	month4	day6	Prev Date	• year = 2014, 2015, 2016, 1899, 1900, 1901
27	year4	month5	day3	Prev Date	• year = 2014, 2015, 2016, 1899, 1900, 1901 • day = 0, 1, 2, 27, 28, 29
28	year4	month5	day4	Prev Date	• year = 2014, 2015, 2016, 1899, 1900, 1901
29	year4	month5	day5	Prev Date	• year = 2014, 2015, 2016, 1899, 1900, 1901
30	year4	month5	day6	Invalid Date	• year = 2014, 2015, 2016, 1899, 1900, 1901

Question 2

Constraints given are as follows;

ID: 00000 to 99999
Quantity: 1 to 99
cart total: less than or equal to $999.99 i.e ≤ $999.99 (as negative values are not possible)

Equivalence classes :

ID
1) ID between 00000-99999 (both inclusive) [00000 ≤ ID ≤ 99999] => Valid Case
2) ID less that 00000 (00000 excluded) [ID < 00000] => Invalid Case
3) ID greater than 99999 (99999 excluded) [ID > 99999] => Invalid Case

Quantity

4) quantity between 0-99 (both inclusive) [0 ≤ quantity ≤ 99] => Valid Case
5) quantity less than 0 (0 excluded) [quantity < 0] => Invalid Case
6) quantity greater than 99 (99 excluded) [quantity > 99] => Invalid Case

Cart total (in dollars)
7) Cart total between 0-999.99 (both inclusive) [0 ≤ cart total ≤ 999.99] => Valid Case
8) Cart total greater than 999.99 (999.99 excluded) [cart total > 999.99] => Invalid Case

Assume that at the moment the cart has total amount of $100 due to selection of item with ID : 00001 and quantity : 2(This implies that item with ID : 00001 has price $50)

Test Case	Input Data	Expected Outcome
ID < 00000	-11111	Invalid ID
ID > 99999	111111	Invalid ID
Quantity < 0	-1	Invalid Quantity
Quantity > 99	100	Invalid Quantity
Cart total <=999.99	ID:00001 Quantity:8	$500
Cart total > 999.99	ID:00001 Quantity:50	Cart Limit Exceeded
Quantity : 0	ID:00001	$0(Previously cart had items)
Quantity : 0	ID:00001	Error because item previously not purchased