Lab Session – Specification-based Test Case Generation

Q1) [201801028, 201801455, 201801262, 201801165, 201801116]

Constraints:
Day: [1,31]
Month: [1,12]
Year: [1900,2015]

Equivalence classes:

Day

(1) D1: 1 <= day <= 28	valid
(2) D2: day < 1	invalid
(3) D3: day > 31	invalid
(4) D4: day = 29	invalid if month is February(2) and year is not leap year
(5) D5: day = 30	valid if month is April(4), June(6), September(9), November(11)
(6) D6: day = 31	valid if month is January(1), March(3), May(5), July(7), August(8), October(10), December(12)

Month

(1) M1: month with 31 days	if month is 1,3,5,7,8,10,12
(2) M2: month with 30 days	if month is 4,6,9,11
(3) M3: month with 28/29 days	if month is 2
(4) M4: month <1	invalid
(5) M5: month >31	invalid

Year

(1) Y1: 1900 <= year <= 2015	year is leap year
(2) Y2: 1900 <= year <= 2015	year is not leap year
(3) Y3: year<1900	invalid
(4) Y3: year>2015	invalid

Boundary Value Analysis:

Day: (day/1/2000)

1) day = 1, 2, 15, 30, 31	valid
2) day = 0, 32	invalid

Month: (15/month/2000)

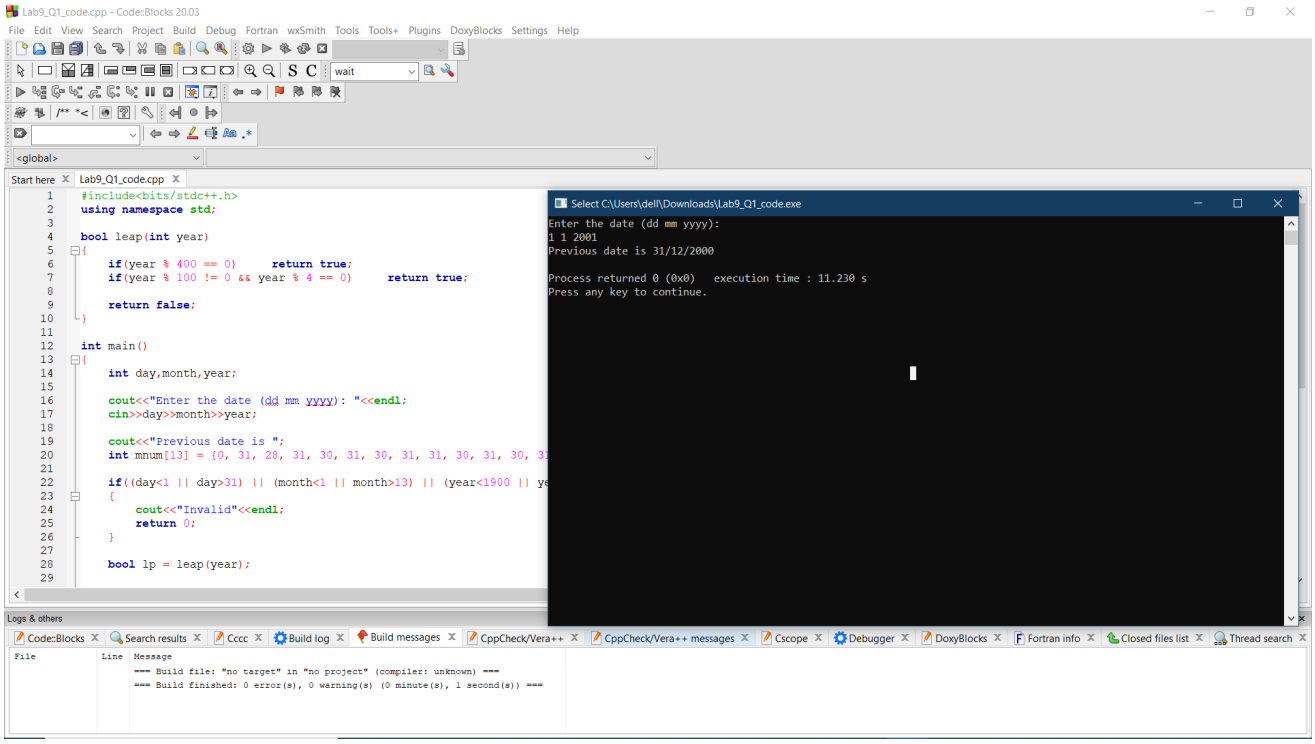
1) month = 1, 2, 6, 11, 12 valid
2) month = 0, 13 invalid

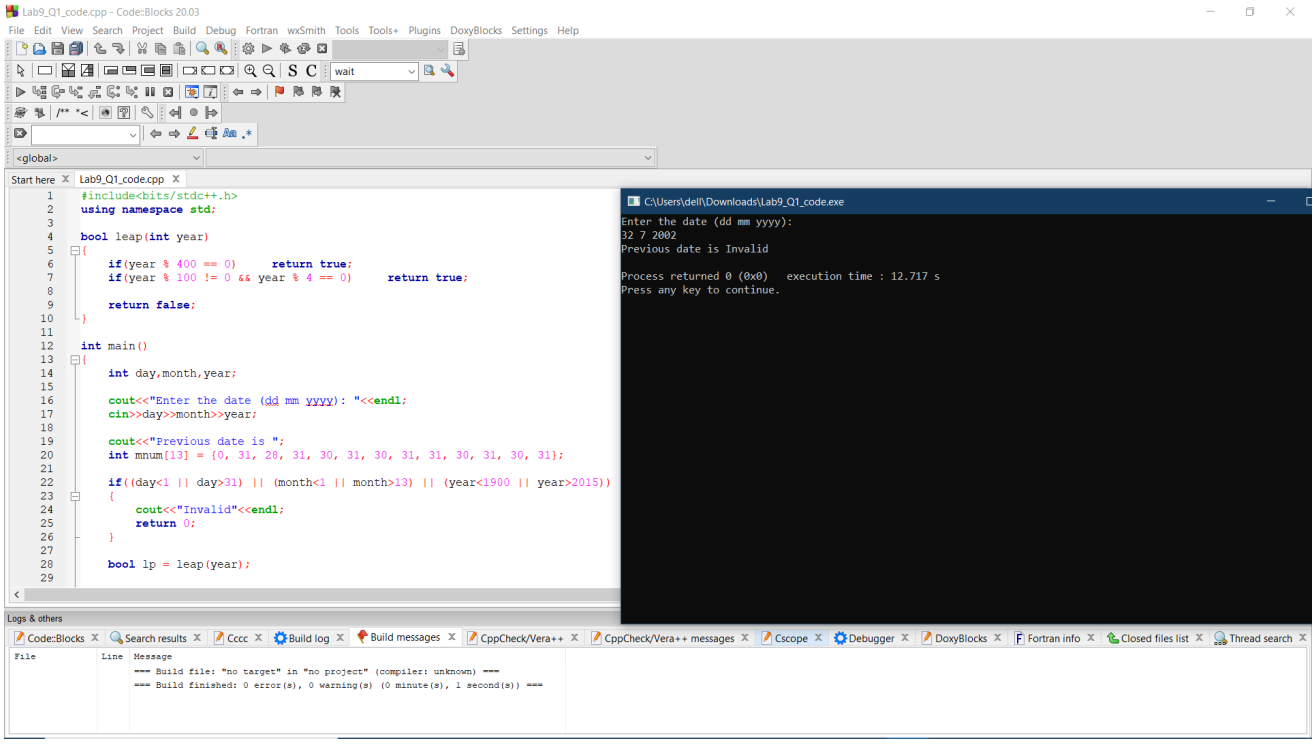
Year: (20/5/year)
1) year = 1900, 1901, 1970, 2014, 2015 valid
2) year = 1899, 2016 invalid

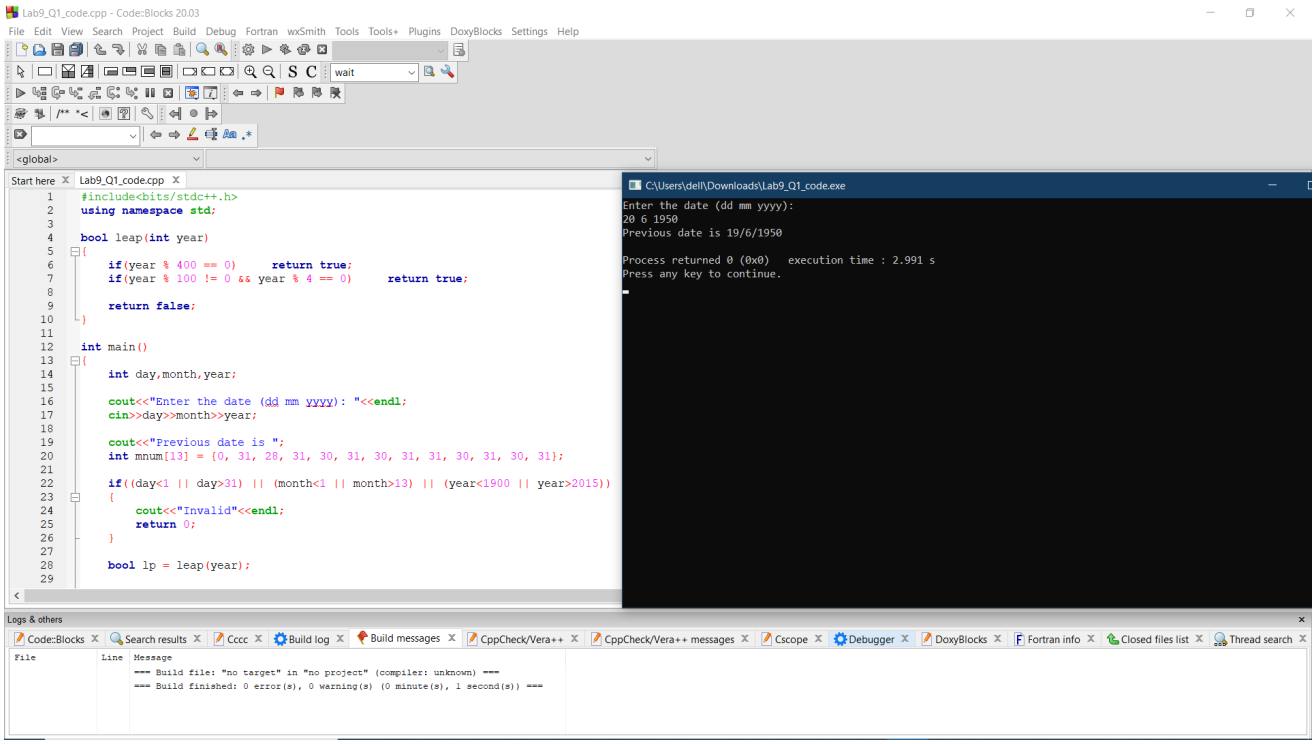
Test Suite:

ID	Day	Month	Year	Result
1	1	1	2001	31/12/2000
2	15	1	1999	15/12/1998
3	29	232	2014	Invalid
4	31	13	2000	Invalid
5	23	3	2004	22/04/2003
6	28	2	2014	27/02/2014
7	21	5	2013	20/05/2013
8	20	6	2012	19/06/2012
9	32	7	2012	Invalid
10	31	7	2012	30/07/2012
11	14	3	2011	13/03/2011
12	30	2	2000	Invalid
13	31	2	2004	Invalid
14	12	2	2008	11/1/2008
15	-1	5	2000	Invalid
16	10	0	1900	Invalid
17	10	4	2021	invalid
18	10	4	2011	9/4/2011
19	20	6	1950	19/6/1950
20	50	6651	12	Invalid

Code Screenshots (have attached a file containing cpp code)







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 classes :

Item_id (ID)

1. 00000 <= ID <= 99999
2. ID < 00000
3. ID > 99999

Quantity(Qty)

1. 1<= Quantity <= 99
2. Quantity = 0
3. Quantity > 99
4. Quantity < 0

Item Total (Item Total = Item Price * Quantity)

1. $0 <= I.T <= $ 999.99
2. I.T < $0
3. I.T > $999.99

Edge cases

- *User modifies the quantity of some item from a valid number to 0.*
  Expected behavior: Delete item from shopping cart.

- The payment method is not a credit card.
  Expected behavior: Invalid mode of payment.

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	Discard
Quantity=1 **(boundary)**	1	Valid
1<= Quantity <= 99	70	Valid
Quantity = 99 **(boundary)**	99	Valid