In-class Exercise:
Combinatorial Testing

a) Generate a combinatorial input model for the following system

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EasyBuy.com is an online shopping website. When a customer is ready to check-out, the amount which he/she has to pay is computed as follows:

1. The transaction will be invalid if (1) the things you buy are out of stock, (2) the credit card information provided is incorrect, and (3) the balance on your card is insufficient.

2. The two main cancellation policies include:
    *   cancellation within the day of the order   ➔ Full refund
    *   cancellation after the day of the order   ➔ Full refund less a $20 USD administrative fee

3. The three shipping policies include:
    *   For an order over $100
        – In-state shipping fee   ➔ Free
        – Interstate shipping fee   ➔ 50% off
    *   For an order over $200
        – Domestic shipping fee   ➔ Free
        – International shipping fee   ➔ 50% off
    *   For an order over $500
        – Domestic shipping fee   ➔ Free
        – International shipping fee   ➔ Free

4. Shipping method:
    *   For domestic shipping
        – 1-day delivery
        – 2-day delivery
        – 1-week delivery
    *   For international shipping
        – 1-week delivery

5. Special offers:
    *   Buy-one-get-one on Labor Day, Thanksgiving, and Christmas
    *   20% off on Valentine's Day, Easter, and Memorial Day

- Assume a tester have already identified the following input parameters, please help him/her assign the values for those parameters.

Factors	Possible Values					
F_1: Items in cart	In stock	Out of stock				
F_2: Credit card information	Correct	Incorrect				
F_3: Credit card balance	Sufficient	Insufficient				
F_4: Cancellation after ? days	within the day of the order	after the day of the order	Do not cancel			
F_5: Total price (x)	$x <= 100$	$100 < x <= 200$	$200 < x <= 500$	$500 < x$		
F_6: Shipping address	International	Domestic	Interstates			
F_7: Shipping method	1-day delivery	2-day delivery	1-week delivery			
F_8: Special offers	Labor Day	Thanksgiving	Christmas	Valentine	Easter	Memorial Day
	No special offer					

- Do we need constraints for test case generation? Why?

Yes. Because when the shipping address is international, only 1-week delivery can be selected. Without this constraint, invalid test cases can be generated.