In-class Exercise:

Combinatorial Testing

1. 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  1. 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   1. Shipping method:  * For domestic shipping   ‒ 1-day delivery  ‒ 2-day delivery  ‒ 1-week delivery   * For international shipping   ‒ 1-week delivery   1. Special offers:  * Buy-one-get-one on Labor Day, Thanksgiving, and Christmas * 20% off on Valentine’s Day, Easter, and Memorial Day |

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

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| *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 |  |  |  |  |
| *F*5: Total price (*x*) | *x* <= 100 | 100 < *x <= 200* | 200 < *x <=500* | 500 < *x* |  |  |
| *F*6: Shipping address | International | In-state | 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 |

* 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.