Cart discount

(src/tests/sales/subtotal.spec.ts)

Scenario:

Starting from **20 euro** subtotal give the **2 euro** discount

Example:

Order with 3 items: 9 + 2 * 9; shipping amount: 2.71

- Subtotal: 9 + 2 * 9 = 27 (more than 20)
- Discount: 2
- Total: 27 + 2.71 - 2 = 27.71

Steps:

1. Cancel one item
2. Invoice other 2 items (including shipping)
3. Refund one of the invoiced items

Variations:

- 1. invoice, 2. cancel, 3. refund
- 1. invoice, 2. refund, 3. cancel

Bad calculation:

1. Cancel one item
   - Canceled amount: **9** (the price of one item)
2. Invoice other 2 items (including shipping)
   - Can't invoice 20.71 (9 + 9 + 2.71)
   - The invoice max amount is **18.71** (27.71 - 9)
3. Refund one of the invoiced items
   - Refunded amount: **9** (the price of one item)

Result: User gets one item with the **discounted** price

9.71 = 27.71 - 9 - 9 = 9 + 2.71 - 2

Compromise (spreading discount):

1. Cancel one item
   - Canceled amount: **8.33** = 9 - 2/3
2. Invoice other 2 items (including shipping)
   - Can't invoice 20.71 (9 + 9 + 2.71)
   - The invoice max amount is **19.38** (27.71 - 8.33 = 9 + 9 + 2.71 - 4/3)
3. Refund one of the invoiced items
   - Refunded amount: **8.33** = 9 - 2/3

Result: User gets one item with the **reduced** discount

11.05 = 27.71 - 8.33 - 8.33 = 9 + 2.71 - 2/3

Good calculation (cancel promotion):

1. Cancel one item
   - Canceled amount: **7** = 9 - 2
2. Invoice other 2 items (including shipping)
   - Invoiced amount **20.71** = 9 + 9 + 2.71
3. Refund one of the invoiced items
   - Refunded amount: **9**

Result: User gets one item **without** discount

11.71 = 27.71 - 7 - 9 = 9 + 2.71

Shipping discount

(src/tests/sales/shipping.spec.ts)

Scenario:

Free shipping if 3 or more items

Example:

Order with 3 items: 9 + 2 * 9

- Shipping: 0 (because 3 items)
- Total: 27 = 9 + 2 * 9

Steps:

1. Cancel one item
2. Invoice other 2 items (including shipping)
3. Refund one of the invoiced items

Variations:

- 1. invoice, 2. cancel, 3. refund
- 1. invoice, 2. refund, 3. cancel

Bad calculation:

1. Cancel one item
   - Shipping: **nonzero**
2. Invoice other 2 items
   - Shipping: **nonzero**
3. Refund one of the invoiced items
   - Shipping: **nonzero**

If any of the sales documents would have a **nonzero** shipping

amount it will confuse the user

Good calculation:

1. Cancel one item
   - Shipping **forced to be 0**
2. Invoice other 2 items (including shipping)
   - Shipping **forced to be 0**
3. Refund one of the invoiced items
   - Shipping **forced to be 0**

All sales documents **forced to have 0** shipping amounts. Both spreading

and promotional calculations following this business rule.

Items discount

(src/tests/sales/2plus1item.spec.ts)

Scenario:

Every 3rd <u>cheapest</u> item discounted - reduce price to 1 euro

Example #1:

Order with 3 items: 10 + 5 + 10; shipping amount: 2.71

- Subtotal: 10 + 1 + 10 = 21
- Total: 21 + 2.71 = 23.71

Steps:

1. Cancel 10-euro item
2. Invoice other 2 items (including shipping)
3. Refund 5-euro invoiced item

Variations:

- 1. invoice, 2. cancel, 3. refund
- 1. invoice, 2. refund, 3. cancel

Bad calculation:

1. Cancel 10-euro item
   - Canceled amount: **10**
2. Invoice other 2 items (including shipping)
   - Can't invoice 17.71 (10 + 5 + 2.71)
   - The invoice max amount is **13.71** (23.71 - 10)
3. Refund 5-euro invoiced item
   - Refunded amount: **5**

Result: User gets 10-euro item with the **discounted** price

8.71 = 23.71 - 10 - 5 = 10 + 2.71 - 4

As we can't spread between <u>different</u> items, the spreading

calculation doesn't help

Good calculation (cancel promotion):

1. Cancel 10-euro item
   - Canceled amount: **6** = 10 - 4
2. Invoice other 2 items (including shipping)
   - Invoiced amount **17.71** = 10 + 5 + 2.71
3. Refund 5-euro invoiced item
   - Refunded amount: **5**

Result: User gets 10-euro item **without** discount

12.71 = 23.71 - 6 - 5 = 10 + 2.71

Example #2:

Order with 3 items: 3 * 10; shipping amount: 2.71

- Subtotal: 2 * 10 + 1 = 21
- Total: 21 + 2.71 = 23.71

Steps:

1. Cancel one item
2. Invoice other 2 items (including shipping)
3. Refund one of the invoiced items

Variations:

- 1. invoice, 2. cancel, 3. refund
- 1. invoice, 2. refund, 3. cancel

Bad calculation:

1. Cancel one item
   - Canceled amount: **10** (the price of one item)
2. Invoice other 2 items (including shipping)
   - Can't invoice 22.71 (2 * 10 + 2.71)
   - The invoice max amount is **13.71** (23.71 - 10)
3. Refund one of the invoiced items
   - Refunded amount: **10** (the price of one item)

Result: User gets one item with the **discounted** price

3.71 = 23.71 - 2 * 10 = 1 + 2.71

Compromise (spreading discount):

1. Cancel one item
   - Canceled amount: **7** = 10 - 9/3
2. Invoice other 2 items (including shipping)
   - Can't invoice 22.71 (2 * 10 + 2.71)
   - The invoice max amount is **16.71** (23.71 - 7 = 2 * 10 + 2.71 - 18/3)
3. Refund one of the invoiced items
   - Refunded amount: **7** = 10 - 9/3

Result: User gets one item with the **reduced** discount

9.71 = 23.71 - 2 * 7 = 10 + 2.71 - 9/3

Good calculation (cancel promotion):

1. Cancel one item
   - Canceled amount: **1** (reduced item canceled)
2. Invoice other 2 items (including shipping)
   - Invoiced amount **22.71** = 2 * 10 + 2.71
3. Refund one of the invoiced items
   - Refunded amount: **10**

Result: User gets one item **without** discount

12.71 = 23.71 - 1 - 10 = 10 + 2.71