FUNCTIONAL SIZE MEASUREMENT USING THE COSMIC METHOD

EXAMPLE: ONLINE SHOPPING

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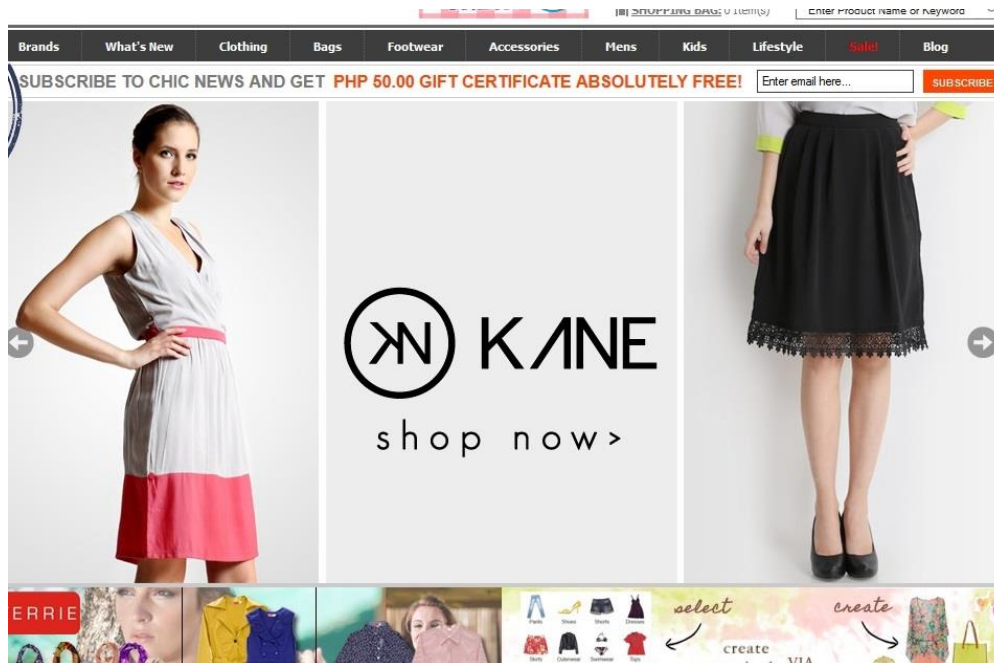External Reviser: Charles Symons

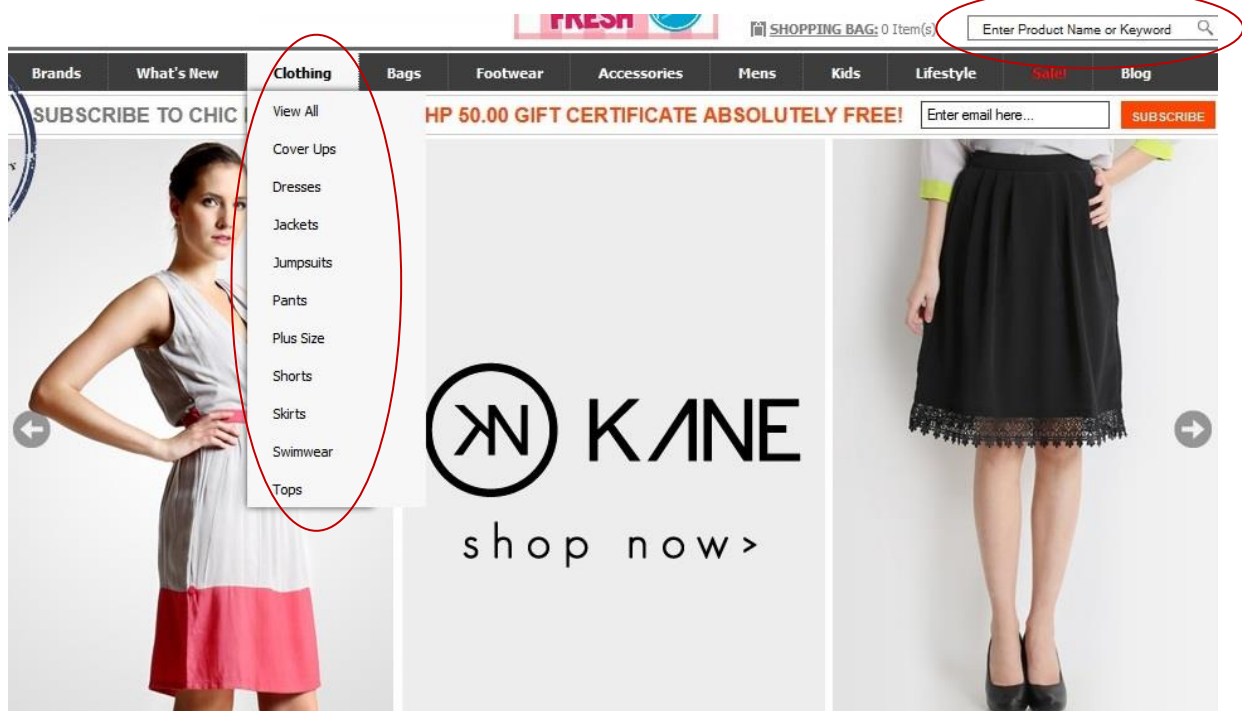**Functional User Requirement**: Buy a product via web.

Pre-conditions:

> The customer has a valid credit card

Flow of events:

- The customer accesses the online store via a browser

- The customer can search for a product by choosing the corresponding group that appears in the menu (Brands, What's new, Clothing, ... **Sale**) or by typing a keyword.

- The system displays the products of the selected group or the products that match the search criteria. In this example, the customer selected the products on Sale.
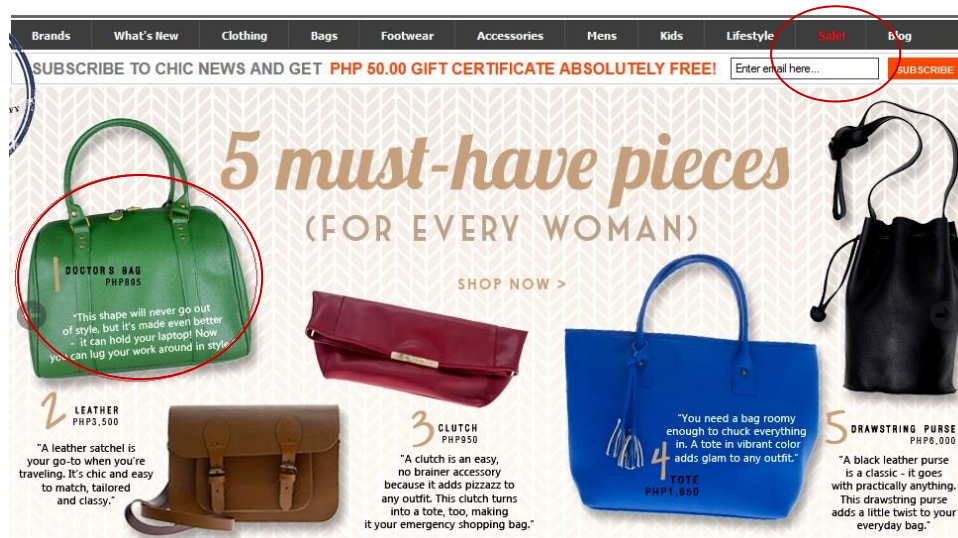
- Next, the customer selects the product that she wants to purchase.
- The system displays the details of the product.

- When the customer enters the quantity of the desired product, she can adds it to the shopping cart (add to bag).
- If the product is added to the bag, the system displays the content of the shopping cart. There are three possible choices here:
  o The customer can remove the item, or change the current quantity. In both cases, the customer has to **update the cart.**
  o The customer can **continue shopping** and add more products into the shopping cart.
  o The customer can **checkout** and pay for the product.

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What's In My Cart?

- When the customer decides to *checkout*, the system will ask for an authentication (in the case of returning customers) or for the creation of a new account (in the case of new customers).
- Returning customers must enter their e-mail address and password.

- New customers need to enter personal information including a user and password.

My Account Information

NOTE: If you already have an account with us, please login at the login page.

Your Personal Details   * Required information

Gender:	○ Male ○ Female *
First Name:	[_____] *
Last Name:	[_____] *
Date of Birth:	[_____] * (eg. 05/21/1970)
E-Mail Address:	[_____] *

Your Address

Street Address:	[_____] *
Zip Code:	[_____] *
City:	[_____] *
State/Province:	[_____] *
Country:	Please Select ▼ *

Your Password

Password:	[_____] *
Password Confirmation:	[_____] *

[continue]

- For shipping purposes, the customer has to confirm or update the shipping address; and to select the shipping method.

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Delivery Information

Please choose from your address book where you would like the items to be delivered to.

Shipping Address: Momo SIMON
500 De la Gauchetiere apt 300
Montreal, QC H8Z 6X7
Canada
0015146190839

change address

Please select the preferred shipping method to use on this order.

Please Select

Philippine Rates
No shipping available to the selected city or not in PH.

World Zone Rates
Shipping to Canada: 5.2 kg   PHP6,860.00   ⊙

Add Comments About Your Order

Continue Checkout Procedure
to select the preferred payment method.   **continue**

Delivery Information   Payment Information   Confirmation   Finished!

- To change the shipping address, the customer has to fill out a form (New shipping address).

Delivery Information

Shipping Address

This is the currently selected shipping address where the items in this order will be delivered to.	**Shipping Address:**	Momo SIMON 500 De la Gauchetiere apt 300 Montreal, QC H8Z 6X7 Canada 0015146190839

New Shipping Address

Please use the following form to create a new shipping address to use for this order.

Gender:	○ Male ○ Female *
First Name:	[_____] *
Last Name:	[_____] *
E-Mail Address:	[_____] *
Telephone Number:	[_____] *
Fax Number:	[_____]
Street Address:	[_____] *
Zip Code:	[_____] *
City:	[_____] *
State/Province:	[_____] *
Country:	Please Select ▼ *

Continue Checkout Procedure
to select the preferred shipping method.   (continue)

Delivery Information   Payment Information   Confirmation   Finished!

- When the shipping address has been selected or changed, the system prompts the customer to select the payment method.

VISA   MasterCard   AMERICAN EXPRESS

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- The customer must enter the credit card information. If an error occurs during the verification of the credit card, a message is displayed. Otherwise, the system asks the customer to 'pay now'.

- Next, the customer has to review and confirm the order.

Order Confirmation

Delivery Address [Edit]	Products [Edit]	
Momo SIMON 500 De la Gauchetiere apt 300 Montreal, QC H8Z 6X7 Canada 0015146190839	1 x Maddie Doctor's Bag (Green)	PHP895.00
Shipping Method [Edit]		
World Zone Rates (Shipping to Canada: 5.2 kg)		

Billing Information

Billing Address	
Momo SIMON 500 De la Gauchetiere apt 300 Montreal, QC H8Z 6X7 Canada 0015146190839	Sub-Total: PHP895.00
	World Zone Rates (Shipping to Canada: 5.2 kg): PHP6,860.00
Payment Method [Edit]	Total: **PHP7,755.00**
Mastercard Credit Card	

I have read the **Terms and Conditions** and I agree to them ☑

Continue Checkout Procedure
to confirm this order.

confirm order

NOTE! The below IP and ISP has been recorded for security purposes.
IP Address: 142.137.174.222
ISP: 174.222

Delivery Information   Payment Information   **Confirmation**   Finished!

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Purpose and Scope of measurement: Measure the size of the functionality "Buy a product via web" *as it is currently described* in the set of requirements documented in the previous pages for *teaching purposes*.

Functional user: The customer, the Banking system

Functional processes: FP1) Select product group, FP2) Search product, FP3) Display product, FP4) view size charts, FP5) Select for purchase, FP6) Update order item, FP7) Delete order item, FP8) Place an order, FP9) Create new customer, 10) New shipping address, 11) Make the payment.

> Browse and select products: FP1 to FP7
>
> Delivery (shipping) information: FP8 to FP10
>
> Payment and order confirmation: FP11

Data model:
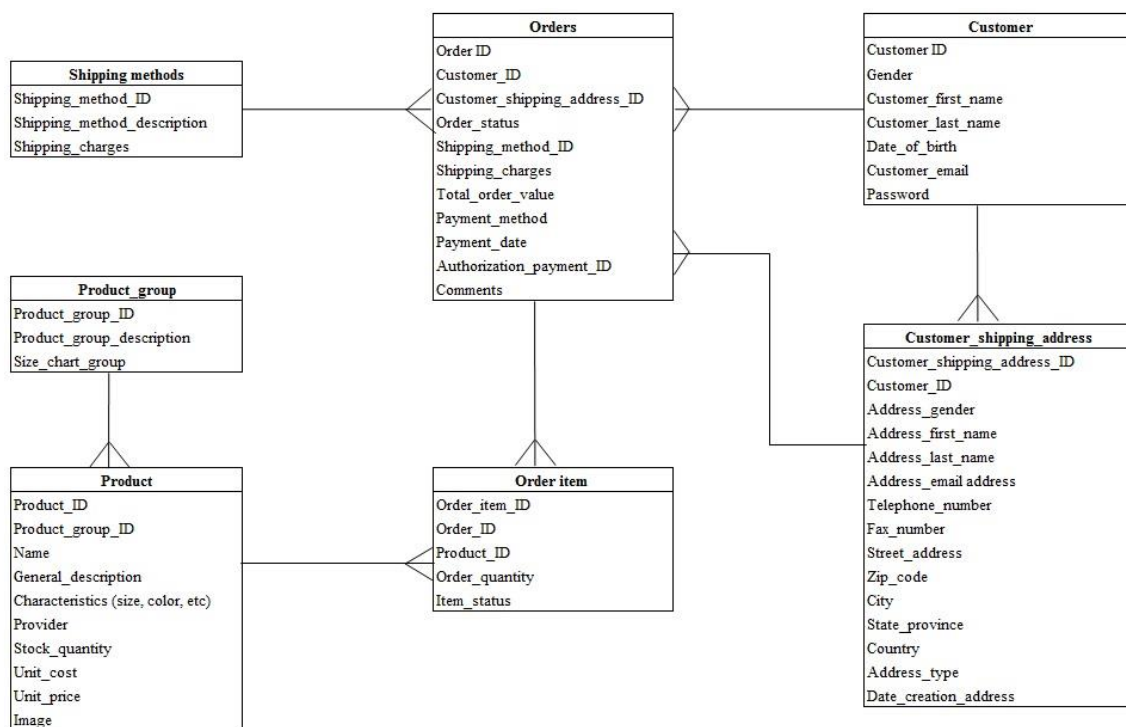
Data groups:

<u>Customer</u>: Customer ID, Gender, First Name, Last Name, Date of Birth, E-mail address, Password.

<u>Customer shipping address</u>: Customer_shipping_address_ID, Customer ID, Gender, First Name, Last Name, E-mail address, Telephone number, Fax number, Street_address, Zip_code, City, State-Province, Country, Address_type, date creation address.

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Product Group: Product Group ID, Product group description, Size chart group (footwear, clothes, accessories, etc).

Product: Product ID, Product Group ID, Name, General description, set of characteristics (size, color, additional details), Provider, Stock Quantity, Unit cost, Unit price, Image.

Order: Order ID, Customer ID, Creation date, Order status (selected, paid, cancelled, delivered), total order value, customer_shipping_address ID, shipping method ID, shipping charges, payment method, payment date, authorization payment ID, comments.

Order item: Order Item ID, Order ID, product ID, order quantity, item status (selected, ordered, paid, cancelled, delivered).

Shipping method: Shipping method ID, Shipping method description (standard, FedEx, UPS, etc), shipping charges.

Data movements:

Process	Subprocess	Data Group	Data movement	CFP	Comment
FP 1. Select Product Group	The customer clicks on the chosen group	Product Group	E	1	
	The system retrieves the products in the chosen group	Product	R	1	All the items from that group are retrieved
	The system displays the product group name and count of products in group	Product group	X	1	
	The system displays **some** details of all products in the group	Product	X	1	

E: Entry **X:** eXit **R:** Read **W: Write**   **4 CFP**

Process	Subprocess	Data Group	Data movement	CFP	Comment
FP 2. Search product	The customer enters a product name or keyword(s)	Product	E	1	
	The system retrieves the list of products meeting the search criteria	Product	R	1	All the items satisfying the search criteria are retrieved

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| | The system displays **__some__** details | Product | X | 1 | |
| | Error/confirmation messages | Messages | X | 1 | e.g. "no product matches the search criteria" |

4 CFP

Process	Subprocess	Data Group	Data movement	CFP	Comment
FP 3. Display product	The customer selects the product	Product	E	1	
	The system retrieves **__all details__** about the product	Product	R	1	
	The system shows **__all__** the product details	Product	X	1	

3 CFP

Process	Subprocess	Data Group	Data movement	CFP	Comment
FP 4. View size chart	The customer clicks on the size chart button	Product group	E	1	
	The system retrieves the size chart in the chosen group	Product group	R	1	The size chart from that group appears on the screen
	The system displays the chart	Product group	X	1	

3 CFP

Process	Subprocess	Data Group	Data movement	CFP	Comment
FP 5. Select for purchase	The customer enters the __quantity__ and presses *Add to bag*	Order Item	E	1	
	The system verifies the stock of the product	Product	R	1	
	System creates an 'Order' **	Order	W	1	This is needed in case the customer selects other products

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	System reserves the selected stock	Product	W	1	The products are reserved until the payment and order confirmation
	System stores the order item with status 'selected'	Order Item	W	1	
	The system displays the current content of the shopping cart (pre-order)	Order Item	X	1	
	Error/confirmation messages may appear	Messages	X	1	Example message 'Sorry, out of stock'

7 CFP

** Assumption: an order number is assigned when an order item is first added to the cart. This would be needed in case the customer adds other items to the cart.

Process	Subprocess	Data Group	Data movement	CFP	Comment
FP 6 Update Order Item	The customer changes the order quantity on one or more Order Items, then hits the 'update cart' button	Order Item	E	1	
	The system checks that an increased product quantity is available (enough stock?)	Product	R	1	
	The system saves the products contained in the shopping cart (bag)	Order Item	W	1	
	System reserves the selected stock	Product	W	1	Until payment and order confirmation
	The system displays updated cart contents	Order Item	X	1	
	Display updated order value	Order	X	1	
	Error/confirmation messages appear	Messages	X	1	Example: order quantity is increased but not enough stock

7 CFP

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Process	Subprocess	Data Group	Data movement	CFP	Comment
FP 7. Delete Order Item	The customer enters 'Remove' on one or more Order Items, then hits the 'update cart' button	Order Item	E	1	
	The system deletes the products from the shopping cart (bag)	Order Item	W	1	A 'Write' accounts for a delete.
	The system updates the available product quantity	Product	W	1	
	Display updated cart	Order Item	X	1	
	Display updated order value	Order	X	1	

5 CFP

Process	Subprocess	Data Group	Data movement	CFP	Comment
FP 8. Place order	The customer enters email address and password then clicks on *sign in*	Customer	E	1	
	The system verifies the identity of the customer	Customer	R	1	
	Error/confirmation messages appear	Messages	X	1	Examples: 'Wrong e-mail or password'
	The Customer's stored billing address is retrieved	Customer shipping address	R	1	
	The system displays the customer's address	Customer shipping address	X	1	It appears as a default shipping address
	The system retrieves the shipping methods and charges	Shipping methods	R	1	
	The system displays the available shipping methods	Shipping methods	X	1	
	Customer selects the shipping method and comments about the order	Order	E	1	

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Process	Subprocess	Data Group	Data movement	CFP	Comment
	The system updates de order with the customerID and shipping information	Order	W	1	The order is saved and the customer can pay later

9 CFP

Process	Subprocess	Data Group	Data movement	CFP	Comment
FP 9. Create new customer	The customer enters the information including the home (billing) address	Customer	E	1	
	The system verifies if there is an existing customer with the same email address	Customer	R	1	
	The system creates a Customer	Customer	W	1	
	The system creates an address (of type billing) for the customer	Customer shipping address	W	1	
	Error/confirmation messages may appear	Messages	X	1	e.g.'email already exists'

5 CFP

Process	Subprocess	Data Group	Data movement	CFP	Comment
FP 10. New shipping address	The customer enters the new address	Customer shipping address	E	1	
	The system creates a new shipping address for the customer	Customer shipping address	W	1	
	The system updates the delivery information	Customer shipping address	X	1	The new shipping addresses appears
	Error/confirmation messages may appear	Messages	X	1	e.g. 'Zip code error'

4 CFP

Process	Subprocess	Data Group	Data movement	CFP	Comment
FP 11: Make payment	The customer chooses the payment method	Order	E	1	
	The customer enters the information of the credit card	Transient data: credit card #, PIN	E	1	This data is not stored. It is used to inquire the Banking system

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	This system requests the banking system to verify the credit card information and the availability of funds	Transient data: credit card #, PIN, amount to be paid.	X	1	Inquiry to the Banking system
	The system receives the requested authorization/rejection from the Banking system	Transient data: authorization # /reject	E	1	Response from the Banking system
	The system displays the order information and seek the Customer's acceptance	Order; Order Item; Product; Customer; Customer shipping address; Shipping method	R	6	The system has to read the order information from 6 different data groups
	The system updates the order with the payment method and authorization #	Order; Order Item	W	1	Order status=paid Item status = paid
	Error/confirmation messages may appear	Message	X	1	e.g. connection problem with the Banking system

12 CFP

Total = 63 CFP

Limitations:

This case study does not consider 'timeout' situations, which are commonly used in this type of applications.