Think of a problem domain.

* Identify objects and the classes they belong to
* Identify attributes
* Identify methods
* Briefly describe everything above

You must write a document describing at least 3 classes and 2 objects from each one with their corresponding state.

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**Description of the domain:**

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| --- |
| A software program called the online shopping cart system was created to make it easier for users to purchase online. Customers may explore a product catalog, put things in their shopping carts, evaluate their selections, and finish the transaction by checking out. The three primary classes in this system are Product, ShoppingCart, and Customer, each of which has specific methods and attributes. |

(Repeat the following information for each class in your problem).

**Class name**: Product

**Attributes**

|  |  |
| --- | --- |
| **Attribute** | **Meaning** |
| Product\_ID (int) | A unique ID for each product. |
| Name (String) | The name of the product. |
| Description (String) | A description of the product. |
| Price (int) *(in cents)* | The price of the product. |
| Quantity (int) | The stock of the product. |

**Method**

|  |  |
| --- | --- |
| **Method** | **Meaning** |
| get\_Details() | Returns all the details of the product: Name, price, quantity, ID. |
| set\_more\_quantity(q) | Increases the quantity of the stock. |
| set\_less\_quantity(q) | Reduces the quantity of the stock. |

**Instances/Objects**

|  |  |
| --- | --- |
| **Object** | **Description and value of its attributes** |
| Smartphone | |  |  | | --- | --- | | Product\_ID | 1000 | | Name | Smartphone | | Description | Portable computer device that combines mobile telephone functions and computing functions into one unit. | | Price | 59900 | | Quantity | 8 | |
| iPad | |  |  | | --- | --- | | Product\_ID | 1001 | | Name | iPad | | Description | Touchscreen tablet PC made by Apple. High tech included. | | Price | 74900 | | Quantity | 1 | |
| Apple | |  |  | | --- | --- | | Product\_ID | 1002 | | Name | Apple | | Description | Round fruit with smooth green, yellow, or red skin and firm white flesh. | | Price | 100 | | Quantity | 84 | |
| Brush | |  |  | | --- | --- | | Product\_ID | 1003 | | Name | Brush | | Description | Implement with a handle and a block of bristles, hair, or wire, used especially for cleaning, applying a liquid or powder to a surface, or arranging the hair. | | Price | 500 | | Quantity | 13 | |

**Class name**: ShoppingCart

**Attributes**

|  |  |
| --- | --- |
| **Attribute** | **Meaning** |
| Cart\_ID (int) | A unique ID for each shopping cart. |
| Items (list) | A list of products in the cart. |
| Total\_Price (int) *(in cents)* | Total price of the items added in the cart. |

**Method**

|  |  |
| --- | --- |
| **Method** | **Meaning** |
| set\_add\_cart(product,quantity) | Adds to the cart a specific quantity of products to the cart. |
| set\_remove\_cart(product,quantity) | Removes from the cart a specific quantity of products from the cart. |
| get\_cart() | Shows all the products that are in the cart. |
| get\_price\_cart() | Shows the total sum of the price of all the products in the cart. |

**Instances**

|  |  |
| --- | --- |
| **Object** | **Description and value of its attributes** |
| Cart\_1 | A cart of the online shop   |  |  | | --- | --- | | Cart\_ID | 1 | | Items | Smartphone (2), iPad (1), Apple (10) | | Total\_Price | 195700 | |
| Cart\_2 | A cart of the online shop   |  |  | | --- | --- | | Cart\_ID | 2 | | Items | Apple (100) | | Total\_Price | 10000 | |
| Cart\_3 | A cart of the online shop   |  |  | | --- | --- | | Cart\_ID | 3 | | Items | Brush (1) | | Total\_Price | 500 | |
| Cart\_4 | A cart of the online shop   |  |  | | --- | --- | | Cart\_ID | 4 | | Items | Smartphone (1) | | Total\_Price | 59900 | |

**Class name**: Customer

**Attributes**

|  |  |
| --- | --- |
| **Attribute** | **Meaning** |
| Customer\_ID (int) | A unique ID for each customer. |
| Name (string) | The name of the customer. |
| Surname (string) | The surname of the customer. |
| Email (string) | A description of the customer. |
| DNI (int) *(only the numbers)* | The DNI of the customer. |
| Cart (int) | The customer’s shopping cart. |

**Method**

|  |  |
| --- | --- |
| **Method** | **Meaning** |
| set\_add\_cart(product,quantity) | Adds to the cart a specific quantity of products to the customer’s cart. |
| set\_remove\_cart(product,quantity) | Removes from the cart a specific quantity of products from the customer’s cart. |
| get\_cart() | Shows all the products that are in the customer’s cart and the total price. |
| Set\_checkout() | Completes the purchase and clears the customer’s cart. |

**Instances**

|  |  |
| --- | --- |
| **Object** | **Description and value of its attributes** |
| Paco Ramirez | Customer of the online shop   |  |  | | --- | --- | | Customer\_ID | 10000 | | Name | Paco | | Surname | Ramirez | | Email | pacoramirez@gmail.com | | DNI | 10985632 | | Cart | 1 | |
| Laura Miranda | Customer of the online shop   |  |  | | --- | --- | | Customer\_ID | 10001 | | Name | Laura | | Surname | Miranda | | Email | lauramiranda@gmail.com | | DNI | 89562412 | | Cart | 2 | |
| Carlos Piedra | Customer of the online shop   |  |  | | --- | --- | | Customer\_ID | 10002 | | Name | Carlos | | Surname | Piedra | | Email | carlospiedra@gmail.com | | DNI | 57845621 | | Cart | 3 | |
| Arancha Puebla Díez | Customer of the online shop   |  |  | | --- | --- | | Customer\_ID | 10003 | | Name | Arancha | | Surname | Puebla Diez | | Email | restinpeace@gmail.com | | DNI | 1001001 | | Cart | 4 | |