Tarea Integradora II

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| Customer | *Mercado Libre* |
| User | Player(s) |
| Functional requirements | * + **R1:** Show the main options menu.   + **R2:** Storing products.   + **R3:** Generating orders.   + **R4:** Increasing the amount of a certain product.   + **R5:** Show the searcher **options** menu.   + **R6:** Search a product by its: name, price, category, or number of times purchased.   + **R7:** Search an order by name of purchaser, total price, or date of purchase.   + **R8:** Search a product by a range of numeric attributes (as are the price, the quantity available or the number of times purchased).   + **R9:** Allow interval searches for string attributes.   + **R10:** Delete/Remove a product.   + **R11:** Allow to choose the order (ascending or descending) of the data displayed and the sort variable. |
| Context of the problem | MercadoLibre has hired our services to develop an application that allows the online sale of its virtual store. Our task is to create a program that allows to enter the inventory of the virtual store and allows the search and removal of products. In addition, the program must allow user to register the orders placed by the store's users. |
| Non-functional requirements | * The program must be a text interface per console. |
| Process requirements | * PERSISTENCY   To ensure data integrity, the application must have data persistence through JSON serialization. It must be able to store product information in files so that the data is available even after the program is closed.   * EXCEPTIONS   Finally, the program must handle exceptions to avoid unexpected states during product entry and search. It must provide informative error messages to guide the user in case of an unexpected error.   * CONDITIONS   The project MUST be developed using TDD.   * Search engines must use the binary search algorithm to find matches in product records and must display the results by console. |

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| Name or identifier | **R1:** Main menu display | | |
| Summary | The menu must be displayed to the user with the corresponding options for him to decide himself | | |
| Inputs | **Entry name** | **Data type** | **Selection or repetition condition** |
| option | int | Number among 1 and 4 |
| General activities required to achieve results | When entering the menu, the user must choose between the four options that will be displayed, either for adding products to inventory, for generating order, for searching a product or an order, or to exit the menu. | | |
| Result or Postcondition | The program will do other options related to inventory or quit. | | |
| Outputs | **Output name** | **Data type** | **Selection or repetition condition** |
| message | String | The option entry was among the required parameters |
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| Name or identifier | **R2:** Storing products. | | |
| Summary | It receives the name, description, price, quantity available, category and number of times purchased. These for storing or add a new element to the inventory. | | |
| Inputs | **Entry name** | **Data type** | **Selection or repetition condition** |
| name | String | It must have more than 1 character. |
| desc | String | It must have more than 1 character. |
| price | double | Integer greater than or equal to 0. |
| quantity | int | Integer greater than or equal to 0. |
|  | category | int | Integer among 1 to 8. Where each number has a different value (aka categories):  1. Books  2. Electronics  3. Apparel and accessories  4. Food and beverages  5. Stationery  6. Sports  7. Beauty and personal care products  8. Toys and games |
|  | purch\_times | int | Integer greater than or equal 0. |
| General activities required to achieve results | It must receive all of these variables in order to create a new object(product). Calling a method that can call the constructor method of the product to create. | | |
| Result or Postcondition | Added/stored product in the inventory | | |
| Outputs | **Output name** | **Data type** | **Selection or repetition condition** |
| message | String | A  message, that proves or not, the stored of the product. |

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| Name or identifier | **R3:** Generating orders. | | |
| Summary | It receives the buyer’s name, list of products, total price, and purchase’s date. These for storing or add a new order to the program. | | |
| Inputs | **Entry name** | **Data type** | **Selection or repetition condition** |
| bName | String | It must have more than 1 character. |
| list | List<Product> | It must have more than 1 product. |
| totalPrice | double | Double greater than or equal to 0.0. |
| purchaseDate | String | It must be written with the format DD/MM/YYYY.  It must be a date before or equal than current(real)’s day |
| General activities required to achieve results | It must receive all of these variables in order to create a new order. Calling a method that can call the constructor method of the order to create.  Set the subtraction between the amount of products requested of a certain product requested, and the quantity available of a certain product requested. | | |
| Result or Postcondition | Added/stored order in the program.  Decrease in the available quantity of a product. | | |
| Outputs | **Output name** | **Data type** | **Selection or repetition condition** |
| message | String | A message, that proves or not, the stored of the order. |

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| Name or identifier | **R4:** Increasing the amount of a certain product. | | |
| Summary | It receives the index(position) shown of a searched product, and the quantity of units to add of the chosen product. | | |
| Inputs | **Entry name** | **Data type** | **Selection or repetition condition** |
| index | int | Integer greater than or equal to 1. |
| amount | int | Integer greater than or equal to 1. |
| General activities required to achieve results | When it’s obtained the product by the index given, it must set the adding between the input amount and the available quantity. | | |
| Result or Postcondition | Increase in the available quantity of a product. | | |
| Outputs | **Output name** | **Data type** | **Selection or repetition condition** |
| message | String | A message that contains the current (with changes) available quantity of the product and its name. |

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| Name or identifier | **R5:** Show the searcher options menu. | | |
| Summary | The menu must be displayed to the user with the corresponding options for him to decide himself | | |
| Inputs | **Entry name** | **Data type** | **Selection or repetition condition** |
| option | int | Number among 1 and 3. |
| General activities required to achieve results | When entering the menu, the user must choose between the three options that will be displayed, either for searching products, for searching orders, or to go back to the menu. | | |
| Result or Postcondition | The program will do other options related to search or go back. | | |
| Outputs | **Output name** | **Data type** | **Selection or repetition condition** |
| message | String | The option entry was among the required parameters |

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| Name or identifier | **R6:** Searching products by any of its attributes. | | |
| Summary | Receive any attribute either name, price, category, or number of times purchased. These to search for all products with matches according to the configured variable(s). | | |
| Inputs | **Entry name** | **Data type** | **Selection or repetition condition** |
| name | String | (optional) It must have more than 1 character. |
| price | double | (optional) Integer greater than or equal to 0. |
|  | category | int | (optional) Integer among 1 to 8. Where each number has a different value (aka categories):  1. Books  2. Electronics  3. Apparel and accessories  4. Food and beverages  5. Stationery  6. Sports  7. Beauty and personal care products  8. Toys and games |
|  | purch\_times | int | (optional) Integer greater than or equal 0. |
| General activities required to achieve results | Calling a method that get all of the products searched by the given conditions, and, printed in the display. | | |
| Result or Postcondition | A specific search of a product. | | |
| Outputs | **Output name** | **Data type** | **Selection or repetition condition** |
| message | String | A message, that proves or not, the searched product by the given condition. |

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| Name or identifier | **R7:** Searching orders by any of its attributes. | | |
| Summary | Receive any attribute of the order to search either name of purchaser, total price, or date of purchase. These to search for all orders with matches according to the configured variable(s). | | |
| Inputs | **Entry name** | **Data type** | **Selection or repetition condition** |
| bName | String | (optional) It must have more than 1 character. |
| totalPrice | double | (optional) Integer greater than or equal to 0. |
|  | purchaseDate | String | (optional) A date must be written with the format DD/MM/YYYY.  It must be a date before or equal than current(real)’s day |
| General activities required to achieve results | Calling a method that get all of the orders searched by the given conditions, and, printed in the display. | | |
| Result or Postcondition | A specific search of a product. | | |
| Outputs | **Output name** | **Data type** | **Selection or repetition condition** |
| message | String | A message, that proves or not, the searched order by the given condition. |

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| Name or identifier | **R8:** Interval/Range for numeric attributes in a search. | | |
| Summary | It receives the minimum(less) value and max(limit) value to search according to the numeric variable. | | |
| Inputs | **Entry name** | **Data type** | **Selection or repetition condition** |
| minVal | int | Integer greater than or equal to 0 but less than max value. |
| maxVal | int | Integer greater than or equal to 1. |
| General activities required to achieve results | To define, as the condition of the numeric attribute for searching, the range given. | | |
| Result or Postcondition | Range of the numeric attribute | | |
| Outputs | **Output name** | **Data type** | **Selection or repetition condition** |
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| Name or identifier | **R9:** Interval/Range for String attributes in a search. | | |
| Summary | It receives the first or/and last character for coincidences into a String attribute of a product or an order expected. | | |
| Inputs | **Entry name** | **Data type** | **Selection or repetition condition** |
| first | char | Optional |
| last | char | Optional |
| General activities required to achieve results | To define, as the condition of the String attribute for searching, the range given. | | |
| Result or Postcondition | Range of the String attribute | | |
| Outputs | **Output name** | **Data type** | **Selection or repetition condition** |
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| Name or identifier | **R10:** Delete/Remove a product. | | |
| Summary | It receives the index(position) shown of a searched product that is meant to be the product. | | |
| Inputs | **Entry name** | **Data type** | **Selection or repetition condition** |
| index | int | Integer greater than or equal to 1. |
| General activities required to achieve results | When it’s obtained the product by the index given, it must delete from the inventory. | | |
| Result or Postcondition | A product removed from inventory | | |
| Outputs | **Output name** | **Data type** | **Selection or repetition condition** |
| message | String | A message, that proves or not, the deleting of the product. |

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| Name or identifier | **R11:** Allow to choose the order (ascending or descending) of the data displayed and the sort variable. | | |
| Summary | It receives the index(position) shown of a searched product that is meant to be the product. | | |
| Inputs | **Entry name** | **Data type** | **Selection or repetition condition** |
| option | int | Integer between 1 and 2. |
|  | variable | int | Integer among 1 to 4. |
| General activities required to achieve results | If option it’s 1, the order will be displayed in ascending way. Otherwise, it will be descending.  The variable it must be needed to sort, in conjunct, of the option. So,  1: name, 2: price, 3: category, or, 4: amount of times purchased.  In this way, will be printed according to the variable in the specific order mentioned by the user. | | |
| Result or Postcondition | Printed searched ascendent or descendent data according to variable. | | |
| Outputs | **Output name** | **Data type** | **Selection or repetition condition** |
| message | String | A message, that proves or not, the chosen by the user. |