In this assignment, you'll demonstrate your understanding of object-oriented programming by using inheritance. Additionally, this should help your understanding of generalization.

Specifications

Best Purchase is an online store specializing in various electronics and appliances. The company has hired you to develop a program for managing its inventory. Your task involves creating a program that organizes inventory items efficiently.

Your initial approach is to create a class for each inventory item type. However, you soon realize that all items share common attributes such as product description, price, and quantity on hand. To address this, a base class named InventoryItem has been provided.

All inventory items share the following common properties:

- Product type (enum)
- Brand (string)
- Title (string)
- Quantity on hand (int)
- Price (float)

Each product type has its own unique properties:

- Laptop:
  - Screen resolution
  - Screen size
  - Storage size
  - RAM size
  - CPU
- Smartphone:
  - Screen resolution
  - Storage size
  - RAM size
  - CPU
  - Camera resolution
- Robotic vacuum:
  - Cleaning path width
  - Bagless (yes or no)
  - Color
  - Weight
- Camera:
  - Image sensor type
  - Effective pixels

- Video resolution
  - Air fryer:
    - Non-stick interior (yes or no)
    - Color
    - Functions

The Categorizer class contains a Creator() method responsible for processing input and creating objects based on the given information. The input includes the product type, brand, title, quantity on hand, price, and specific properties unique to each product type.

A base class named InventoryItem has been created. It includes a method DisplayItem with a signature that should not be modified. This method is responsible for displaying common fields as well as the unique fields of each product type.

Instructions:

1. Complete the base class InventoryItem to handle common attributes.

2. Complete the classes for each product type, ensuring they inherit from the base class and include unique properties.

3. Finalize the Categorizer class' Creator() method and the DisplayItem() method to handle input and display information.

   a. To ensure clarity and a comprehensive view, each product type's class should implement a unique display output. This output should include both common fields and the specific, unique fields associated with the product type.

4. Maintain the method signatures for the Categorizer class and the DisplayItem() method. You have the flexibility to modify other parts of the code, add utility methods, extra classes, or variables as needed.

Scoring

The correctness of your code is worth 15 points. Another 5 points are for code cleanliness, tidiness, and optimization.

Submission

The submission for this assignment are the commit IDs you want to be graded. You will submit it via the Canvas assignment.