

Exam Preparation I

02. Products

You can check your solutions in [Judge](#).

Your Task

Your task is to write a single **function solve()** that performs various data manipulation operations on a given array of product objects in a tech shop. You will **add**, **remove**, **update**, and **filter** products within this array. The function **solve()** should take an **array of products** as its **parameter**. **Inside this function**, you will define several **methods** to handle specific operations, and **each method** should **return** its **respective message**.

You are provided with an **array** called **products** that contains objects. Each object represents a product and has the following **properties**:

```
const products = [  
  { id: 1, name: "Laptop", category: "Electronics", price: 1200, stock: 30 },  
  { id: 2, name: "Smartphone", category: "Electronics", price: 800, stock: 50 },  
  { id: 3, name: "Headphones", category: "Accessories", price: 150, stock: 100 },  
];
```

Write the following **methods** inside the **solve()** function:

Filter products by category

- Write a function **getProductsByCategory(category)** that takes a **category** parameter and returns an array of products belonging to the given category.
- The method should return new array with **filtered products**.

Add a new product

- Write a function **addProduct(id, name, category, price, stock)** that takes five parameters (**id**, **name**, **category**, **price**, **stock**) and adds a new product to the products array.
- The method should return **products array with new product included**.

Find product by ID

- Write a function **getProductById(id)** that takes an **id** parameter and returns the **product object** with the **given id**.
- The method should return **product object** or ``Product with ID ${id} not found``

Remove product by ID

- Write a function **removeProductById(id)** that takes an **id** parameter and **removes** the **product** with the **given id** from the product array.
- The method should return **products array without the removed product**.
- If the product with this ID does not exist, return: ``Product with ID ${id} not found``

Update product price

- Write a function **updateProductPrice(id, newPrice)** that takes an **id** parameter and a **newPrice** parameter and updates the price of the product with the given id.
- The method should return **products array with updated product price**.
- If the product with this ID does not exist, return: ``Product with ID ${id} not found``

Update product stock

- Write a function **updateProductStock(id, newStock)** that takes an **id** parameter and a **newStock** parameter and updates the stock of the product with the given id.
- The method should return **products array with updated product stock**.
- If the product with this ID does not exist, return: ``Product with ID ${id} not found``

At the end of the **solve()** function, **do not forget to include the final return statement** that returns an object with references to all the methods you have defined. This will allow the methods to be called from outside the **solve()** function.

```
return {  
  getProductsByCategory,  
  addProduct,  
  getProductById,  
  removeProductById,  
  updateProductPrice,  
  updateProductStock  
};
```

Examples

Input	Output
<pre>const store = solve(products); store.getProductsByCategory("Electronics");</pre>	<pre>[{id: 1, name: 'Laptop', category: 'Electronics', price: 1200, stock: 30}, {id: 2, name: 'Smartphone', category: 'Electronics', price: 800, stock: 50}]</pre>
<pre>store.addProduct(3, "Tablet", "Electronics", 300, 7);</pre>	<pre>[{id: 1, name: 'Laptop', category: 'Electronics', price: 1200, stock: 30}, {id: 2, name: 'Smartphone', category: 'Electronics', price: 800, stock: 50}, {id: 3, name: 'Headphones', category: 'Accessories', price: 150, stock: 100}, {id: 3, name: 'Tablet', category: 'Electronics', price: 300, stock: 7}]</pre>

<code>store.getProductById(1);</code>	<code>{id: 1, name: 'Laptop', category: 'Electronics', price: 1200, stock: 30}</code>
<code>store.removeProductById(2);</code>	<code>[{id: 1, name: 'Laptop', category: 'Electronics', price: 1200, stock: 30}, {id: 3, name: 'Headphones', category: 'Accessories', price: 150, stock: 100}]</code>
<code>store.updateProductPrice(3, 350);</code>	<code>[{id: 1, name: 'Laptop', category: 'Electronics', price: 1200, stock: 30}, {id: 2, name: 'Smartphone', category: 'Electronics', price: 800, stock: 50}, {id: 3, name: 'Headphones', category: 'Accessories', price: 350, stock: 100}]</code>
<code>store.updateProductStock(10, 8);</code>	Product with ID 10 not found

Submission

In Judge submit only **solve()** function.