Product Price Service

Hearst is building an online marketplace where retailers can offer products for sale that are of interest to readers of our magazines and newspapers. Many products will be offered on this marketplace and many products will have offerings from multiple retailers. We want to provide our readers with the current lowest price for the products they're interested in. To achieve this, we are building a service that can quickly respond with the lowest price for items by SKU for a product detail page or an in-place advertisement.

The system provides two main entry points. The webhook `receive()` is called any time a new price is made available from one of our known retailers. These can occur at any time. The receiver should ensure we store the price received for 2 purposes: 1) vending the current lowest price on a product across retailers and 2) performing analysis on the price history of an item. The method signature is as follows:

```
interface PriceUpdate {
    retailer: string;  // the name of the retailer
    sku: string;       // assume retailers share a common SKU
    price: number;     // always the price per unit
    url?: string;      // product detail link, optional
}

function receive(payload: PriceUpdate): void;
```

The `findPrice()` endpoint is responsible for determining the best price of an item at the time it is called. It is exposed to web-scale traffic, so must be able to respond in under 20ms. The method signature and response payload are as follows:

```
interface ProductPrice {
    retailer: string;
    sku: string;
    price: number;
    url?: string;
}

function findPrice(sku: string): ProductPrice;
```

Please implement the webhook `receive()` and `findPrice()` functions in a language of your choosing. Design and describe your persistence strategy including schemas, indexes, and rationale. You do not need to implement the persistence methods, only add a comment where it should be used. Please document any third-party libraries and any assumptions you have made in your comments.

Sample Data (URL omitted for brevity)

`receive()` Inputs			`findPrice()` Input	`findPrice()` Outputs	
SKU	**Retailer**	**Price**	**SKU**	**Low Retailer**	**Low Price**
CLOCK	Walmart	$20	CLOCK	Walmart	$20
BED	IKEA	$140	BED	IKEA	$140
CLOCK	Target	$15	CLOCK	Target	$15
CLOCK	Target	$14	CLOCK	Target	$14
CLOCK	Best Buy	$30	CLOCK	Target	$14
BED	Mor	$120	BED	Mor	$120
CLOCK	Target	$25	CLOCK	Walmart	$20
CLOCK	Walmart	$27	CLOCK	Target	$25
CLOCK	Costco	$12	CLOCK	Costco	$12
BED	IKEA	$100	BED	IKEA	$100
CLOCK	Costco	$13	CLOCK	Costco	$13