Telecommunication Services Queries by USSD Code

A telecommunication company, DevLinks; has just concluded their physical structural setup and only have the need to provide access to a few services using the USSD technology.

On the Welcome Terminal:

1. The Customer logs into the system using their virtual SIM number. Their virtual SIM is the primary mode of Customer authentication because with it we know the Customer exists too and has acquired a SIM.
2. If the virtual SIM number entered by Customer is not found in the acquired SIM DB entity:
    a. The Customer is prompted for their **Customer Code**.
        i. Search Customer DB Entity for the Customer.
        ii. If the Customer exists, then check if the Customer acquired a SIM already.
        iii. If the Customer exist and has acquired a SIM already, then display the correct Customer virtual SIM number and prompt the Customer to re-enter their number, after validating input to be true, display the services right away.
        iv. If the Customer doesn't exist at all then prompt Customer to do a registration.
3. On a successful registration, prompt the Customer to acquire a virtual SIM.
4. Only after acquiring a SIM would they be shown the rest of the services below:
    a. Buy Airtime voucher
    b. Check airtime balance
    c. Buy Internet data

d. Check data balance

To detail out the process:

On the Welcome terminal, the Customer is prompted to enter their virtual SIM number.

If the number doesn't exist in the list of acquired SIM held by an array of type **CustomerSIM** in the **Database** class then the Customer is prompted to register and after which, is prompted to dial the corresponding code to acquire a virtual SIM. E.g. *Please dial *700# to acquire a virtual SIM:*

After logging in or successful registration, the Customer is shown a list of services, thus: **a**, **b**, **c**, & **d** with their corresponding codes to access them.

Service 'a' shouldn't have a one-time request grant. It further shows the Customer a list of **Airtime vouchers** available with their costs from which the user chooses and gets recharged.

Yes! Service 'b' has a one-time request resolve. You just query the balance of the Customer.

To purchase an Internet data bundle, the Customer's airtime balance would have to be checked to ensure they have enough balance to purchase the selected data bundle. Just like service 'a', the Customer is shown a list of Data bundles, their sizes (the amount of data credit they get) and their costs.

The Customer is told they don't have enough airtime to purchase the selected bundle if that be the case else is subscribed.

The Customer should be able to query their data balance too.

The application process will allow the generation of virtual SIMs, Airtime vouchers and Data bundles.

Remember that a registered Customer is shown all available (not yet acquired) virtual SIMs from which they choose.

The chosen virtual SIM is tied to the Customer and becomes unavailable for purchase.

A few Entities to consider having:

    a. Customer: The Customer object
    b. Virtual SIM: The virtual SIM object
    c. CustomerSIM: The Customer and Virtual SIM connection entity
    d. Create entities to handle **Airtime vouchers** and **Internet data bundles**

Below is the services chart:

SN	SERVICE	CODE
1	Acquire a virtual SIM	*700#
2	Buy airtime voucher	*310#
3	Check data balance	*310*1#
4	Buy data bundle	*320#
5	Check data balance	*320*1#

Upon dialing *700#, *310# or *320#, the user is shown a list containing the corresponding products from which they choose to proceed.

All data persistence should be handled in the Database class properly.

Good luck. 😃