Internet Engineering - Golang (HW4)

In this homework, we want to create Rest APIs for a supermarket application, actually Javad's supermarket. People usually come and buy a lot of daily products namely milk, biscuits, chocolates, ice cream and more. Managing customers are becoming severe to handle for him, so you are here to help Javad handle his supermarket's need rapidly.

Part 1

Javad needs a panel to manage customers. Below is a schema of customers data in backend.

Key	Type	Description	Example
cName	String	Customer name	Darush
cTel	Number	Customer telephone	9123012345
cAddress	String	Customer address	Valiasr St. ,Tehran
cID	Number	Customer unique ID	1
cRegisterDate	Time	Customer register date in supermarket	2020-10-25

What you should do is to implement a **CRUD** Rest api that have the following endpoints:

Api	Description
POST /customers	Create new customer
PUT /customers/{cID}	Edit a customer by cID
GET /customers	Get all customers
DELETE /customers/{cID}	Delete a customer by cID

More details:

1) Create new customer:

   - When creating a new customer, user sends body request as follows:

```
/*
    POST /customers
*/

{
        "cName"    : "Darush",
        "cTel"     : 9123012345,
        "cAddress" : "Valiasr St. ,Tehran",
}
```

- Http response:

```
{
    "cID"      : 1,
    "cName"    : "Darush",
    "cTel"     : 9123012345,
    "cAddress" : "Valiasr St. ,Tehran",
    "cRegisterDate" : "2020-10-25"
    "msg"      : "success"
}
```

2) **Edit a customer by** `CID` :

- When editing a customer, user sends body request as follows:

```
/*
    PUT /customers/{cID}
*/

{
        "cName"    : "Kourosh",
        "cTel"     : 9123012345,
        "cAddress" : "Vanak St. ,Tehran",
}
```

- Http response:

```
{
    "cID"      : 1,
    "cName"    : "Kourosh",
    "cTel"     : 9123012345,
    "cAddress" : "Vanak St. ,Tehran",
    "cRegisterDate" : "2020-10-25"
    "msg"      : "success"
    // OR
    "msg"      : "error (when cID is not available)"
}
```

3) **Get customers:**

- When getting customers list, user just calls

```
/*
    GET /customers
*/
```

- Http response:

```
{
    "size"     :  3, // Length of customers array
    "customers":[
        {
            "cID"      : 1,
            "cName"    : "Kourosh",
            "cTel"     : 9123012345,
```

```
        "cAddress" : "Vanak St. ,Tehran",
        "cRegisterDate" : "2020-10-25"
    },
    {...},
    {...},
],
    "msg"       : "success",
// OR
    "msg"      : "error (when no customers are not available)",
}
```

4) Delete a customer by `CID` :

- When Deleting a customer, user sends body request as follows:

```
/*
    DELETE /customers/{cID}
*/

{
    "cID" : 1,
}
```

- Http response:

```
{
    "msg" : "success"
    // OR
    "msg" : "error (when cID is not available)"
}
```

Part 2

Another feature that can help Javad is report list. In report list he can see how many customers he had in every month, or can choose specific month to see the results. Imagine he chose February, then you should accumulate number of customers during that period. (Months are zero based and are like this: *January: 0, February: 1, …, December: 11*)

- Http request:

  `GET /report/{month}`

  example : `GET /report/1`

- Http response:

```
{
    "totalCustomers": 2,
    "period"        : 1,
    "msg"           : "success" //OR "error"
}
```

The last but not least is when Javad needs to look for customers phone & address by his name or just some part of beginning of their name.

He also wants to know how many products he sold monthly (Report).

- Http query param:

  `GET /customers?cName={cName}`

  example: `GET /customers?cName=Kour`

- Http response:

```
{
    "cID"          : 1,
    "cName"        : "Kourosh",
    "cTel"         : 9123012345,
    "cAddress"     : "Vanak St. ,Tehran",
    "cRegisterDate" : "2020-10-25"
}
```

Extra Points

- Data in your application is not persistent meaning that you can handle requests without database! but if you want extra score, you can use **PostgreSQL** or **MongoDB** or other databases.

How to send homework

- Zip all your files and name it `[STUDENT_ID]-[STUDENT_NAME]-[HW4].zip`
- Upload your zip file to Quera.

Good Luck! 🤠 ✨