Question:

A bank company is thinking about the possibility of offering cash back to their clients.

The manager has already developed a few business rules for the promotion but he wants the IT team to run a few tests on a live data sample before it can decide if the rules need further adjustments.

Business Rules:

1. Only the **Premium** clients will have access to the Cash Back promotion with the value of **1%** on each transaction.
   a. Premium clients are identified with the number **1** at the "type" field
2. The bank has partnered up with some companies. The agreement is that **each month** a company will provide a **2%** cashback on any transaction made that month above $50 dollars.
   a. Example if Amazon has been assigned to January:
      i. If a **premium** customer buy $50 at them we will give him the **2%**
      ii. If a **premium** customer buy $49 or less at them we will give him the **1%**
3. Each partner company will have their own capping value per transaction for each month.
   a. Example if Amazon has been assigned to:
      i. January and decides the cap is of **$150:**
         1. If a **premium** customer buy $150 at them we will give him the **2%**
         2. If a **premium** customer buys $154.00 at them we will give him the **2%** cashback on the $150.00 only. The remaining $4.00 will not receive any cashback percentage.
         3. If the same **premium** customer has a third transaction equal or smaller than $150 the 2% will cover the transaction.
4. Every year the bank will provide one **Premium** customer with a special 0.5% cashback on the sum of all the transactions that got partially covered by Company Partner cashback.
   a. For each transaction not fully covered by the Partner Company discount save the part of covered. Sum them. The highest one gets the 0.5% discount.
   b. The discount will be applied to the total discounted amount of the full year

Input Examples:

```json
{
    "data": {
        "customers": [
            {
                "id": "1",
                "name": "John Doe",
                "email": "johndoe@email.com",
                "type": "1"
            },
            // ...
            {
                "id": "5",
                "name": "Harleen Quinzel",
                "email": "harleenquinzel@email.com",
                "type": "0"
            }
        ],
        "companies": [
            {
                "id": "1",
                "name": "Amazon",
                "cashback_schedule": [
                    {
                        "start_date": "2022-01-01",
                        "end_date": "2022-01-31",
                        "cashback_percentage": "2",
                        "ceiling_cap": "100"
                    },
                    // ...
                ]
            },
            // ...
        ],
        "transactions": [
            {
                "transaction_id": "666c194f-5dd2-4895-9e30-9f598d97db7d",
                "customer_id": "5",
                "amount": "934.40",
                "company_id": "2",
                "date": "2022-06-01T13:49:00"
            },
            // ...
        ]

    }
}
```

Result Samples

```
1    Barry Alen  [Jan]       total cashback: 99.9      total amount: 99.9  total amount with discount: 99.9      total amount not eligible for cashback: 99.9
2    # ...
3    Barry Alen  [Dec]       total cashback: 99.9      total amount: 99.9  total amount with discount: 99.9      total amount not eligible for cashback: 99.9
4    Barry Alen  [Total]     total cashback: 99.9      total amount: 99.9  total amount with discount: 99.9      total amount not eligible for cashback: 99.9
5
6
7    Jane Doe    [Jan]       total cashback: 99.9      total amount: 99.9  total amount with discount: 99.9      total amount not eligible for cashback: 99.9
8    # ...
9    Jane Doe    [Dec]       total cashback: 99.9      total amount: 99.9  total amount with discount: 99.9      total amount not eligible for cashback: 99.9
10   Jane Doe    [Total]     total cashback: 99.9      total amount: 99.9  total amount with discount: 99.9      total amount not eligible for cashback: 99.9
11
12
13   John Doe    [Jan]       total cashback: 99.9      total amount: 99.9  total amount with discount: 99.9      total amount not eligible for cashback: 99.9
14   # ...
15   John Doe    [Dec]       total cashback: 99.9      total amount: 99.9  total amount with discount: 99.9      total amount not eligible for cashback: 99.9
16   John Doe    [Total]     total cashback: 99.9      total amount: 99.9  total amount with discount: 99.9      total amount not eligible for cashback: 99.9
17
18
19   Customer with highest amount not eligible for cashback: Jane Doe
20
```