**Personal Financial Manager:** Explain how you would design a personal financial manager (like Mint.com). This system would connect to your bank accounts, analyze your spending habits, and make recommendations.

**Solution:**

Person owns many bank accounts (online)

He creates an account in the finance.com

* All the bank details mapped to the unique id, email and mobile are shown to the user and he gives permission for each bank to be monitored.
* Additionally he can also add new bank accounts not listed
* The finance.com will use the web service for the detail gathering on initial as well as periodic request whenever the transaction happens the finance.com could be intimated by another web service of the banks just like the messaging facility which will be used to gather details in real time. Security mechanisms has to be in place for sensitive data protection

**Types**

Assets – Investments, Fixed Deposit, Recurring Deposit and other income generators

Liabilities – Loans, Credit Card, EMI, etc.

Liquidated Money – Bank Transaction and the ones manually added by the user in the application

**Category**

User can categorize the spending listed as pulled from the transaction web service and the manually added money

**Graphical Representation**

Fuel, Grocery, Credit Card, Electricity, Water, Phone Bills, Food Expense, Medicine, etc.

INFO: Update can happen in real time or a slight interval, and not more than five minutes

1 – Client request to the web application finance.com accounts are linked, session is established, the application will start to have listeners for transactional message from the bank accounts

2- Application server will update the master – master database the transaction happening in the application and also the transactional data for the analytics mechanism

3 – When read request is made the replicas are utilized

4 – Web service module will read data from replica and write to the master-master database

5 – Analytics/Graphical Representation module will perform their tasks as requested by each application server

6 – Administrator will have privilege to add, remove, update product and the details are used in the next ranking batch call

1

2

3

4

N

**Clients**

**Load Balancer 1**

**Load Balancer 2**

**Active – Passive Load Balancer**

**1**

**Client invokes the application which is load balanced and then sent to the corresponding server after session is created**

**Active - Passive Load Balancer**

1

2

3

N

**Cluster of Application Server**

**Read Replicas**

**Master – Master**

**2**

**3**

**Modules**

**Login/Setup Application UX**

**Analytics/Graphical Representation Module**

**Web service Module**

**4**