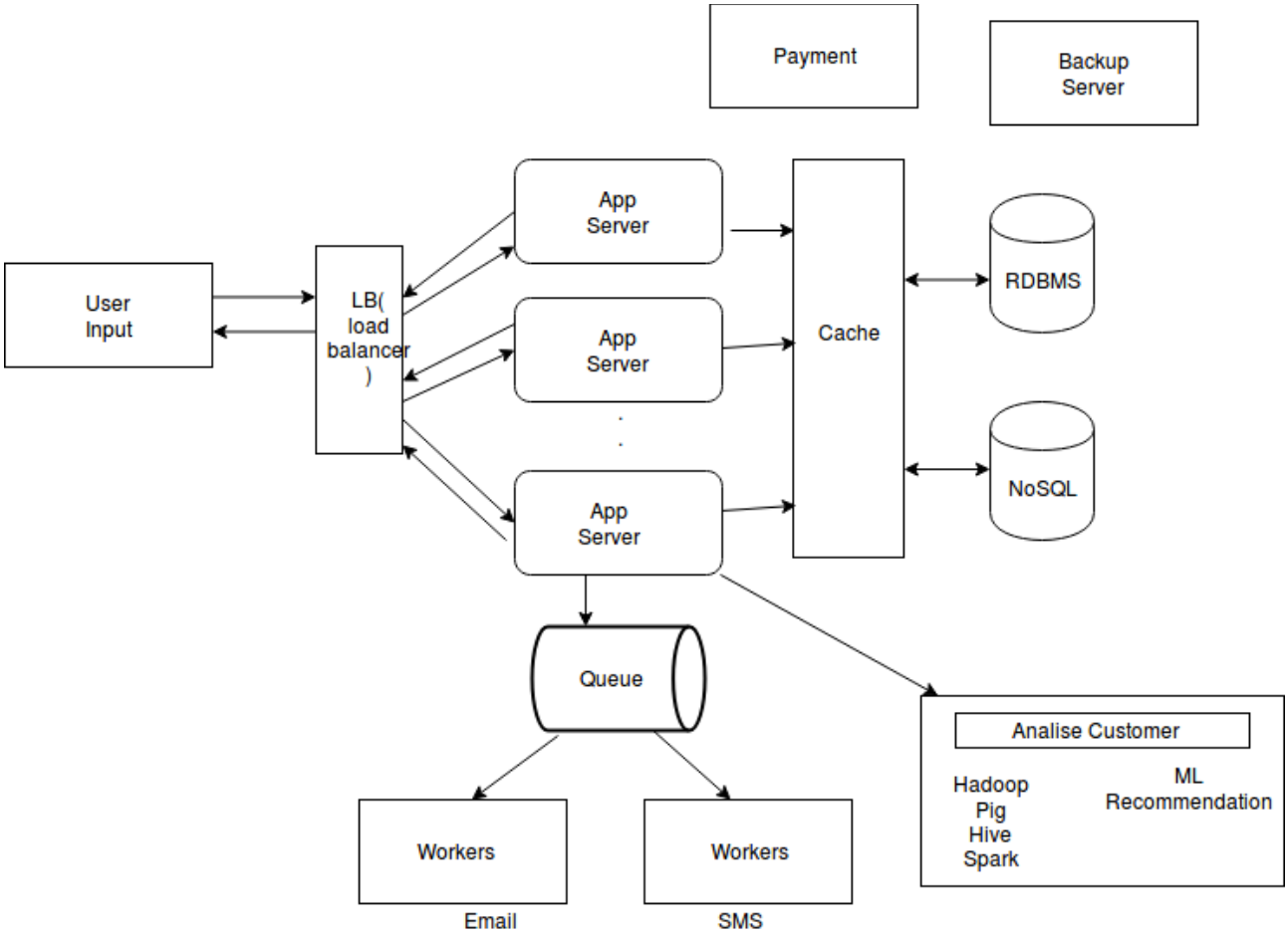
Question 1 - Design/Writing

Assume you are a courier company. How do you help your customers create delivery orders efficiently? Assume there are 3 types of customers. Customers that create 1 delivery every week, 10 deliveries a day, and 1000 deliveries a day. Describe how you would solve this problem. No code needed.

A Generic Model and Architechture Diagram/System Design



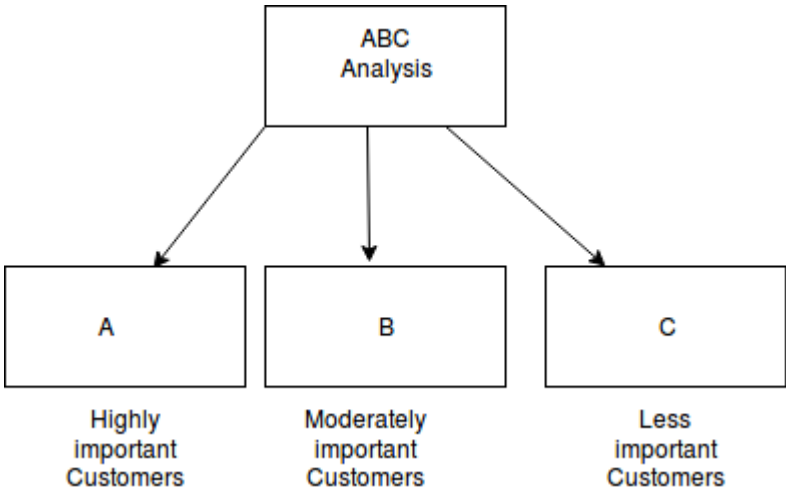
The above diagram shows a sample system design of a courier company. We have a load balancer for serving the request to App Server. The App Server save few cache information in cache(say memcache), for databases, we have used combination of RDBMS and NoSQL. We can have many workers for processing of time taking task asynchronously, message is added into the queue and any workers which is free will pick up the task and do the time taking task. We have hadoop platform for finding buisness intelligence. We can use ML recommendation algorithms to find out those informations.

Customer Analysis:

We need to find Analytics of Customers using Predictive Models for finding buisness intelligence.

ABC Analysis:

Villefredo Pareto (1848-1923), an economist, discovered that 20 percent of the people controlled 80 percent of the wealth. So a general anlytics of Customer is important.



A Customer -> 20% of the customers who creates 80% of the company revenue

B Customer -> 30% of the customers who creates 15% of the company revenue

C Customer -> 50% of the customers who creates 5% of the company revenue

To find those customer we can use several methods:

Behavioral Clustering

Segment customers by demography, purchase behavior, campaing responses and channel prefernces

Recency, Frequency, Monetary

Recency, Frequency, Monetary Score customers by usage behavior

Customer Lifetime Value

Customer Lifetime Value, find Forecast value of every customer

Propensity Models

Predict the likelihood of a customer behavior like response to campaign, brand and category adoption