INDEX PERFORMANCE STUDY

1. COLLECTION “user”
   1. Username

The first field in which we study the possibility of indexing is the “username” one in the “user” collection. A username is a REQUIRED and UNIQUE field of each user, and it is his/her mnemonic id inside the application.

The field username is involved in the following queries:

W1-)Insert a new username at registration time of an arbitrary user

W2-)Remove a username when an admin delete’s a user from the system

R1-)Check uniqueness of a username at registration time

R2-)Check user’s credential at login time

R3-)Find a user by username when a new follow request is submitted

Considering these operations, we try to estimate reads and writes’ loads on the Database considering realistic hypothesis on the frequency of each query.

Assuming that a registered user will play the game for about 100 days before “getting bored”, we can state that the number of logins-per-day(LPD) will be 100 times the number of registrations-per-day(RPD): this means that the queries R1+R2 are submitted 101 times more than query W1.

Moreover, we can assert that query W2 will be very rare, while R3 is a popular query among the network structure of the application, say 30 finds-per-day.

Now consider MongoDb performances with and without using an index on the “username” field