Personal Job Assistant -PJA

Team - Group 8

Group Members

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Problem Statement

Job hunting in India is quite a challenging task as the demand to supply ratio is heavily lopsided. Networking works everywhere, but people with less social linkages or zero networks tend to rely more on the jobseeker's portal like Naukri, Monster, Times Jobs etc. to find them their next desirable job.
Till now, the easiest method is probably to keep an updated profile on these multiple job portals, hoping that someone from relevant company's HR will notice your CV, or probably applying via the conventional mechanism of email communication.

This all works well, but it requires personal attention on day-to-day basis on keeping your profile updated and literally perusing through hundreds of emails before someone would find any relevant ones.
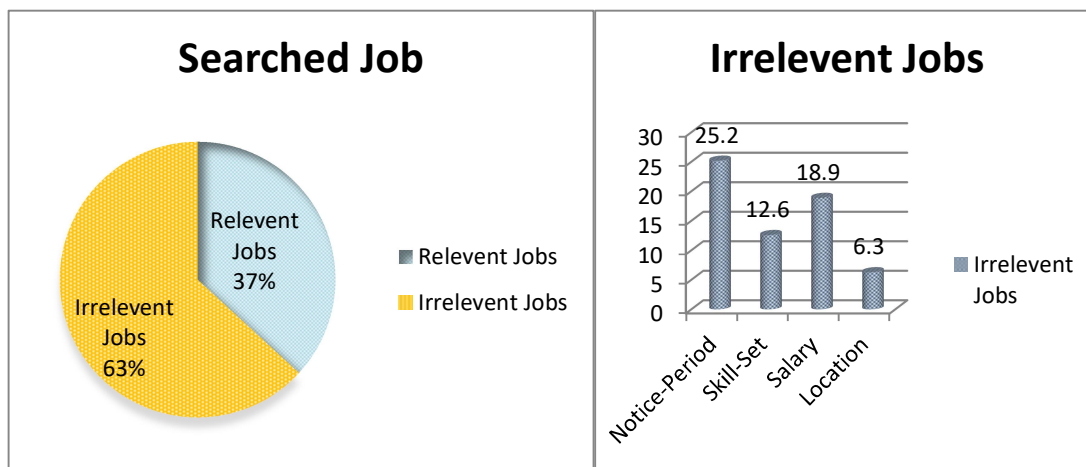
Even if we take a personal example from this group, just in the last week, we have received over 500 jobs suggestion in our listed email boxes(combined), but more than 60% of those were irrelevant due to numerous reasons.

We could list a plethora of reasons, but below seems to be the prominent ones

1. Location Not Suitable

2. Present Notice Period is unsuited.
3. Salary not desirable.
4. A person already working in management role being emailed for a developer job.
5. Job was recommended based on keyword match, but the technology or the domain is completely irrelevant.

If we depict this, below would be the breakup of the observation from last week.

Searched Job

Relevent Jobs 37%

Irrelevent Jobs 63%

- Relevent Jobs
- Irrelevent Jobs

Irrelevent Jobs

25.2
18.9
12.6
6.3

Notice-Period, Skill-Set, Salary, Location

- Irrelevent Jobs

Aim

The underlined principle is to build a comprehensive job assisting system that is more reliable and can filter out these irrelevant jobs at an early stage before users put their mind and effort into it. Users can still provide regular feedback on automated job classification and are ultimately better suited to be the final gatekeepers, reviewing and issuing acceptance and rejection for these job applications.

Execution Workflow
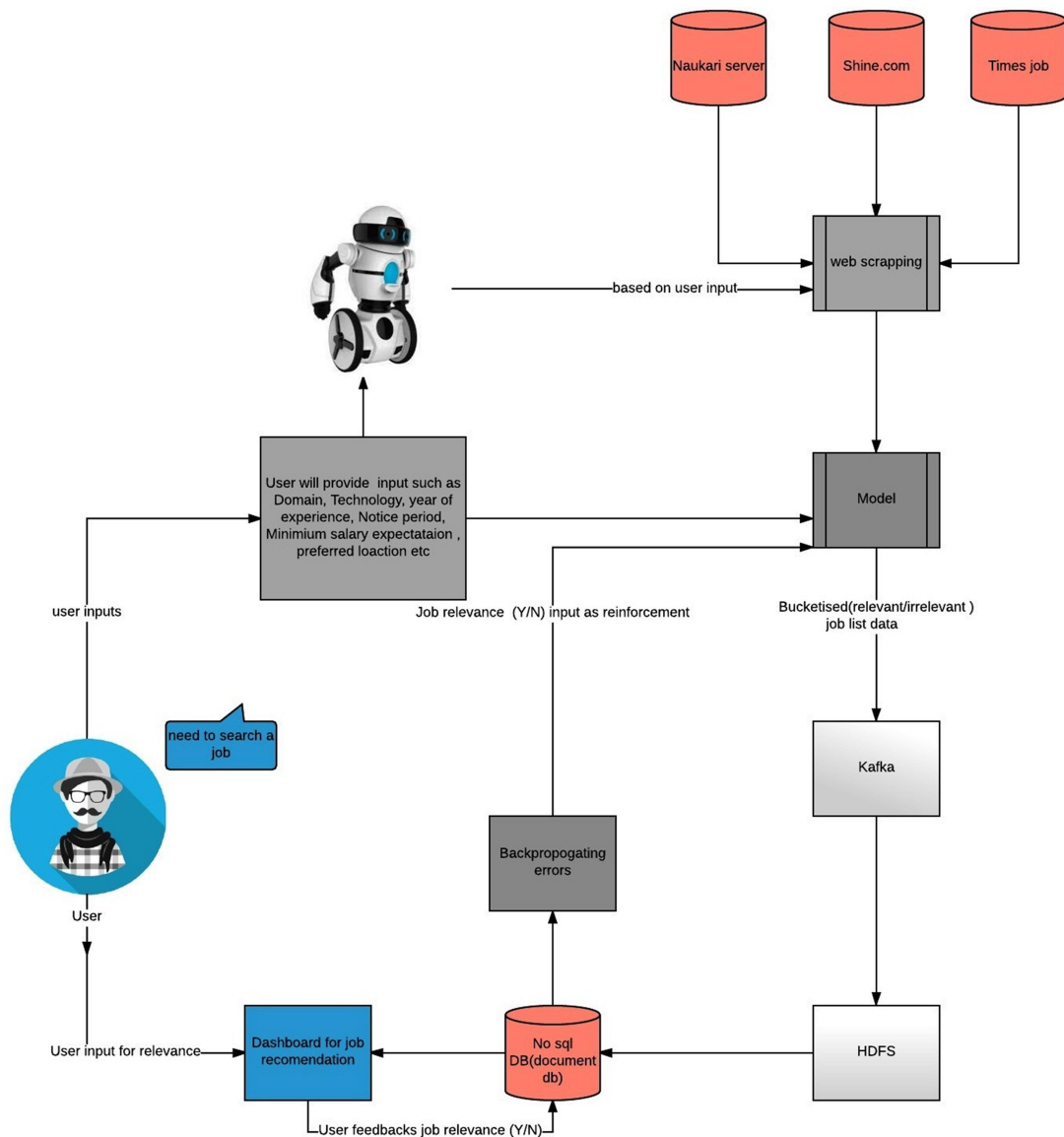
The user would upload an updated resume to the PJA interface bot, and also gives the desirable inputs like experience, salary etc. Using keyword method extraction based on word vectors, it would apply a recurrent neural network and deep semantic similarity design modeling to categorize the search results from different job portals into irrelevant and relevant buckets.

The corresponding search result sets would be made visible to the user via an online application dashboard .The user can subsequently scroll though the list of both relevant and irrelevant job identified by the PJA and provide personal feedback.

Consequently, a feedback mechanism needs to be built within the dashboard where the user can mark Yes/No against each job listed to validate the accuracy around relevancy. This response would then be stored as 'Actuals', which will aid our neural net model in back propagation of errors

Technical Details

As we see in flow diagram, to provide the better job assistance, a number of tasks are involved; hence multiple tools and technologies are being considered. At present, keeping in mind, the underlined below set of technologies is proposed.

1. PJA-Bot (Python/node.js) : Job application interface
2. Hadoop (HDFS files) : Big data storage to store the job results on daily basis.
3. No Sql (MognoDB) : To process and save the search result into database
4. Dashboard (Tableau): for the visualization and feedback

 Also, if successfully implemented, there are few desirable outcomes that we want the PJA-bot to perform on its own.

1. Automatically apply for relevant job opening based on pattern matching above certain threshold.