

The Python logo, consisting of two interlocking snakes, one blue and one yellow, is positioned on the left side of the slide. The blue snake is on top and the yellow snake is on the bottom, forming a continuous shape.

Job Recommendation System

Group Members:

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What is Recommendation System?

- A recommendation engine filters the data using different algorithms and recommends the most relevant items to users.
- Job recommendation system: It is a system which is capable of retrieving the list of jobs that satisfies job seeker's desire that meet the requirement of recruiter by using recommendation technology

Why data scientist?

Background Introduction:

- **Data scientists are in great demand:**

In 2012, Harvard Business Review declared that data scientist was the "sexiest job of 21st century." The demand for good data scientists has risen in large industries because big data has become mainstream. Businesses are aggressively looking for ways to use the massive amounts of data they are collecting and storing to gain new insights. McKinsey estimated that by 2018, the U.S. economy will have a shortage of 140,000 to 190,000 people with analytical expertise.

- **Data scientist skill sets can be very different:**

As the job title 'Data Scientist' is used fairly loosely, few people knows what it really means. As a result, there could be quite a gap in skill set requirement between two job listing . The difference in the skillsets will obviously leads to a salary gap. To gain a deeper insight of this gap, We decided to scrape the information on data scientist jobs info from shine.com, monsterindia.com, timesjobs.com.

Scraping info

Why these features:

- It is always interesting to find correlations between two variables that appear completely unrelated. Before diving into the website, we brainstormed some questions:
- Which programming knowledge is a must / plus to be a data scientist?
- Which locations has most job openings?
- Role of experience

With these questions in mind, we picked the following features:

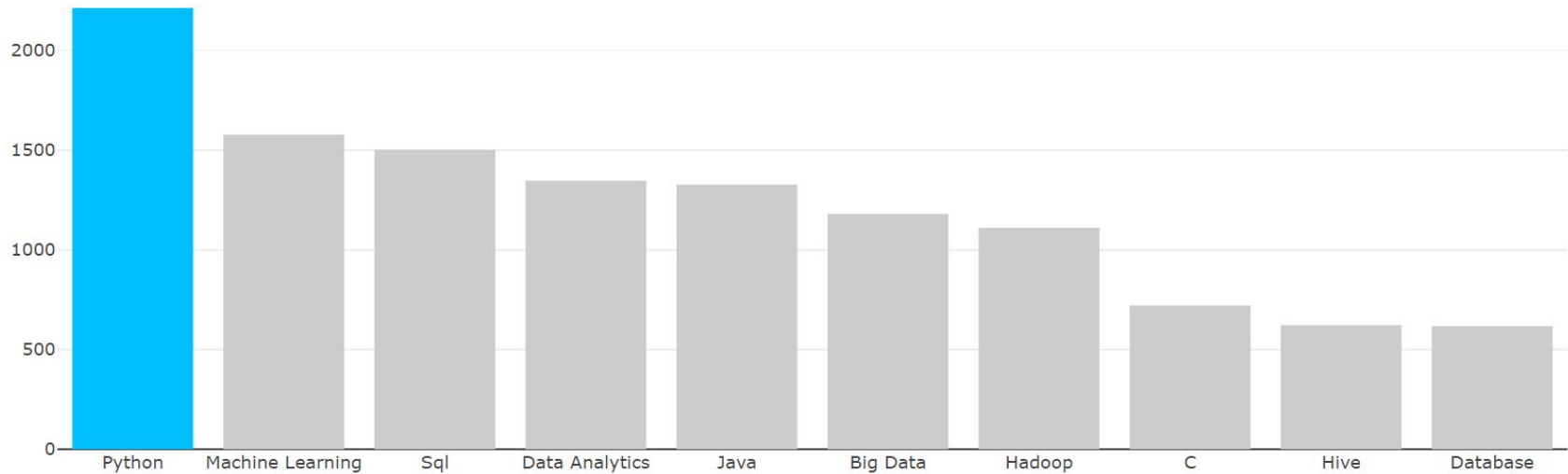
- Job title
- Company name
- Location
- Experience required
- Skills

Insights from EDA

- Python is the most preferred skill in data science market.
- Bangalore has largest job openings in India.
- Most of the job openings were found in 1-2 week of Jan.
- Freshers are also preferred on a large scale in data science jobs.

Popular skills in Market

Job Trends

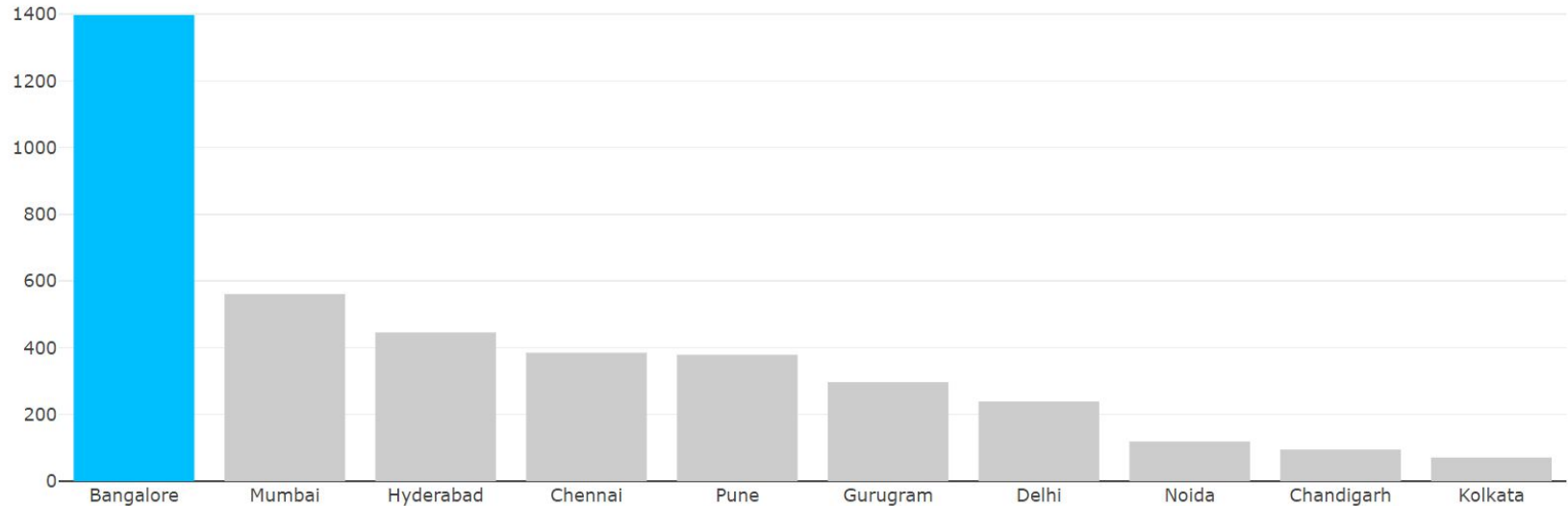


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Location Wise Job Openings

Location wise Trend Analysis

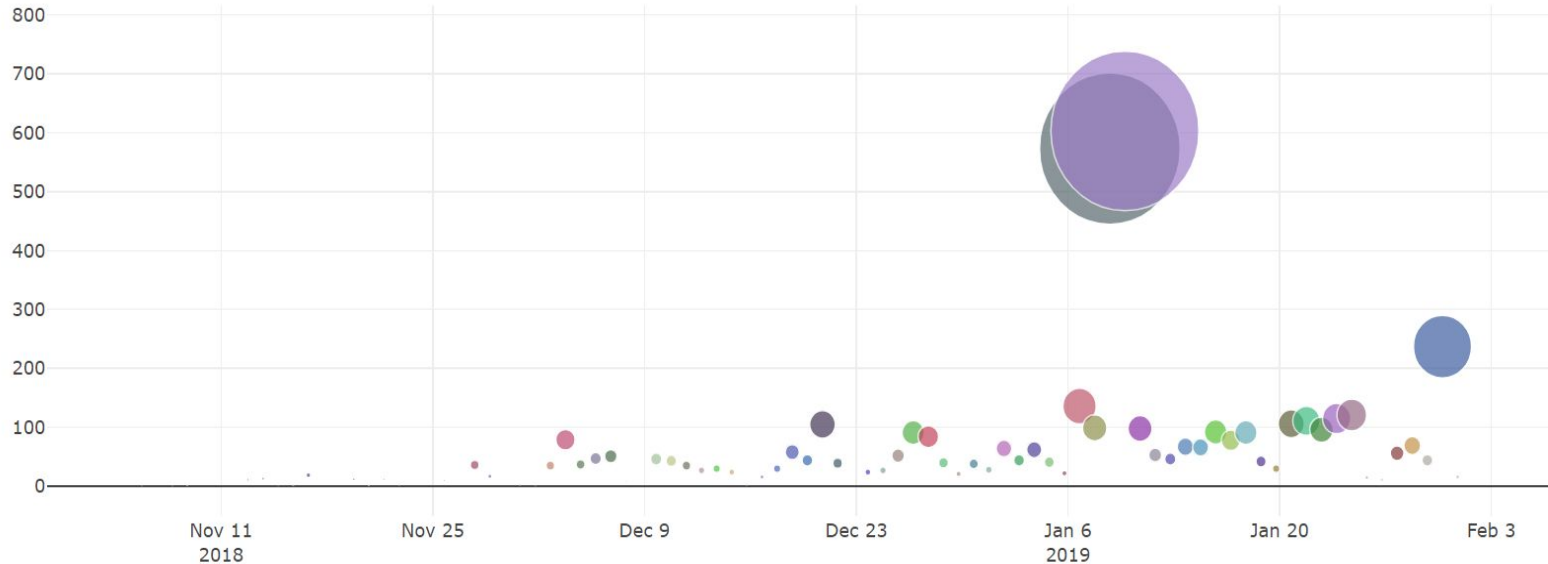


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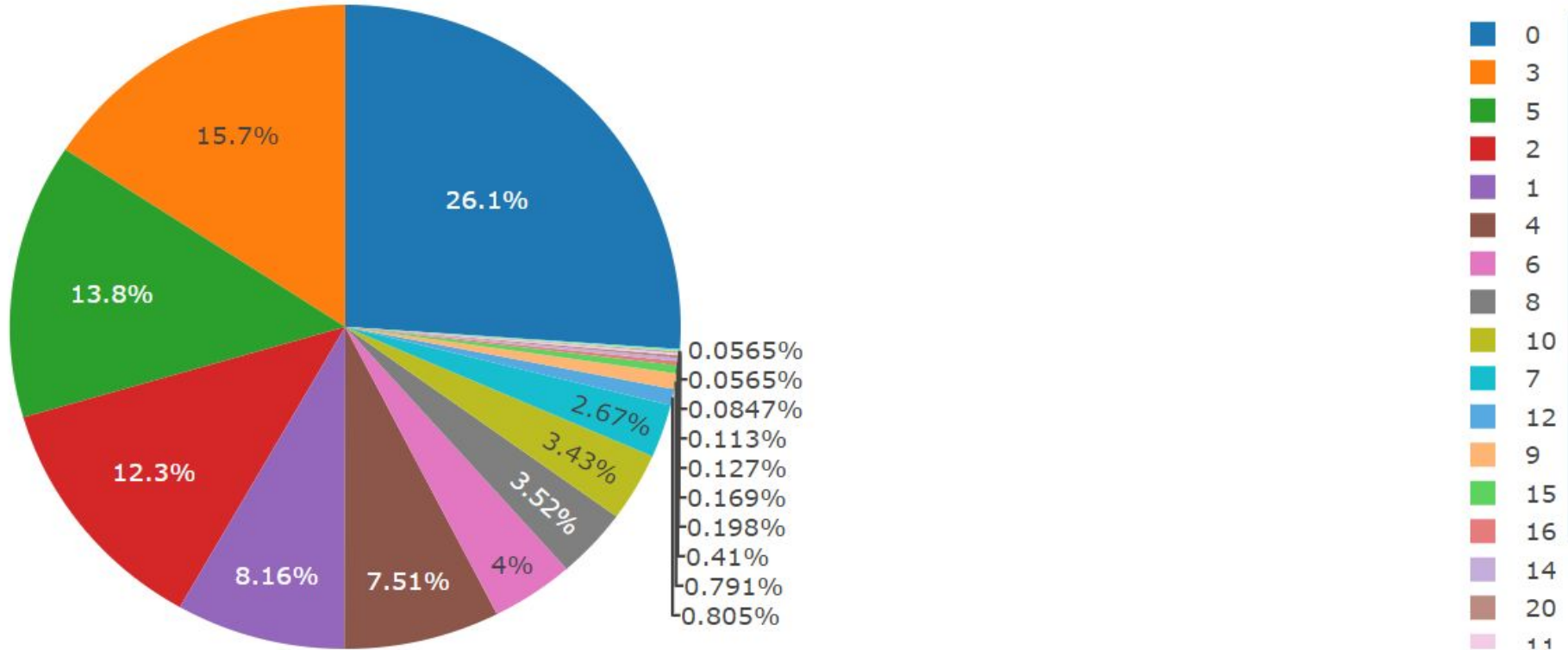
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Daily Job Openings

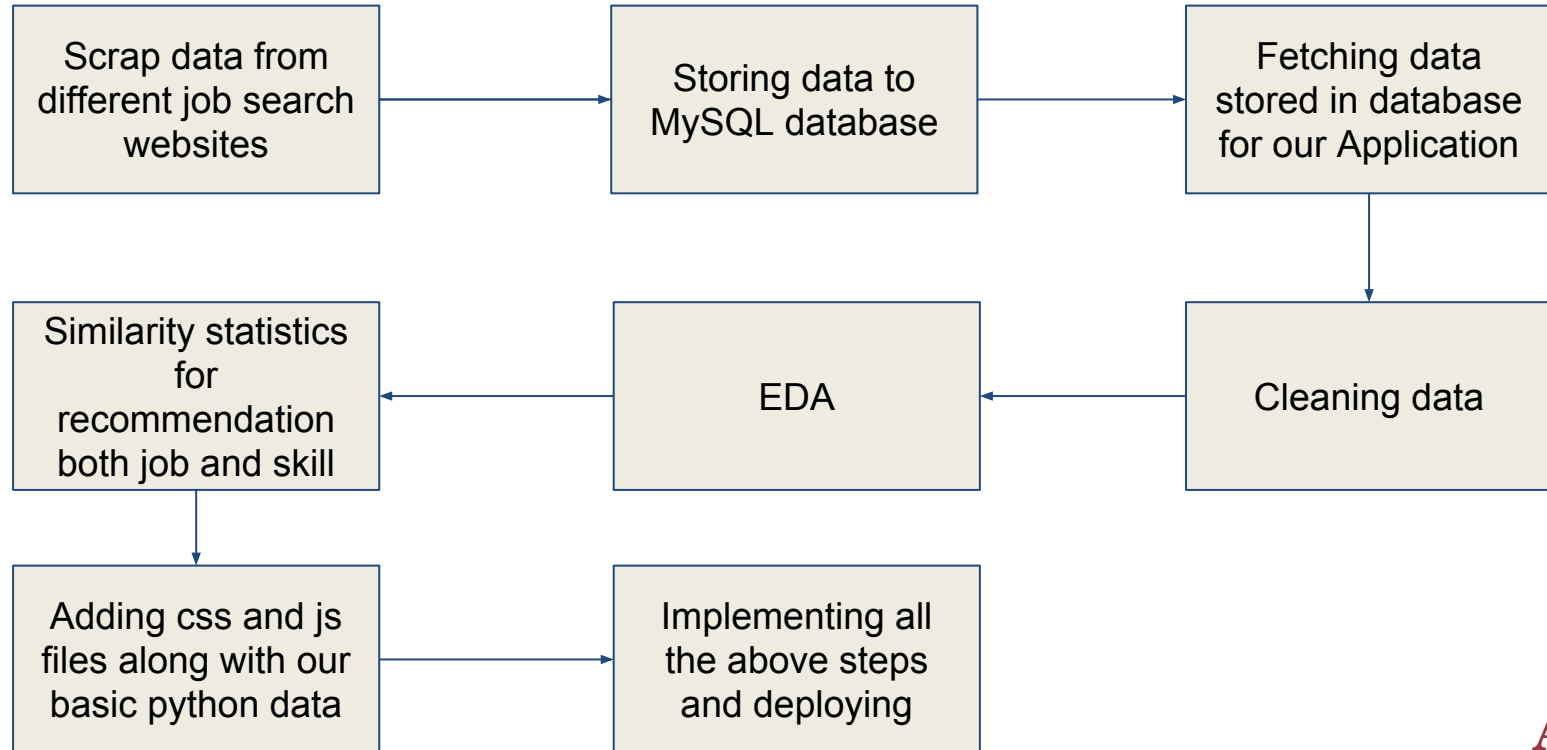
Time Series Trends



Distribution of Jobs based on Minimum Years of Experience



RoadMap



Recommendation Algorithm

Content Based Filtering

- **Cosine similarity:** Cosine similarity is a metric used to measure how similar the documents are irrespective of their size. Mathematically, it measures the cosine of the angle between two vectors projected in a multi-dimensional space. The cosine similarity is advantageous because even if the two similar documents are far apart by the Euclidean distance (due to the size of the document like, the word 'cricket' appeared 50 times in one document and 10 times in another), chances are they may still be oriented closer together. The smaller the angle, higher the cosine similarity.
- When plotted on a multi-dimensional space, where each dimension corresponds to a word in the document, the cosine similarity captures the orientation (the angle) of the documents and not the magnitude. If you want the magnitude, compute the Euclidean distance instead.

Project Scope and Deliverable:

- **Match your background and skill with job postings:** Users can input skill-set to find job postings requiring similar skill-set. To facilitate user input, the skill-set input bar is categorized into different buckets, including major programming skills, business intelligence and big data skills, location, etc. When they click the search button, the app will call `new_dash.py` script to calculate the cosine similarity score between user skill-set and job requirements.

- **Recommend skills**

As per the user location and experience we try to find out what were the jobs he could have applied for if he had a particular skill , also we take into account the number of jobs in market corresponding to the skill .

Deliverable Product



Job Recommendation Made Easy

Overview

Job Trend Analysis

Location Wise Trends

Distributions

Time Series Analysis

Job data

Enter your name

Enter your preferred job location

Enter your experience(0-9)

Enter your key skills

JOB RECOMMENDATION

SKILL RECOMMENDATION

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Enter your name

Mr. X

Enter your preferred job location

Bangalore

Enter your experience(0-9)

0

Enter your key skills

Python

JOB RECOMMENDATION

SKILL RECCOMENDATION

Recommendations

Title	Company	Posted On	Skill	Url
QA Automation + Python	S A Tech Software India Private Limited	2019-01-16	Python	Apply
QA Automation + Python	S A Tech Software India Private Limited	2019-01-16	Python	Apply
Business Insights Advisor - SAP Job	2COMS Consulting Private Limited	2019-01-10	R Language,Consulting,Python	Apply
Python Developers - FRESHERS 2016/2017/2018	Proiba	2018-12-31	Api Integration,Data Science,Python	Apply
Java, Python, NodeJS, C, C++-Software Development Engineer-collab...	Cisco Systems India Private Limited	2019-01-16	C++Software Development Engineercollab.Nodejs,C,Java,Python	Apply
Software Test Engineer - Java, Python, VOIP-collab	Cisco Systems India Private Limited	2018-12-27	Software Test Engineer Java PythonVoipcollab	Apply
Java, Python, NodeJS, C, C++-Software Development Engineer-collab...	Cisco Systems India Private Limited	2019-01-16	C++Software Development Engineercollab.Nodejs,C,Java,Python	Apply
Data Scientist - AVP	ELITE RECRUITMENTS	2018-12-25	Sql,Nlp,Nosql,Machine Learning,Java,Python	Apply
Computer Scientist Researcher Machine Intelligence	CAREERXPRTS CONSULTING	2019-01-25	High Performance Computing,It,Java,Conference,C,Python,	Apply
Sr Data Scientist - DNA	Neustar	2019-01-09	Algorithm,Sql,Forms,Data Mining,Machine Learning,Python,Security	Apply

Challenges

- There are many job site like naukri, linkedin, glassdoor which have abundant amount of data but they don't allow scraping.
- Initially we planned to recommend jobs as per an individual's resume, but this would required complex NLP algorithms and hence we only aimed at recommendation on the basis of key skills .
- The data was highly inconsistent and cleaning it was a tedious task .

Future Scope

- As of now we are focussing only scrapping details for jobs related to data science we may increase our domain.
- We may find a way out to fetch data from more sites, Also user may have an option to upload his resume and get details of the companies he can apply to.
- Also we can store the details of a person actually clicking on the apply link and do an analysis as to did he find the recommendations given, appropriate.
- The graphs being displayed are generic as of now and we plan to create a register option for user and display graphs and other details specific to the user .

*Thank
you*



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