

University -Curriculum Analysis based on entry-level job descriptions

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TABLE OF CONTENTS

01

PRODUCT SURVEY &
LITERATURE SURVEY

02

MOTIVATION

03

PROJECT TITLE &
PROBLEM STATEMENT

04

SYNOPSIS

05

PROJECT WORK PLAN

06

FUTURE PLAN OF ACTION





01

PRODUCT SURVEY
AND
LITERATURE SURVEY





Product Survey

- Syllabus Generators or Syllabus Builder, for ex. Generic Syllabus Maker [<http://wcaleb.rice.edu/syllabusmaker/generic/>]
- The working: Creates a structured syllabus from unstructured syllabus
- Found a gap in the product



Literature Survey

- Automatic Syllabus Classification, Yu et. al
- Sequence to Sequence Learning with Neural Networks, Sutskever et. al
- BERT: Pre-training of Deep Bidirectional Transformers for Language Understanding, Devlin et. al







02

MOTIVATION



- 
1. Students of Computer Science and Engineering, we noticed a gap in industrial demands and college syllabus.
 - a. Aim: To minimize this gap.
 2. Industry Needs: Basics do not match with industrial requirements.
 - a. As a result, students spend time on self-learning.
 3. Placed students are trained by their companies to fit their job descriptions.
 - a. Aim: minimize expenditure and potentially eliminate it.
 4. Syllabus is not up-to-date with current industrial trends.

INNOVATIVE FEATURES

- 
1. Curriculum that is UP-TO-DATE.
 2. The use of Job Description to enhance the syllabus.
 3. Analytics to view the quality of the syllabus.
 4. Reduces the gap between Industrial Requirements and College curriculum.

INDUSTRY SPONSOR

NAME OF THE INDUSTRY: EYESEC CYBER SECURITY SOLUTIONS PVT. LTD.

LOCATION: BELGAUM, KARNATAKA, REPUBLIC OF INDIA

NAME OF THE INDUSTRY GUIDE: MR. VALLABH SHIRODKAR





University-Curriculum Analysis based on entry level based job description

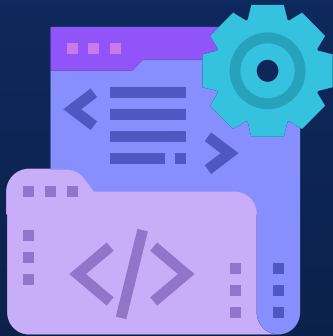


PROBLEM STATEMENT

Due to outdated college curricula, students and new-joiners commonly struggle to adjust to industrial environments. This frequently hinders their growth and is counterproductive for organizations. Formulated a plan to this issue.

04

SYNOPSIS

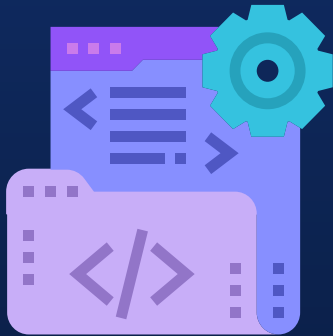


University-Curriculum Analysis based on entry level based job description

- Interdisciplinary domain
 - Education
 - Industry
 - Machine Learning
- Challenging Issues
 - Obtaining Data
 - Syllabus
 - Job Descriptions

04

SYNOPSIS

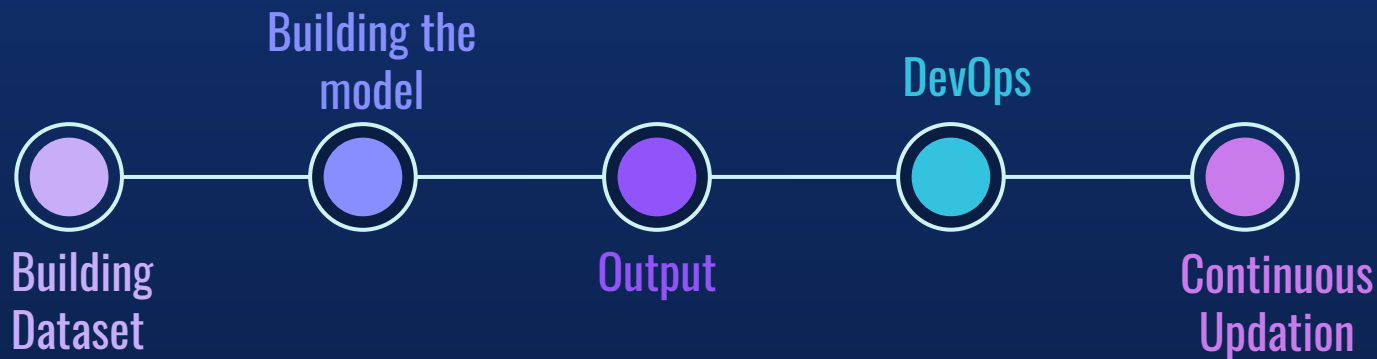


University-Curriculum Analysis based on entry level based job description

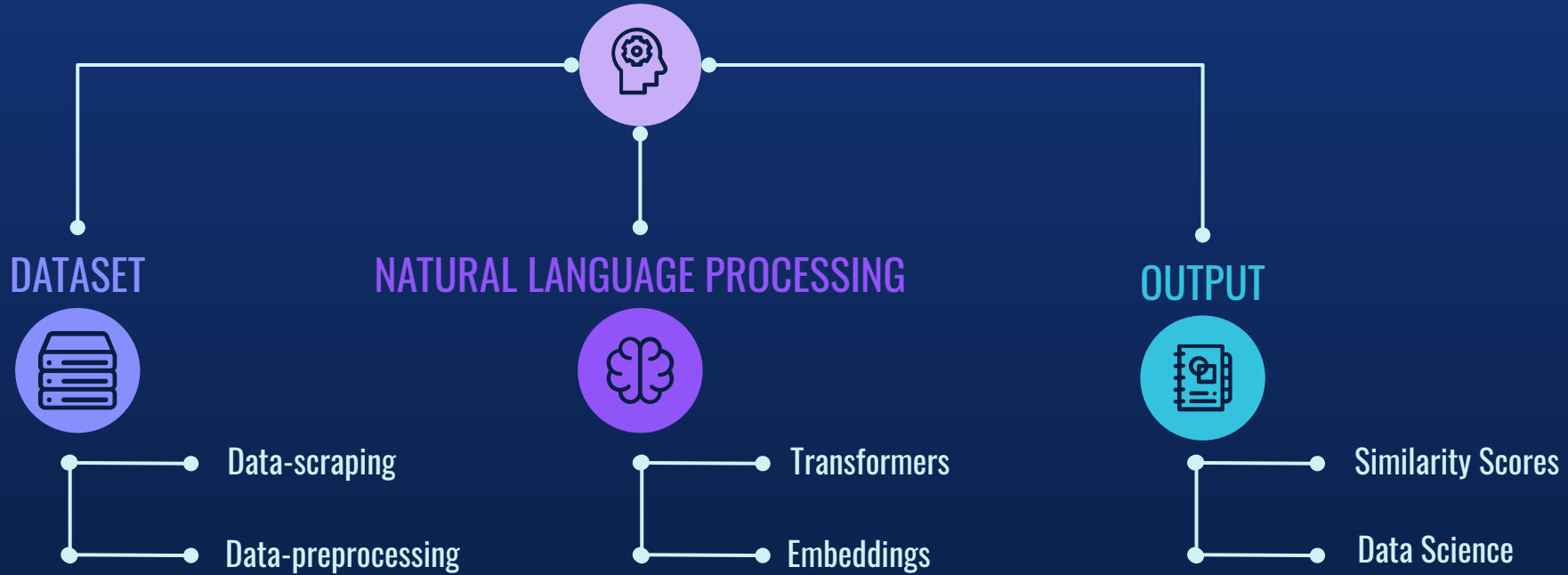
- Ambition
 - To develop a product that'll bridge the gap between industries and university curricula.
- Functional Aspects
 - Construction of knowledge base.
 - Analysis dashboard.
- Non-Functional Aspects
 - Storage for database.
 - Continuous updation of knowledge base.



THE PROCESS



MACHINE LEARNING

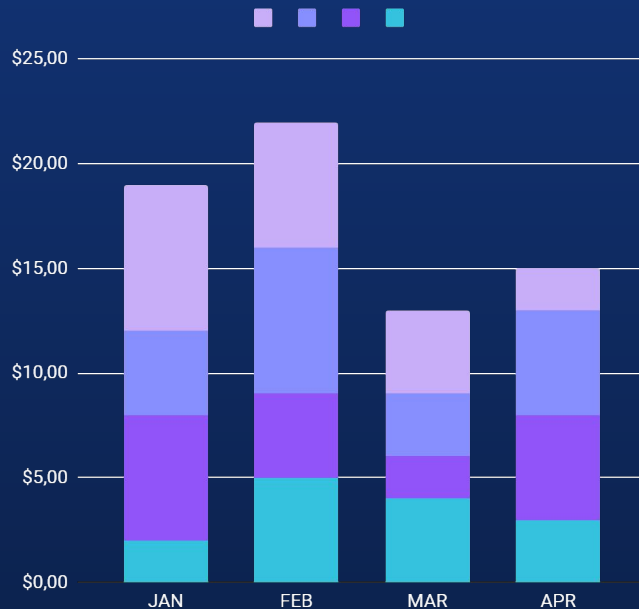




OUTPUT

SIMILARITY SCORE

- COSINE
- SIMILARITY
DISTANCE
- EUCLIDIAN
- MANHATTAN



ANALYSIS

- PERCENTAGE
- PERCENTILE
- RANKING
AMONGST PEERS
- RELEVANCE





Software Platforms and Development Tools Identified:

- Programming Language: Python
- Web Technologies: Streamlit
- Operating System: Windows, Linux
- Development IDE: VisualStudio, Atom
- Other technologies: GIT



Python frameworks for the project



1. Numpy
2. Pandas
3. Matplotlib
4. Seaborn
5. PyTorch
6. Hugging Face
7. Selenium
8. NLTK
9. scikit-learn



05

PROJECT WORK PLAN



PHASE 0

PHASE 1

PHASE 1

PHASE 2

December

January

February

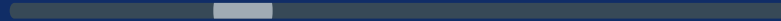
March

1.



5 days

2.



10 days

3.



15 days

4.



30 days

5.

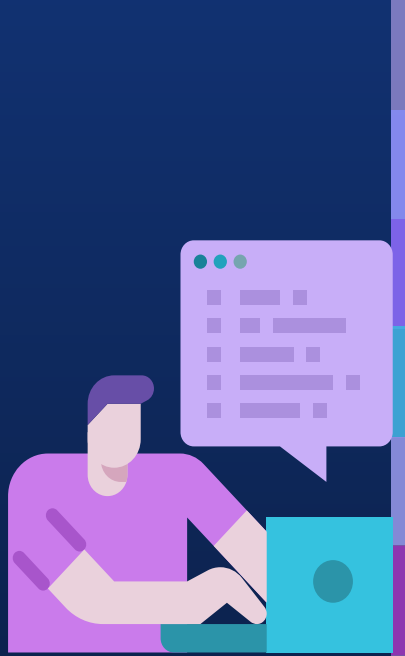


45 days

1. Problem Statement and Title - Finalization
2. Functional, Non-functional Requirements - Identified
3. Design - Details - Database, Class Diagrams
4. Identification and Design Implementation Module
5. Developing Working Prototype

06

Future plan of action



1. Institution will be able to add their syllabus.
2. Improved generation and analysis.
3. Expand to non-IT sectors.



THANK YOU

