LY B.Tech Project Presentation

Source adaptive disinformation detection framework

Group id : 19

Group project mentor -

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Introduction

Fake news is playing an increasingly dominant role in spreading misinformation by influencing people's perceptions or knowledge to distort their awareness and decision-making.

The growth of social media and online forums has spurred the spread of fake news causing it to easily blend with truthful information.

This study provides a novel text analytics–driven approach to fake news detection for reducing the risks posed by fake news consumption.

Problem definition

Problem domain: Artificial intelligence and Natural language processing

In this project, we propose a solution to the problem as discussed in previous slide.

The main purpose of the model is to solve the problem of **fake news** pertaining to a general category that may include categories like political, social media, sports, media industry, education, crimes, science and technology etc. In this project we are classifying fake news based on purely linguistic features.

Characteristics of Fake News:

- Misleading tonality
- Exploits cognitive ability of the reader
- Malicious intention

Literature review

Given the extensive availability of data related to fake news, it is within grasp to be able to apply create a model that implements algorithms based on the source of the news.

There is no common platform that is currently known that has the implementation of source specific algorithms. Methods to detect fake news exist but none of them fully integrate different models into one.

Applications that perform similar tasks:

- Convolutional Neural Networks for Stance Detection and Rumor Verification [1]
- An Ensemble Technique [2]
- CSI: A Hybrid Deep Model for Fake News Detection [3]

Assumptions

- The text must be in english language
- Ground truth has been defined from the dataset
- Model is defined for a subcategory of Fake News - disinformation
- Fake news is defined by the characteristics mentioned above.

SRS

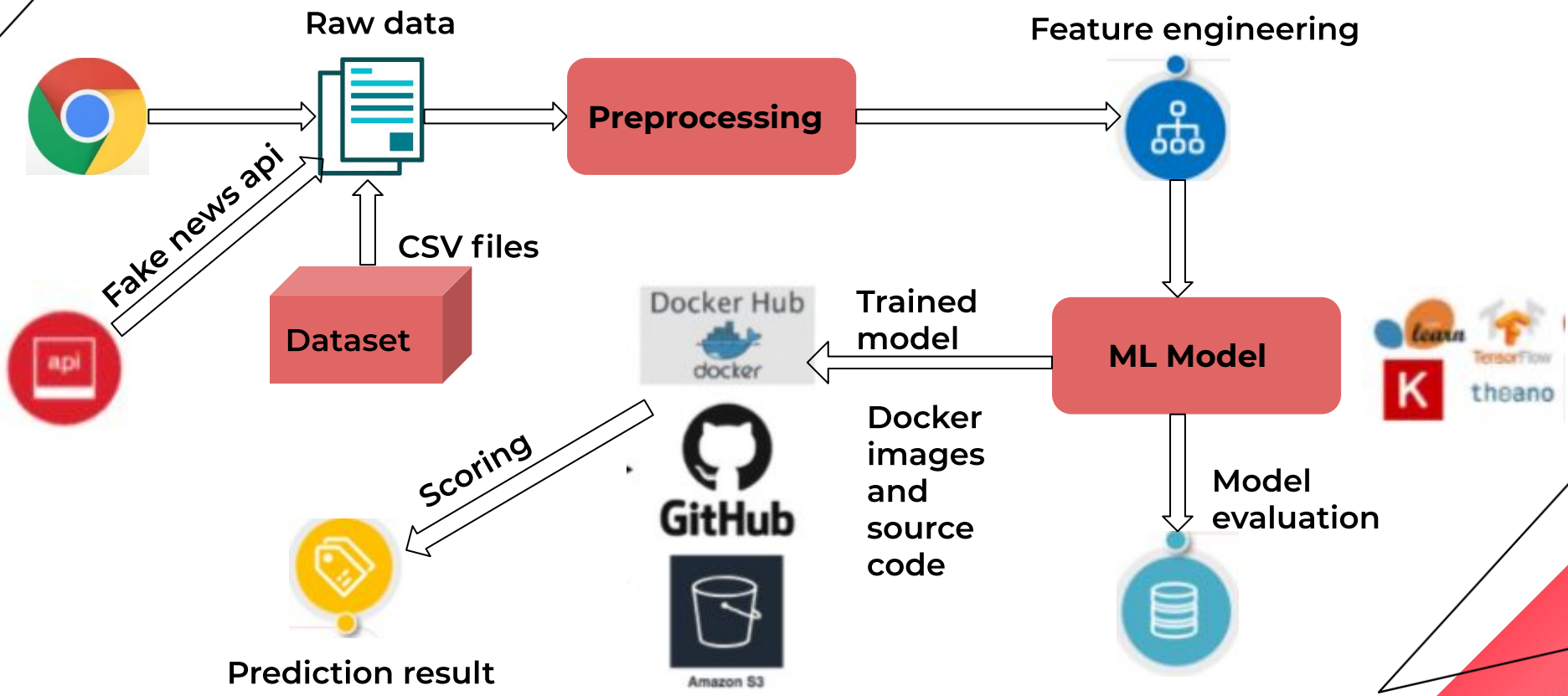
Functional Requirements

- Prediction of the degree of falseness in the data
- Identification of frequent sources of non-credible news
- User feedback and access to the results

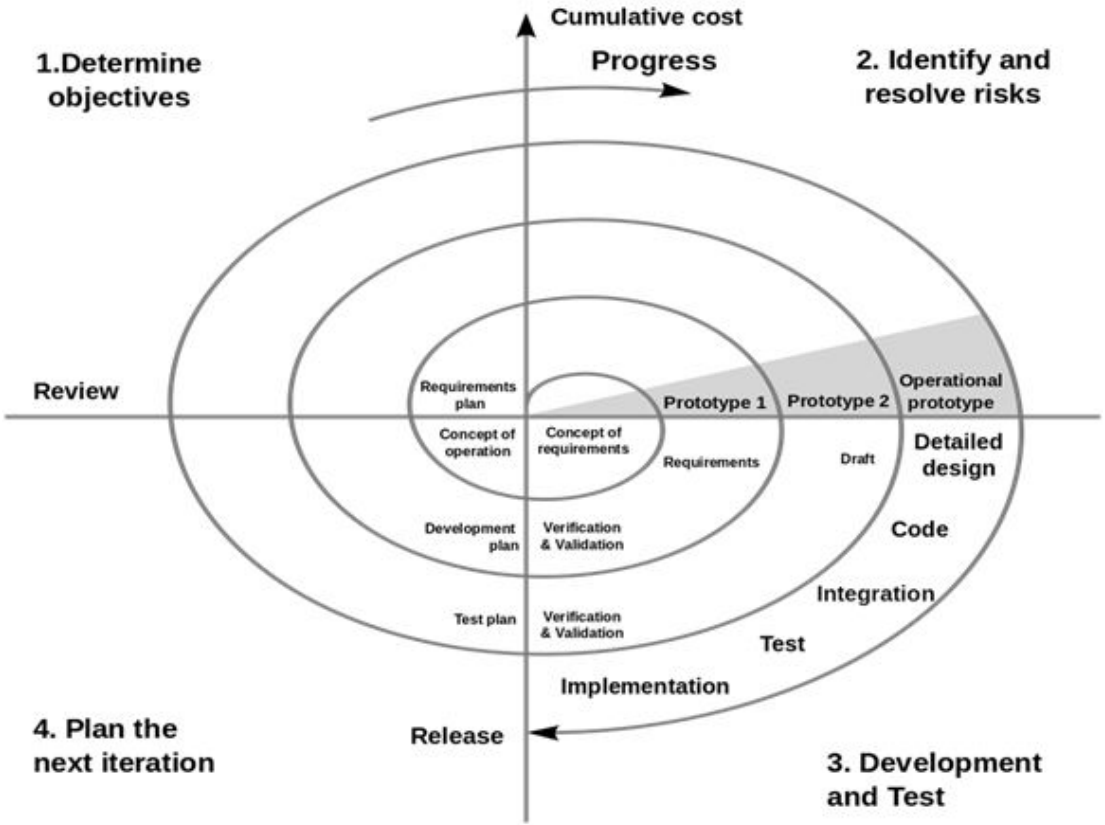
Non-functional requirements

- Accuracy
- Performance
- Scalability
- Maintainability

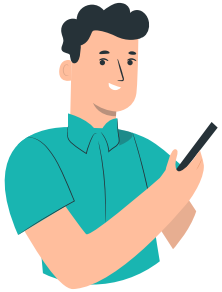
Software design - Framework adopted



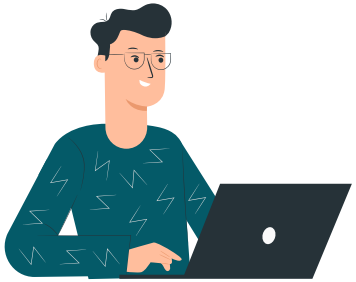
SPMP - Process model (Spiral Model)



SPMP - Roles and responsibility



Heet sakaria

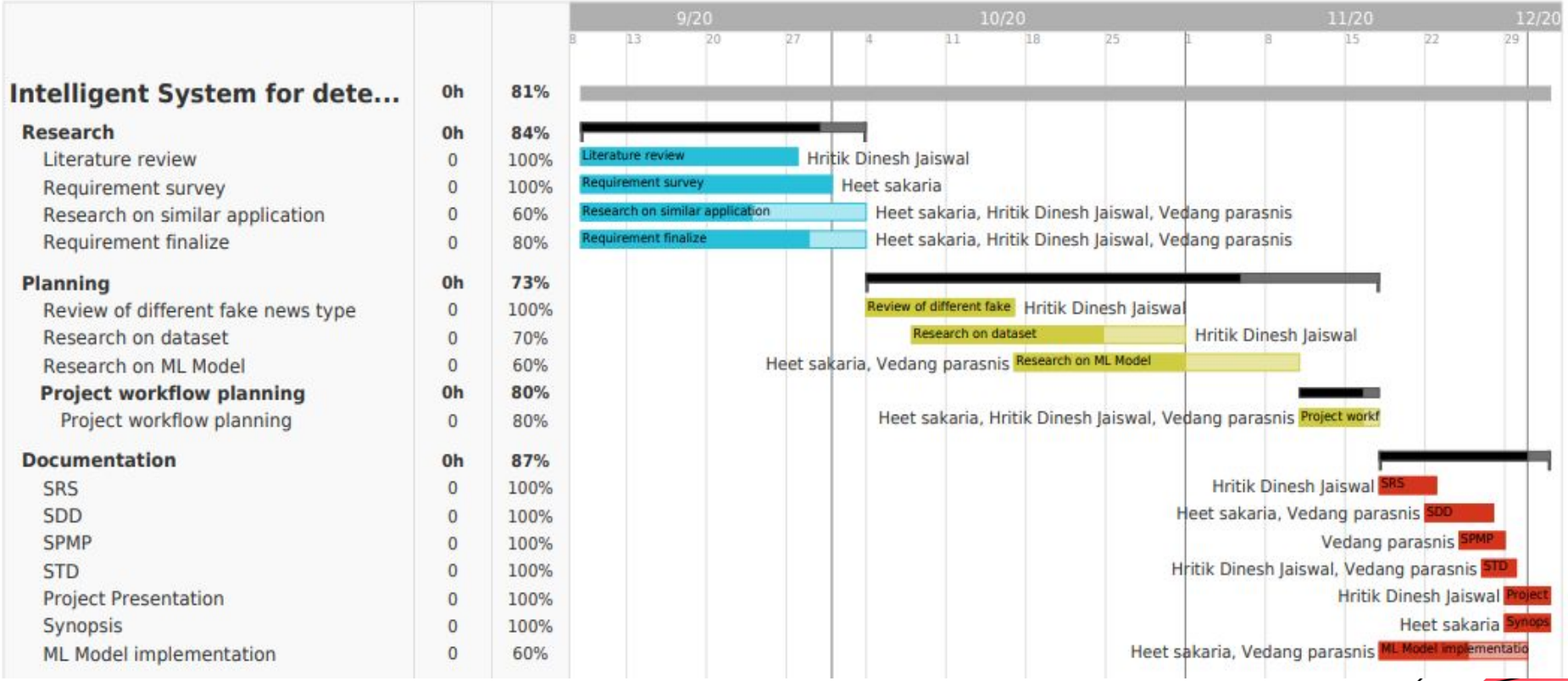


Vedang parasnis

Hritik Jaiswal

Team Member	Role	Role Description
Heet sakaria	Developer, Data analyst	Developing ML Model, Strategic decision making
Vedang parasnis	Developer, Tester	Developing backend code, testing the system,maintain cloud instances
Hritik Jaiswal	Developer, Designer	Design the system architecture, Building & Deploy ML Model

SPMP (Timeline chart with responsibilities) - [Link]



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Database Design	0	0%
Backend design	0	0%
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Testing	0	0%
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Review 2	**0h**	**0%**
Feedback	0	0%
Planning	0	0%
Developement	0	0%
testing	0	0%
Phase review 2 completed	0	0%
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Integration	0	0%
Model deployment	0	0%
Development	0	0%
Testing	0	0%
Phase 3 testing completed	0	0%
Review 3	**0h**	**0%**
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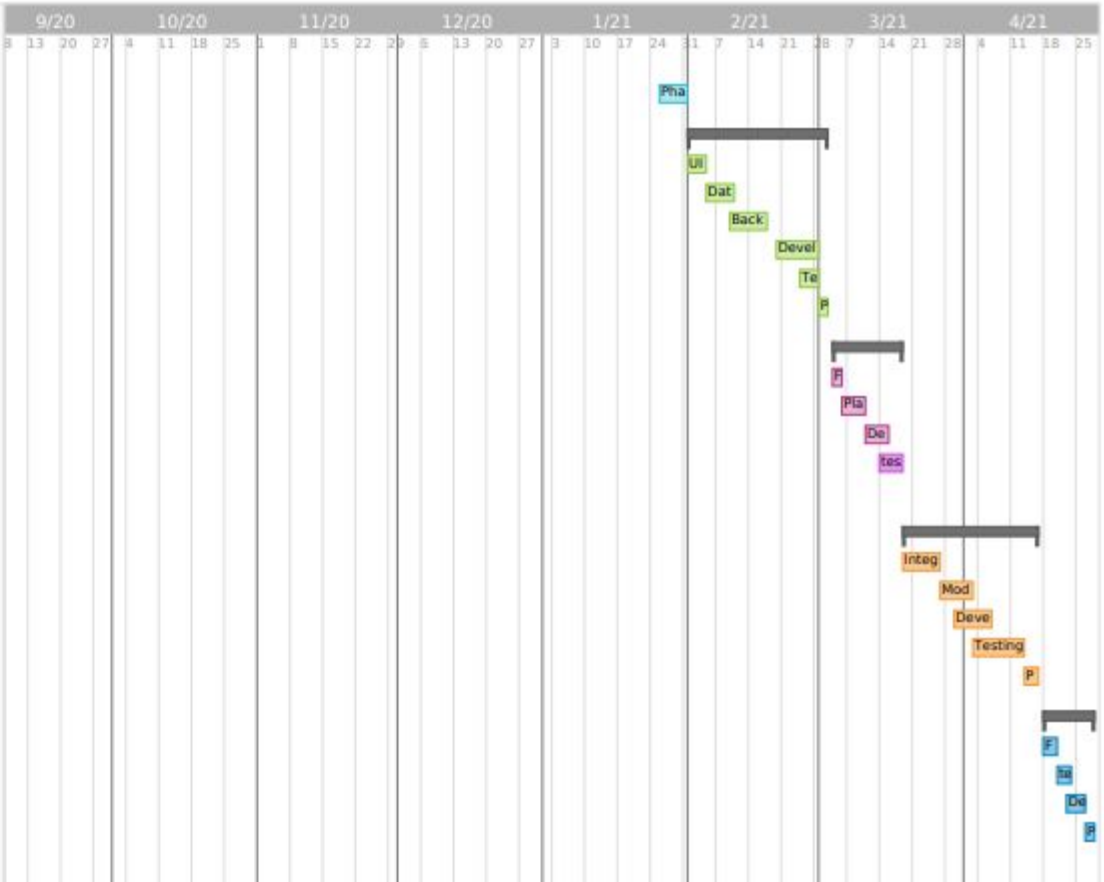

Technologies used

Operating system: windows

Web client: chrome

Database: NoSQL (In memory database or document oriented database)

Cloud infrastructure support: AWS EC2 instance

Machine learning model deploy: Docker, Amazon SageMaker - Amazon AWS

Programming language: Python, Javascript,TypeScript

Library: Tensorflow, keras, NLTK, Flask, React.js

Platform: Google colab, Jupyter notebook, Visual studio code

API: NewsAPI

Fronted application: HTML5, CSS3, Materialize UI, SASS, Javascript

Backend application: Express, Node.js,Flask

Implementation details

Dataset collection

Model Decision

ML Model implementation

Fake news website collection

User interface design

Database architecture design

Testing

Deployment

Software test document (test cases)

- Relevancy of Scrapped Articles: TC-1
- High Website traffic Scenarios TC-2
- Classification report generated by the model: TC-3
- Lower Api Request Latency based on location TC-4
- Display of Analytical Reports: TC-5
- Working against anti crawling Websites: TC-6
- Client Application Interfaces: TC-7
- Continuous Integration for new beta releases: TC-8

References

1. https://www.aclweb.org/anthology/S17-2081.pdf
2. https://sci-hub.do/downloads/2020-08-29/b1/sangamnerkar2020.pdf?rand=5f9bdbe7b7dbd?download=true
3. https://dl.acm.org/doi/pdf/10.1145/3132847.3132877
4. https://arxiv.org/pdf/1703.09398.pdf
5. A Survey of Fake News: Fundamental Theories, Detection Methods, and Opportunities (arxiv.org)