Loyola Marymount University

VERIFACT

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INTRODUCTION

- **This capstone project focuses on leveraging machine learning techniques to analyze the authenticity of news shared on social media platforms.**
- **Using Kaggle dataset to train and test the models identifying Positive & Negative News.**
- **This project addresses the growing spread of fake news in the digital age by tackling societal challenges of confusion, mistrust, and harm caused by false information.**

PROBLEM

- **Persona: John, 28, Social Media Influencer**
- **Quote: "As a social media influencer with a large following, I can't afford to accidentally share misinformation. I need a reliable way to quickly verify the authenticity of news articles and content before posting, so I can maintain trust and credibility with my audience."**
- **Key Points:**
  - **Time-consuming manual fact-checking**
  - **Risk of damaging credibility and trust with his large social media followers**
  - **Overwhelming volume of information to verify**

SOLUTION

- **For John:**
  - **AI-powered news and content authenticity checker**
  - **Quick analysis of articles and social media posts**
  - **Reports with credibility scores**

UNIQUE VALUE PROPOSITION

- **Key differentiators:**
  - **User-friendly interface for quick checks**
  - **Detailed analysis reports for in-depth understanding**
  - **Continuous learning from user feedback**
  - **Collaborative flagging system**

ADDITIONAL PERSONAS

Mike, 50, Concerned Parent

- **Wants to ensure his children access reliable information online**

Eric, 32, Social Media Manager

- **Needs to verify content before sharing on company platforms**

Prof. Johnson, 55, University Lecturer

- **Encourages students to fact-check their sources**

MVP

- **AI-powered authenticity analysis**
- **Basic explanation of the analysis result**
- **Text input for news articles and social media posts**
- **Credibility score display**

Technologies

- **Tools: Visual Studio, Postman**
- **Technology: Python, JS, Flask**
- **Data Pre-Processing: Pandas, Numpy, NLTK, Doc2Vec**
- **ML Models: Naive Bayes, SVM, Decision Tree, KNN, Logistic regression, Ensemble models, TensorFlow/Keras, Neural Network**

USER STORIES

“As a concerned citizen, I want to quickly verify the authenticity of the news articles I come across, so that I can avoid sharing misinformation with my friends and family”

“As a journalist, I want to see a detailed breakdown of why content was classified as fake or real.”

“As a student, I want to verify the information I use in my research papers, so that I can confidently cite reliable sources and improve the quality of my academic work.”

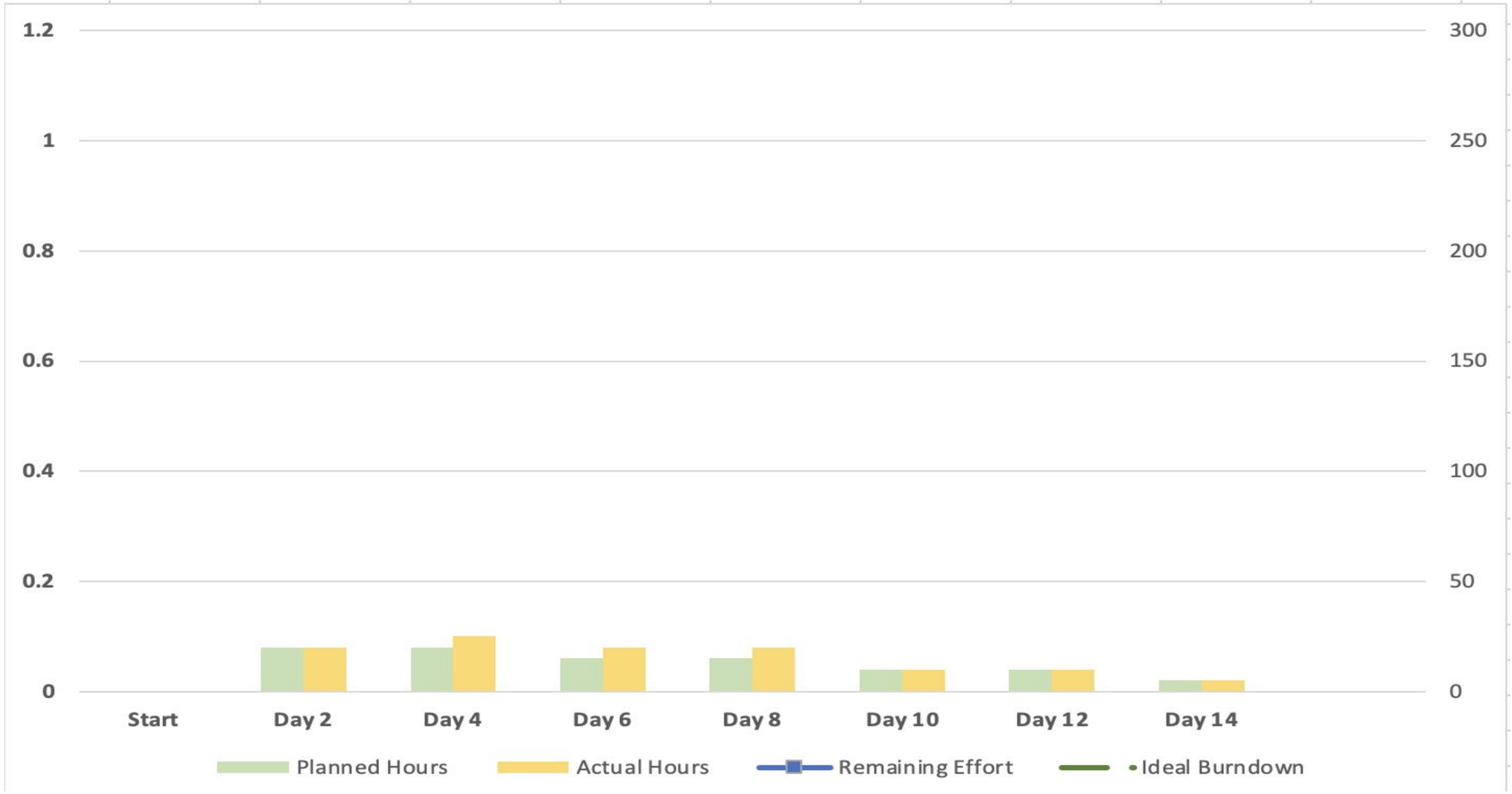
PROJECT BACKLOG

	Features/Task	Story Point	Status
1	Data preparation and model training	8	Completed
2	Plugin Development	5	Completed
3	URL input support	6	Completed
4	Analysis report	4	Completed

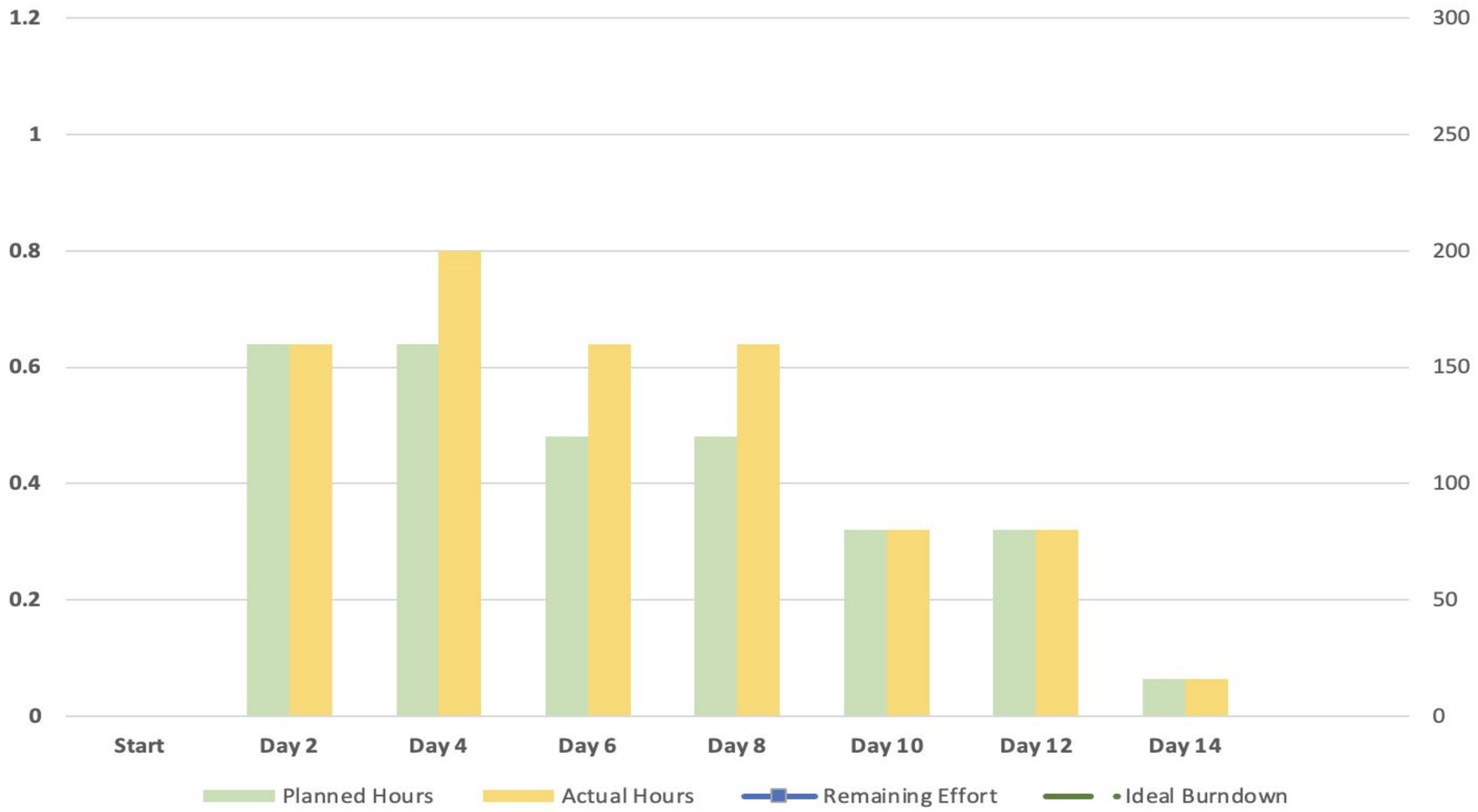
TEST CASES

	Test	Category	Pass Criteria	Status
1	Test with various text lengths	Input Validation	System should handle all text lengths without errors	Completed
2	Test with special characters and different languages	Input Validation	System should correctly process and analyze input regardless of language or characters	Completed
3	Test user registration with valid inputs	Authentication	Registration should succeed with valid inputs	Completed
4	Test user registration with invalid inputs	Authentication	Registration should fail with invalid inputs	Completed
5	Test with known fake news dataset	Analysis Accuracy	System should correctly identify fake news	Completed
6	Test with known real news dataset	Analysis Accuracy	System should correctly identify real news	Completed
7	Test response time for analysis	Performance	System should analyze input and return results within an acceptable time frame	Completed

SPRINT BURNDOWN CHART



PROJECT BURNDOWN CHART



RETROSPECTIVE

What Went Well:

- **Good Teamwork, Taking iterative approach allowed for flexibility and adaptation to changing project needs.**
- **Successfully implemented the Project.**

Lessons Learned:

- **Weekly check-ins and status updates kept the team on the same page.**
- **Early integration testing helps identify and resolve issues faster**
- **Identifying potential risks at the beginning of the project and addressing them proactively reduced downtime and kept the project on track.**

DEMO

LINK OF DEMO


Thank
you