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CAPPING HOMEWORK #1 – TEAM WAR

1. QUESTIONS WITH THE CLIENT

A. **What is the program?**

i. There's a prototype for an online writing center program for uploading essays and getting critiques on those essays. The task is to create a web app so that reviewers can go on and correct sentences that students have tagged.

B. **What does tagging mean?**

i. When the system corrects a student's essay, the student will tag a sentence if they think that it was correct (incorrectly marked as wrong) for further review by the reviewer.

C. So reviewers are going to see what the student tagged and what the computer marked as wrong?

i. No. It should be ambiguous so the reviewer will know that the sentence was marked as incorrect by the computer and tagged by the student for further review, but they won't know why it was originally marked as incorrect.

D. What are some main features that you want included?

i. There are 5 main criteria (provided by the writing center) for whether or not a sentence is correct. Reviewers should be able to see those 5 criteria and base their review on the criteria. I would also like AI to be incorporated into the program so that the computer will learn for further essays what is correct and what is incorrect based on past reviews from reviewers. It would also be nice if graphs based on site statistics were displayed. There should also be an about page about your team. For reviewers, I want there to be an incentive to correct sentences so reviewers gain reputation based on their corrections and if multiple people had the same corrections.

E. How many people correct the sentences?

i. Sentences are definitively declared wrong or right if they have 5 votes from reviewers that completely agree (either all yes or all no) or if there are more than 5 votes, ¾ of the votes must be in agreement for the sentence to be marked right or wrong.

F. Is login necessary for this site?

i. Yes, it should use Marist Authentication to sign in.

G. What type of design would you like the web app to follow?

i. It needs to be simple and functional so that it's easy to use for the users and reviewers. It should also be lightweight and fast.

H. What type of environment should we develop this in?

i. It should be a Linux environment

I. Are there any specific requirements for the database?

i. Yes. It needs to be in Postgres or MySQL and queries need to be secure across the servers.

2. USER REQUIREMENTS

A. Functional Requirements

*The user will be recognized as the sentence reviewer for this system.

i. The user interface will be designed as simple, functional, lightweight, fast, and user-friendly.

ii. The user should be able to login as reviewer with no GUI. If there is no session, the session needs to be created through Marist's SSO/CAS and validated through your code, saving their CWID and email as identification. Users will be directed to the user-side of the writing advisor (if they are not supposed to be there) and reviewers will stay on the reviewer-side of the writing advisor.

iii. The reviewer will check a sentence that has been marked incorrect by the system and tagged by the student.

iv. The reviewer can mark the sentence as correct.

v. The reviewer can mark the sentence as incorrect. If the sentence is incorrect, the reviewer will choose the reason the sentence is incorrect from a list.

vi. The reviewer cannot see why the sentence was originally marked as incorrect.

vii. A sentence is definitively marked as correct or incorrect if there are only 5 votes that all agree or, if there are more than 5 votes, ¾ of the votes agree. At this point, the sentence will no longer be up for review, and should be added to dataset permanently.

viii. The reviewer interacts with a reputation system.

ix. The reputation system will motivate the reviewer. The reviewer will see a progress bar tracking their reputation count.

x. The reviewer's status will be displayed on the leaderboard with a reputation count.

xi. The reviewer's reputation will be positively impacted if they were in agreement with the majority of the votes with the sentence being correct or incorrect.

xii. The reviewer's reputation will be negatively impacted if they were not in agreement with the majority of the votes with the sentence being correct or incorrect.

xiii. The reviewer can logout when they are done reviewing.

1. *Logging out clears the session.*

B. System Requirements

i. When sentences are definitely marked as correct or incorrect, the system triggers a new event to train from the new data set. It will retrain a new machine learning model and if that model is better than the previous model, it will deploy the new model.

ii. Have a table to keep track of all trained model versions. Not all versions will be deployed, but all versions and their dates will be tracked in this table.

iii. The system will achieve further accuracy of the training model to determine if the new models are better than the previous model through hyperparameter optimization techniques such as grid search and evolution strategies.

iv. All development will occur in a Linux environment.

v. There will be separate development servers for the database and the web app. There will also be a testing server and a production server.

vi. The administration side will report visual statistics to the user including:

1. *Latest/current training stats*
2. *Hyper-parameter optimization status*

3. PROJECT PLAN

DATE	MILESTONE	TASKS	RESPONSIBLE	NOTES
8/28/19	PROJECT START	FORM TEAM: MAKE INTRODUCTIONS; DOCUMENT INITIAL ROLES (CS, CS, CS, IS, AND IT) AND RESPONSIBILITIES (TO BE MODIFIED AS NEEDED LATER).	ALL	
9/3/19	PROJECT START #2	SCHEDULE 1ST TEAM MEETING - AND ATTEMPT TO CHOOSE RECURRING TEAM MEETING TIMES THAT WORK FOR EVERYONE. ESTABLISH A COMMUNICATIONS PLAN (IE. SHARE EMAILS, CELL#'S, AND ESTABLISH HOW WE WILL STAY IN TOUCH)	ALL	
9/4/19	PROJECT PLANNING	FURTHER DEVELOP THIS PROJECT PLAN - FURTHER DISCUSS MEANS OF COMMUNICATION AND PROJECT PLANNING TOOLS. GO OVER TIME MANAGEMENT AND WHAT EACH TEAM MEMBER WILL ACCOMPLISH AS THE WEEKS PROGRESS.	ALL	
9/6/19	FIRST CLIENT MEETING	MEET WITH CLIENT TO CLARIFY USER REQUIREMENTS BEFORE HOMEWORK #1 SUBMISSION	ALL	THESE MEETINGS WILL CONTINUE EVERY

				FRIDAY AT 2 PM
9/9/19	FIRST TEAM MEETING	HAVE MET AT LEAST ONCE BY THE END OF THE DAY ON 9/9; GO OVER HOMEWORK #1; WORK ON ER DIAGRAM AS A TEAM	ALL	THESE MEETINGS WILL CONTINUE EVERY MONDAY AT 2 PM
9/11/19	HOMEWORK #1 DUE!	HAVE HW1 DONE INCLUDING IT REQUIREMENTS; HAVE THIS PROJECT PLAN COMPLETELY FILLED IN FOR REVIEW	ALL	
9/11/19	WEEKLY STATUS UPDATE DUE	COMPLETE WEEKLY STATUS POWERPOINT AND ENSURE TEAM IS ON TRACK, MANAGE PROJECT PLANNING TOOLS AND COMMUNICATION CHANNELS	SAM	THIS WILL BE CREATED WEEKLY AND PRESENTED TO THE CLASS EVERY WEDNESDAY NIGHT; ENTIRE TEAM WILL TAKE PART IN PRESENTING
9/16/19	VM SETUP	SETUP LINUX SERVER ENVIRONMENT	LAUREN	
9/18/19	HOMEWORK #2 DUE	E-R DIAGRAMS COMPLETE WITH SUPPORTING DOCUMENTATION IF EXPLANATION IS REQUIRED FOR ANYTHING	ALL	

		DOCUMENTED IN OUR DIAGRAMS.		
9/25/19	REACT FRONT END COMPLETE	LEARN REACT AND DESIGN FRONT END FOR WEB APP INCLUDING LANDING PAGE, DEVELOPMENT SERVER (INCLUDING REPUTATION SYSTEM PROGRESS BAR, LEADERBOARD, AND SENTENCE VIEWER WITH CHECKLIST OF ERRORS TO CHOOSE FROM) ; SSO AUTHETICATION	DAN/ALI	
9/25/19	DATABASE COMPLETE	DATABASE IS FULLY SETUP	DAYNA	
9/25/19	HOMEWORK #3 DUE	COMPLETE MOCK-UPS (IE. WIREFRAMES) OF YOUR USER INTERFACE.	ALL	
10/9/19	INTEGRATION COMPLETE	INTEGRATION BETWEEN FRONT END AND DATABASE IS COMPLETE	ALL	
10/16/19	INSTALL SERVERS IN DATACENTER	PHYSCIALLY INSTALL IN THE RACKS AND CONFIGURE	LAUREN	
10/16/19	USER DATA ALLOCATION	WORK WITH OTHER CAPPING TEAM ON ACCESS CONTROL FOR INSERTION AND RETRIEVAL	DAN/ALI/DAYNA	

10/16/19	HOMEWORK #4 DUE	DATABASE PROTOTYPE COMPLETE	DAYNA	
10/16/19	MID-SEMESTER PEER REVIEWS DUE	COMPLETE INITIAL PEER REVIEWS	ALL	
10/16/19	MIDTERM CHECK POINT	ENSURE AT LEAST ONE VERSION HAS BEEN DEPLOYED	ALL	
10/23/19	AI TASK #1	REASEARCH MACHINE LEARNING/AI, UNDERSTAND HOW THE MODEL WORKS	ALL	
10/30/19	AI TASK #2	INTEGRATION BETWEEN APPLICATION AND AI MODELS	ALL	
11/6/19	AI TASK #3	COVARIANCE HYPER PARAMETER OPTIMIZATION - ACHIEVING BEST ACCURACY OF THE MODEL	ALL	THIS IS AN ADDED FEATURE WAR WILL LOOK INTO COMPLETING.
11/6/19	DRAFT PRESENTATION DUE	DRAFT PRESENTATION DUE INCLUDING FINAL UI SCREENSHOTS/DEMO	ALL	
11/6/19	ROUGH MATURE DRAFT DEMO	HAVE A FUNCTIONAL DEMO PREPARED THAT HAS EVERYTHING INTEGRATED THAT	ALL	

		WE HAVE DESIGNED SO FAR		
11/13/19	AI TRAINING COMPLETE	ALL AI COMPONENTS COMPLETED	ALL	
11/13/19	MARIST AUTHENTICATION SSO COMPLETE	SETUP APACHE REVERSE PROXY WITH SSL VIA THE MARIST SSO FINISHED	DAN/ALI	
11/20/19	TEST PLAN FINALIZED	TEST PLAN FOR ALL ASPECTS OF THE PROTOTYPE COMPLETE USER VALIDATION TESTS TO BE PERFORMED BY CLIENT AND DOCUMENTED	ALL	
11/27/19	NO MEETING	HOME FOR THANKSGIVING BREAK	ALL	
12/4/19	PAPER DUE - FINAL DOCUMENTATION	ALL DOCUMENTATION REQUIRED FOR THE PROJECT IN FINAL FORM	SAM	
12/4/19	PROJECT PROTOTYPE COMPLETE	ENTIRE PROJECT PROTOTYPE FINISHED	ALL	
12/4/19	FINAL PEER EVALUATIONS	COMPLETE FINAL PEER EVALUATION FORMS AND SUBMIT	ALL	
12/4/19	FINAL PRESENTATION!	FINAL PRESENTATION PRATICED AND COMPLETED BY ENTIRE TEAM	ALL	

4. UML DIAGRAM