Rethinking Education and Learning Litera An Adaptive Learning System for English Writing **Team #BROWN**

Problem





Each student has different learning styles, ability and interests



Time-consuming

Marking essays and giving personalised feedback takes a long time



Excessive Content

Too much of online content and resources are not tailored to student needs









Target Users



Youth English Learners

Secondary school and JC students writing expository essays

Mastery of English and how Litera makes a difference

Competitors







Mostly for learning math, coding or language, not essay-writing





Language Checkers

Generally do not grade essays or recommend ways to improve writing



Online Courses

Lack personalised feedback and recommendations for specific needs



1. Practice

Curated writing prompts sorted by topic, difficulty and popularity



3. Resources

Recommend English resources based on current aptitude and topics of interests



2. Grading

Underlines writing errors. Scores spelling, grammar, relevance of essay. Gives personalised feedback.



3 Key

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Technical Details







Python script for AI essay-checking, grading and recommendations. Firebase cloud server storing data



HTML/CSS script for the website design



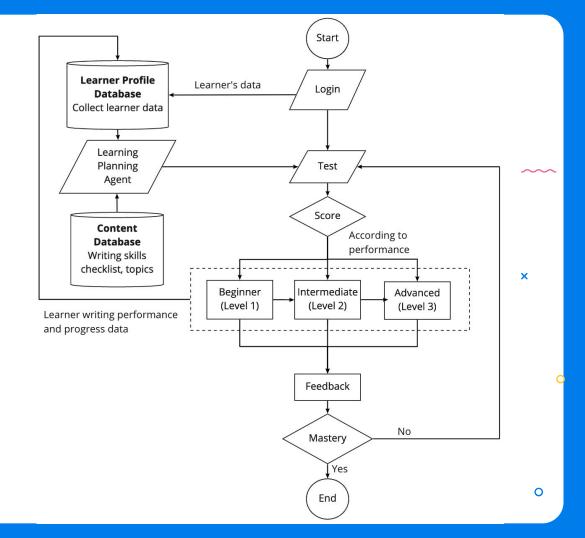
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Data Flow Diagram



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Demo

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Thank you!

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Appendix

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User Journey

2 Select Prompt

Home page displays prompts for selection based on user's interests

4 Grading & Feedback

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The system highlights errors in the essay, grades it and gives personalised feedback

1 Register & Login

Users will choose their topics of interest when registering

3 Write & Submit

Users will write essay for selected prompt and submit

Recommendation

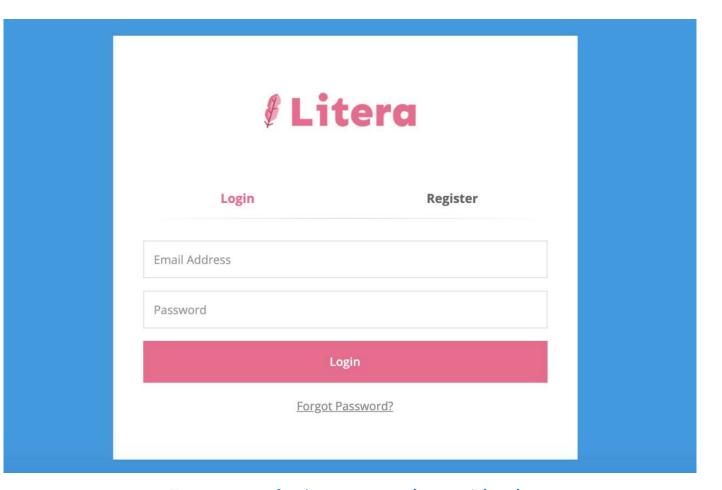
The system recommends materials based on learner's weaknesses

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Entry page for learners to sign up/sign in



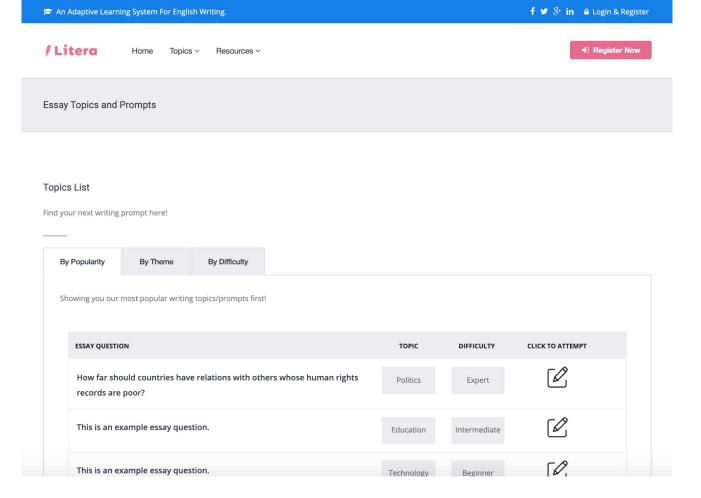


#### Welcome Back, John!

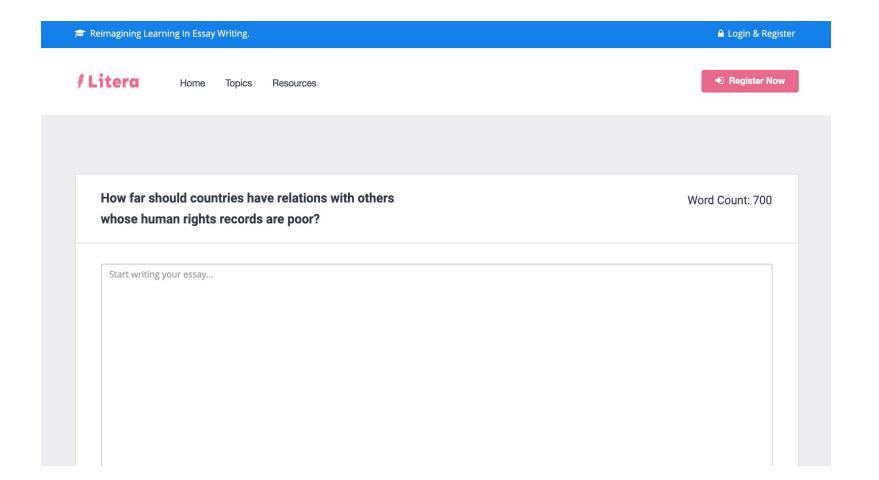
Browse the table below to see your past submissions for essay practice, or scroll down for some recommended resources:)

| ESSAY QUESTION                                                                           | TOPIC      | SCORE | DATE/TIME TAKEN                    |
|------------------------------------------------------------------------------------------|------------|-------|------------------------------------|
| How far should countries have relations with others whose human rights records are poor? | Politics   | 4/10  | 20-09-2020<br>50 minutes 7 seconds |
| This is an example essay question.                                                       | Education  | 3/10  | 19-09-2020<br>sample time          |
| This is an example essay question.                                                       | Technology | 6/10  | 18-09-2020<br>sample time          |

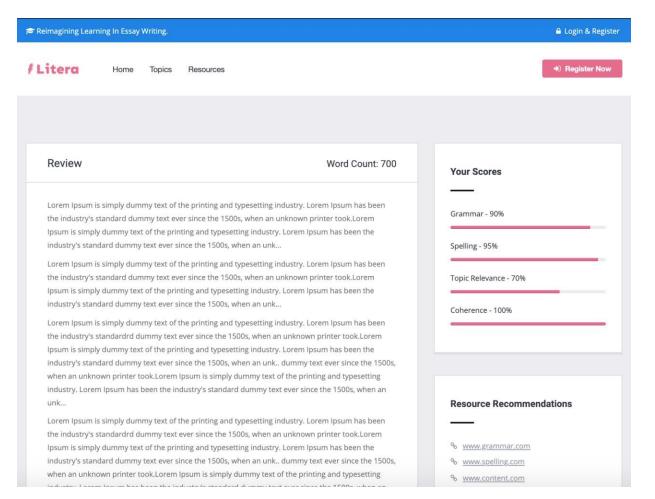
Home page displaying profile and past submissions



Topics page displaying all essay prompts by popularity, theme and difficulty



Submission page with prompt and word limit



Review page displaying errors, categorical scores and recommendations

# What's in your Essay?

**Structure** 

**Spelling** 

**Grammar** 

Relevance

Readability

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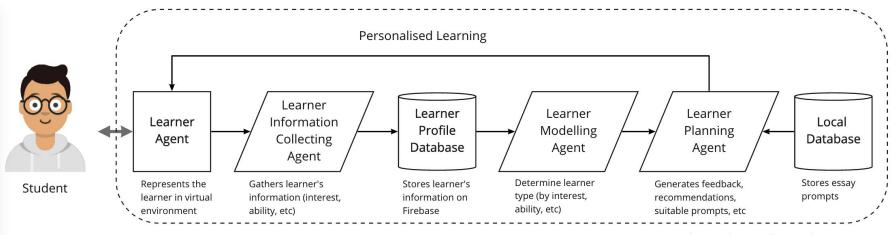
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# **Architecture**



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WritePLUS Learning Environment

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# Packages & Modules Implemented

### language\_check

Suggests corrections for grammar/spelling errors

### gensim

LDA model to score relevance of essay to prompt

#### nltk

Pre-processing of essay text



### dill

Serialize/deserialize
Python objects

### pyrebase

Firebase authentication and real-time database

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