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Design and Development of an English Try-Out Website Based on Feature-Driven Development and Usability Evaluation

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Abstract

English proficiency plays a crucial role in enhancing students' academic performance, cultural awareness, and career opportunities. However, many Indonesian students still face difficulties in mastering English due to traditional teaching methods that offer limited exposure to real-world communication. This study aims to design and develop an English qualification try-out website to support students' learning using the Feature-Driven Development (FDD) method. The system's usability and user experience were evaluated through the System Usability Scale (SUS) and the Short User Experience Questionnaire (UEQ-S). The SUS evaluation produced a score of 72.46, classified as Good and above the industry average, indicating practical usability. The UEQ-S results showed a Pragmatic Quality score of 1.810, a Hedonic Quality score of 0.988, and an overall average of 1.399, indicating a positive user experience. These findings demonstrate that the proposed system effectively supports English learning activities while maintaining a user-friendly interface. Future development should focus on enhancing interactivity and engagement to further improve the overall learning experience.

Keywords: English Learning Platform, User Experience, Feature-Driven Development (FDD), System Usability Scale (SUS), User Experience Questionnaire (UEQ)

1 Introduction

The importance of English in today's globalized world cannot be overstated, as it is a dominant language for internet use and cultural exchange. Research underscores the role of English proficiency in fostering students' self-confidence, personal growth, cultural awareness, access to higher education, and career opportunities (Sharma & Puri, 2020). Studies reveal that English is a critical skill across various industries, such as engineering (Shrestha et al., 2017), medicine (Chan et al., 2022), and tourism (Zahedpisheh et al., 2017). Its increasing use as a medium of communication in international academia (Leotta & Dolidze, 2022), business(Irawan et al., 2022), and technology highlights its importance in driving personal and professional development. Students' English proficiency is closely linked to their academic performance, as it serves as a key medium of instruction for achieving success (Devi et al., 2023). Consequently, English proficiency is often required for employment and scholarships, with standardized test scores a common prerequisite (Alqatawna & Al-Ali, 2023).

Despite its significance, the English Proficiency Index in Indonesia reveals a low proficiency level(Tryana & Mahmud, 2024). Indonesian students face difficulties in learning English, often struggling with vocabulary mastery, comprehension, and confidence when using English (Friskawati & Stephani, 2021). These challenges hinder many students from achieving a professional working proficiency by the time they graduate. Traditional teaching methods often fail to equip students with practical communication skills for real-world contexts (Harjana et al., 2023). However, research integrating Feature-Driven Development with usability and UX evaluation for

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English-language try-out systems in Indonesia remains limited. Thus, there is a critical need for educational systems to evolve and to improve language-teaching strategies. In response, this study proposes the development of an English qualification test try-out website, designed as a learning platform using the FDD method to prioritize students' comprehension and address their needs as primary users.

2 Research Method

a. Feature-Driven Development (FDD) Software Development Life Cycle

This research employs Feature-Driven Development (FDD) as the method for this project. FDD, an agile methodology, emphasizes flexibility, collaboration, and customer-centricity. It is particularly beneficial for systems with numerous features, as it adopts a process-oriented approach to deliver a website that closely aligns with requirements, thereby enhancing efficiency and quality (Tetteh, 2024). Therefore, FDD helps emphasize high-quality iteration to produce a high-quality website that addresses an abstract need from the user side, mainly because this type of website for improving English learning is considered less popular in Indonesia.

The FDD process, as shown in Figure 1 (Riady et al., 2022), involves five key steps. First, an overall model is developed. Second, a feature list is created that encompasses the system's menus and modules. Third, planning by feature involves creating a development plan for each feature. Fourth, feature-based design focuses on designing each feature in detail. Finally, building by feature involves implementing and releasing features based on the completed designs.

In summary, FDD is a highly adaptive agile software development methodology characterized by its short processes. Despite its brevity, FDD maintains a strong focus on high-quality iterations at every stage. It provides stakeholders with timely, meaningful status information and progress updates (Sadhna Goyal, 2007). Therefore, utilizing FDD in this research ensures that the needs of all stakeholders are effectively addressed.

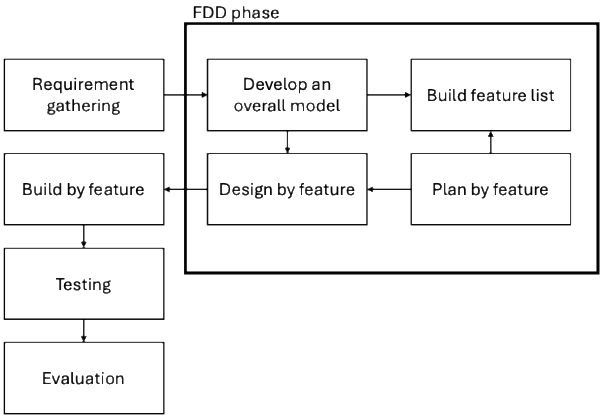

Figure 1. FDD Methodology for Software Development

b. SUS Questionnaire

The System Usability Scale (SUS) is a well-established tool for evaluating a product's perceived usability. Developed by John Brooke in 1986 (Brooke, 1996), SUS consists of a 10-item questionnaire scored on a 5-point Likert scale, ranging from "Strongly Disagree" to "Strongly Agree." This tool gathers subjective user feedback to assess various aspects of usability.

SUS questions are structured to evaluate users' overall impressions of a product's usability. Odd-numbered items are positive statements, while even-numbered items are negative, encouraging users to assess each question and minimize response bias critically. For example, a positive statement might be, "I think I would like to use this system frequently," while a negative one might be, "I found the system unnecessarily complex." Responses are calculated to produce a single usability score on a scale from 0 to 100.

Known for its simplicity and versatility, SUS applies to a wide range of contexts and product types, including software, hardware, and non-digital systems. Despite its brevity, it effectively evaluates usability aspects such as effectiveness, efficiency, and user satisfaction. Its scoring method facilitates cross-system comparisons, making it a valuable benchmarking tool in both research and practice.

The SUS data are analyzed using the official Excel scoring template developed by Brooke (1996). The template automatically converts individual questionnaire responses into a standardized usability score on a 0–100 scale, followed by qualitative interpretation categories such as Poor, OK, Good, Excellent, and Best

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Imaginable (Bangor et al., 2008). Because the SUS instrument is designed for descriptive benchmarking rather than inferential statistical testing, additional tests such as t-tests or ANOVA were not applied. The analysis focused on the mean score and its interpretation according to established industry benchmarks, ensuring consistency with recommended usability evaluation practices.

c. Short User Experience Questionnaire (UEQ-S)

The Short User Experience Questionnaire (UEQ-S) is a streamlined version of the standard UEQ (Schrepp et al., 2017) designed to assess user experience across two primary dimensions: Pragmatic Quality and Hedonic Quality. It provides a quick yet reliable method to evaluate how users perceive a product or system's functionality and emotional appeal. The items are shown in TABLE 1.

Table 1. Example of UEQ-S

Quality	No	Items
Pragmatic quality scale	1	clear/confusing
	2	Inefficient/efficient
	3	Complicated/easy
	4	Obstructive/supportive
Hedonic quality scale	5	Boring/exciting
	6	Not interesting/interesting
	7	Conventional/inventive
	8	Usual/leading edge

Pragmatic Quality focuses on the practical aspects of a product, such as its usability, functionality, and efficiency. It measures how effectively the product helps users complete tasks and achieve their goals. This dimension reflects the rational, task-oriented side of user experience, ensuring that the system meets users' fundamental needs.

Hedonic Quality, on the other hand, evaluates the product's emotional and aesthetic aspects. It assesses how engaging, enjoyable, and stimulating the system is for its users. This dimension is crucial for measuring the overall appeal and satisfaction derived from the product, which can impact user retention and loyalty.

The UEQ-S consists of eight items, reduced from the full UEQ's 26, making it more suitable for scenarios with limited time or when a quick assessment is required. Each item is scored on a semantic differential scale, in which participants rate their experiences along two opposing attributes, such as "efficient" versus "inefficient" or "exciting" versus "boring."

The UEQ-S results are processed using the official Excel analysis tool provided by Schrepp et al. (2017). The template automatically calculates mean values, standard deviations, and benchmark comparisons based on international reference datasets (Schrepp et al., 2014). Because UEQ-S is designed for descriptive benchmarking rather than inferential hypothesis testing, no additional analyses, such as t-tests or ANOVA, were applied. The interpretation followed the official guideline: values above 0.8 indicate a positive user experience, and values between 0.0 and 0.8 represent a neutral experience. This standardized analysis procedure ensures methodological validity and comparability with previous user experience studies.

3 Result and Discussion

a. Requirement Gathering

The initial phase, requirement gathering, involves collecting insights through interviews and pre-surveys to identify the challenges faced by the primary users, who are students. This step emphasizes understanding the unique traits, personalities, and needs of the target users for whom the solution is being developed. In this context, the primary users are Indonesian students required to take English tests as part of their graduation requirements. These students typically struggle to use English beyond limited situations, rely solely on their native Indonesian language, have difficulty identifying reliable resources, and lack motivation for independent study. By focusing on specific user segmentation, this stage aims to identify the varying needs, characteristics, and behaviors of each stakeholder.

b. FDD Phase

The initial phase of FDD involves mapping the processes and interactions between actors and systems, which is visualized using UML diagrams. These diagrams are highly effective in breaking down complex ideas and systems, enabling developers and stakeholders across different teams to share a unified understanding. This shared

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perspective is beneficial for explaining concepts to non-technical stakeholders (Bézivin, 2005; Dzidek et al., 2008; Hurme, 2011; Kaur & Singh, 2011; Kim et al., 2003; Utting & Legeard, 2007). UML diagrams serve as an excellent tool for fostering clear communication among stakeholders. Specifically, use case diagrams illustrate functional requirements (use cases) and actors (users), providing insights into dependencies among various use cases (Dennis et al., 2012), as depicted in Figure 2.

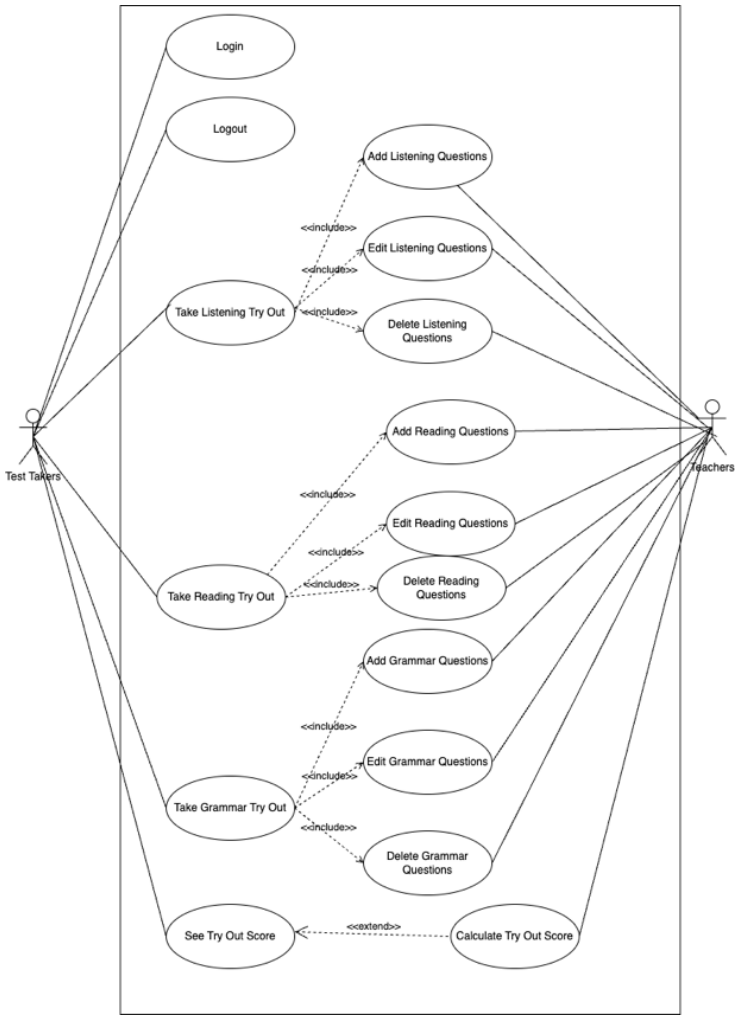

Figure 2. Use Case of English Try Out Website

The second phase focuses on developing a comprehensive, prioritized list of features, as illustrated in TABLE 2. The table categorizes features by module, making it easier to manage and iterate on each module independently. By segmenting features into distinct modules, the development process becomes more structured, allowing for short, focused iterations within each module to enhance efficiency and manageability.

Table 2. List of Features of the English Try Out Website

Modules	Details
Listening Module	The listening module for test takers includes the audio and multiple-choice questions.
Reading Module	The reading module for test takers includes a reading passage of about 4-5 paragraphs and multiple-choice questions.
Grammar Module	The grammar module for test takers includes multiple-choice questions.

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The third phase centres on organising the entire development process, covering all features and their interrelations. A Gantt Chart is a visual tool for managing the project timeline, showing the sequence of tasks, their deadlines, and assigned responsibilities. It employs color-coded horizontal bars to represent tasks and their durations (Kjeldsen, 2020) as illustrated in TABLE 3.

Table 3. Gantt Chart of English Try Out Website

		Month					
No	**Modules**	**1**	**2**	**3**	**4**	**5**	**6**
1	Listening Module						
2	Reading Module						
3	Grammar Module						

The fourth phase focuses on designing the chosen features for implementation. This phase is represented in Figure 3 as a sequence diagram, which illustrates how objects, processes, or components interact over time within the system (Dennis et al., 2012). These diagrams are handy for understanding the flow of messages, events, or operations as they occur in a specific sequence, showcasing how various parts of the system collaborate to achieve a functionality.

In a sequence diagram, objects or participants are represented by vertical lifelines, while horizontal arrows indicate messages or interactions exchanged between them. This visual representation helps developers and stakeholders understand the system's dynamic behavior, identify potential bottlenecks, and ensure the feature's design aligns with user requirements and system goals. By mapping out these interactions, the sequence diagram provides clarity on how the selected features will function and integrate within the system architecture.

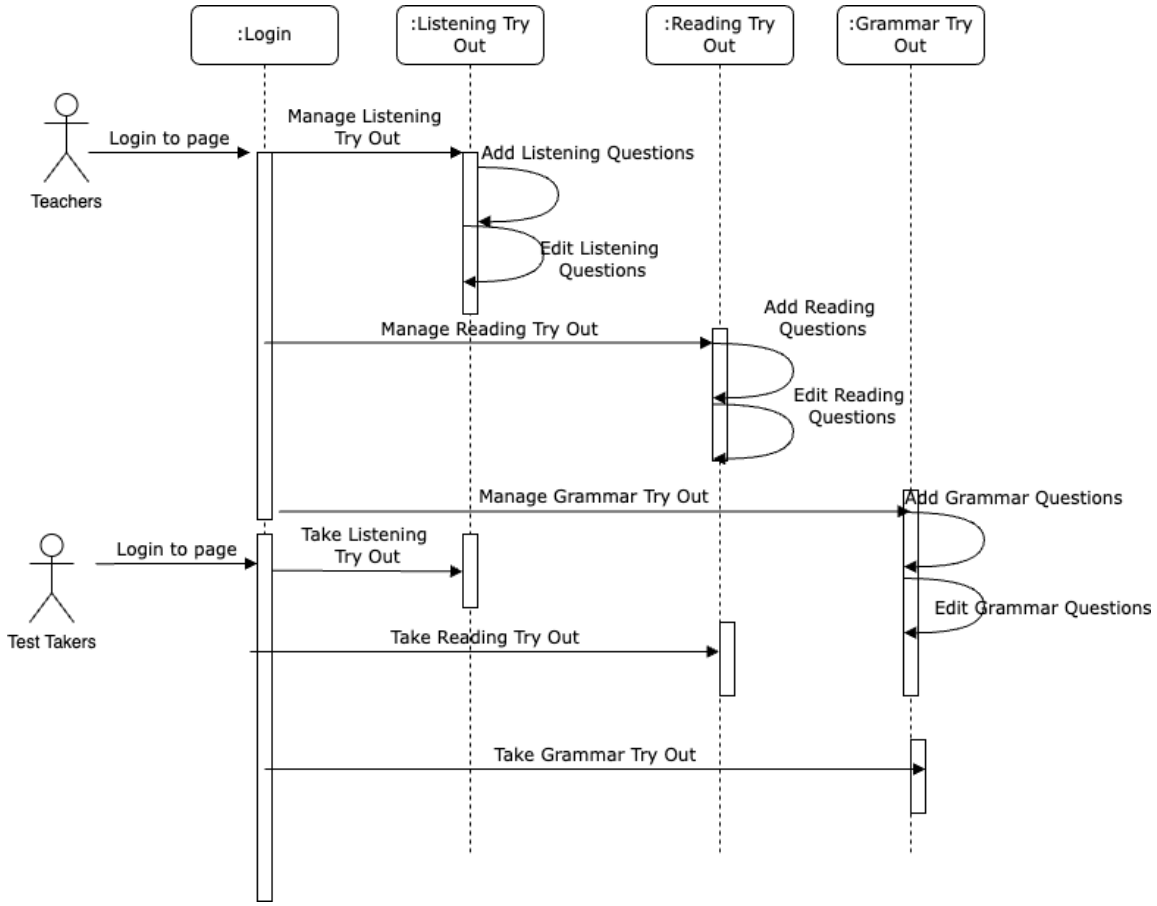

Figure 3. Sequence Diagram of English Try Out Website

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c. Build By Feature

The final phase involves implementing the system's technical components. This stage is supported by a deployment diagram that visually depicts how software components are distributed across hardware nodes in a system. Deployment diagrams help illustrate the relationships and interactions between software and hardware in different environments, ensuring a clear understanding of the system's infrastructure (Dennis et al., 2012). As shown in Figure 4, the deployment diagram highlights the allocation of components, such as databases, application servers, and user interfaces, to specific hardware resources.

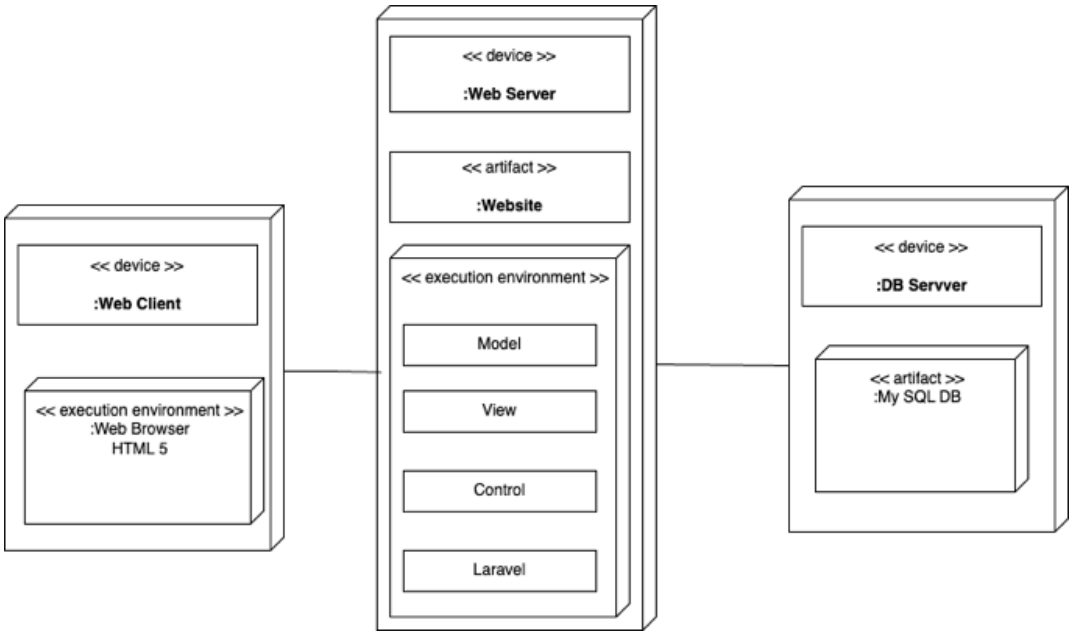

Figure 4. Deployment Diagram of English Try Out Website

Additionally, deployment diagrams are essential for identifying potential bottlenecks, optimizing resource usage, and ensuring scalability and reliability in the system. They also facilitate communication between technical teams and stakeholders by providing a clear representation of the system's architecture. In distributed systems, deployment diagrams are handy for mapping communication protocols, data flows, and system dependencies, which are critical for seamless operation across varied environments. This visualization supports effective decision-making during the deployment process and ensures the system functions efficiently post-deployment.

This development utilizes a technology stack consisting of PHP with the Laravel framework and a MySQL database. This stack is chosen for its broad cross-platform support and continued popularity among developers. According to a Stack Overflow survey, PHP ranks 11th among 20+ programming languages, while the Laravel framework ranks 15th among 20+ frameworks. Additionally, MySQL is ranked second among database systems (Stack Overflow, 2024).

The system comprises three separate applications, each tailored to a specific test aspect. The listening aspect is accessible at the URL: https://listening.englishqualification.my.id, the reading aspect at https://reading.englishqualification.my.id, and the grammar aspect at https://structure.englishqualification.my.id.

To take the test, Test Takers log into the respective application using credentials provided by their Teacher. Teachers can create user accounts through the Django Admin interface. After logging in, the Test Taker clicks "Start Test" to begin the qualification test. Answers are submitted by selecting a radio button corresponding to the chosen answer and clicking submit. A timer displayed at the top of the screen tracks the remaining time; once the time expires, the Test Taker is redirected to the dashboard and cannot continue the test. Upon completing the test, the Test

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Taker is returned to the dashboard, where the number of correct answers is displayed. To maintain test integrity, each Test Taker is limited to a single attempt to prevent repeated attempts on similar questions.

Figure 5 depicts a TOEFL Preparation Test Page interface from a web application, accessible at the URL https://listening.englishqualification.my.id. The page is specifically designed for the listening module of an English qualification test.

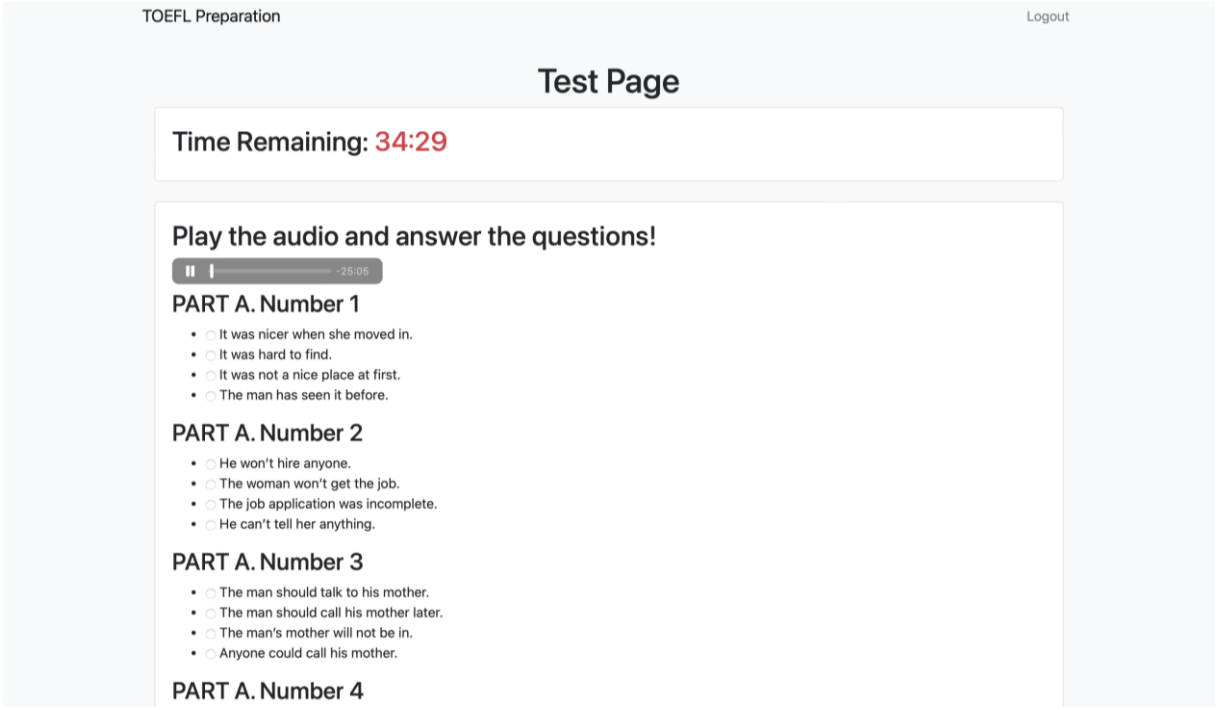

Figure 5. Listening Module for English Try Out Website

There are several key features used in this listening module page. Firstly, the header displays the title "TOEFL Preparation," indicating the test's purpose. In addition, a prominently displayed countdown timer at the top of the page shows the remaining time for the test. In this example, it reads 34:29 in red, emphasizing the urgency. Furthermore, the test page includes instructions: "Play the audio and answer the questions!" This indicates that the task involves listening to an audio clip and selecting the correct answers. Moreover, an integrated audio player with playback controls is available. The current timestamp of the audio clip is also visible (-26:05), suggesting the duration of the listening material. Next, below the audio player, multiple questions are listed under Part A (e.g., Number 1, Number 2, etc.), each followed by multiple-choice options. These options allow users to select their answers. Lastly, a "Logout" button is displayed at the top-right corner, indicating the user has an account and can log out of the system. The interface is clean, user-friendly, and designed to help users focus on the test, enabling them to manage their time efficiently and answer questions based on the audio prompts.

Figure 6 shows the Reading Test Page, available at https://reading.englishqualification.my.id, from a TOEFL Preparation web application. The interface is designed for practicing reading comprehension as part of an English qualification test.

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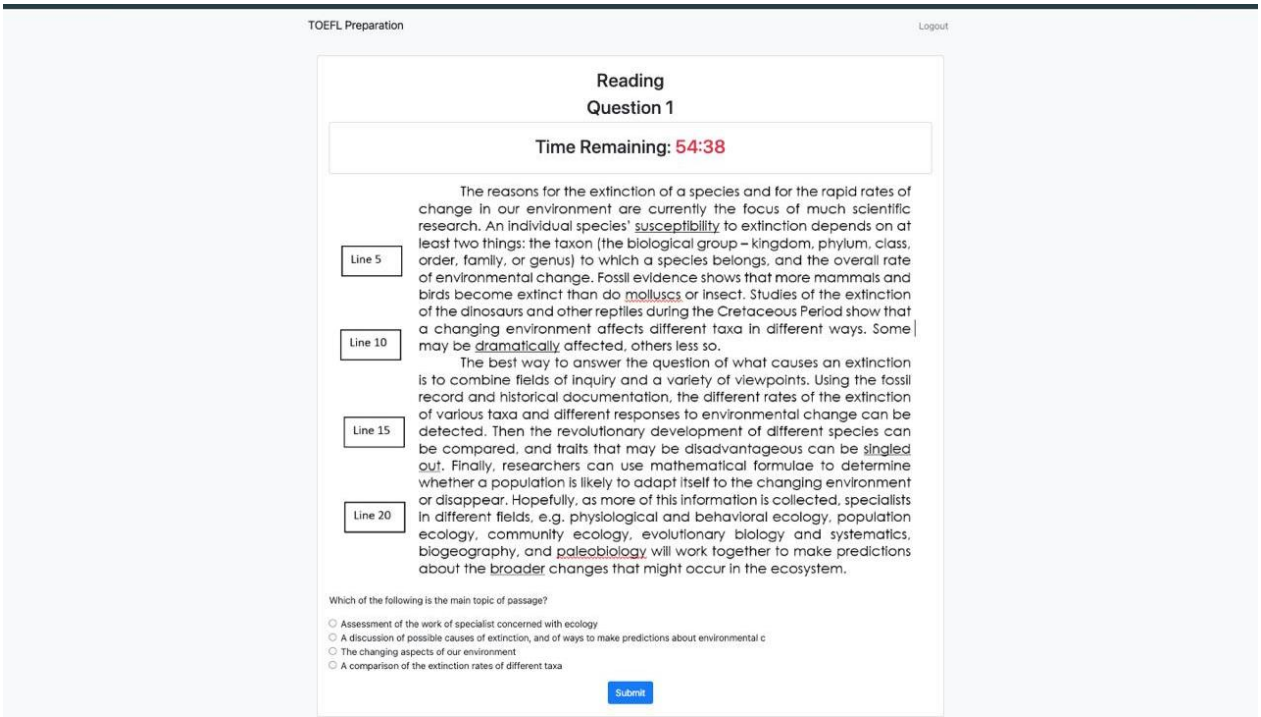

Figure 6. Reading Module for English Try Out Website

This clean, minimalist interface, shown in Figure 7, is designed for a grammar or structure test module in TOEFL preparation. It is available on https://structure.englishqualification.my.id. The layout prioritizes simplicity and usability, allowing users to focus on answering questions efficiently while keeping track of remaining time.

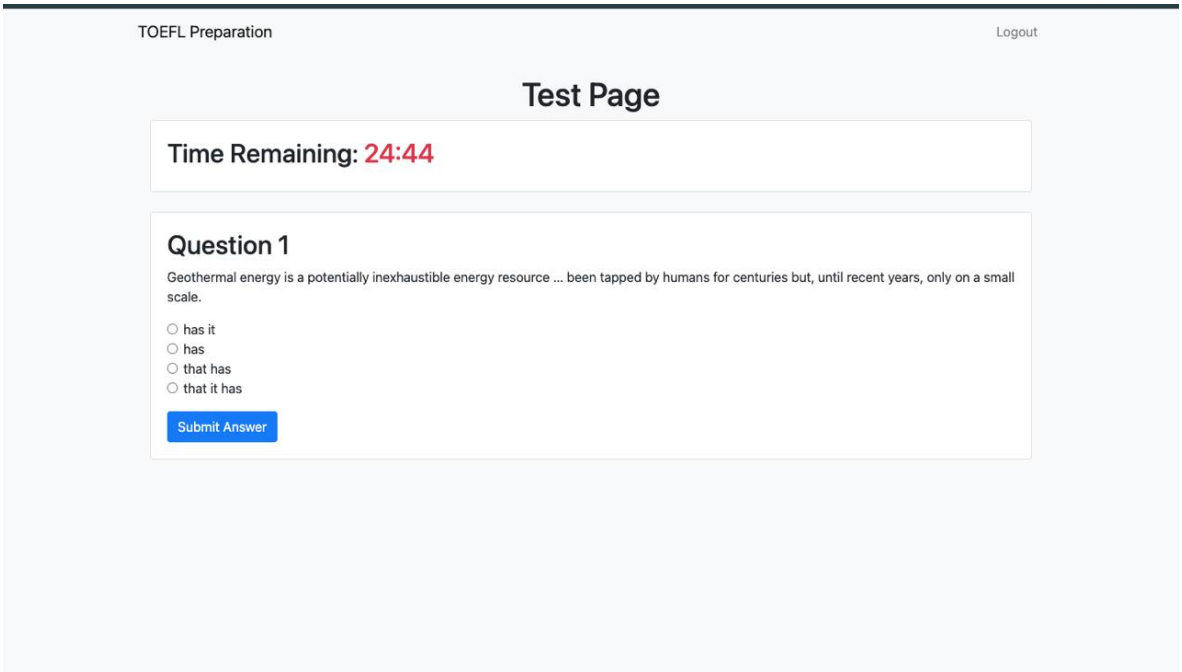

Figure 7. Grammar Module for English Try Out Website

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Several key features of the grammar module are discussed. Firstly, the header reads "TOEFL Preparation," indicating that this is part of a TOEFL test-preparation module. "Test Page" is prominently displayed, indicating the current test environment. Next, a countdown timer below the title shows the remaining time for the test. In this example, the time left is 24:44, emphasizing the need for effective time management. The section begins with Question 1, signaling the first question of the test. The question reads: "Geothermal energy is a potentially inexhaustible energy resource ... has been tapped by humans for centuries but, until recent years, only on a small scale." The blank space ("...") is to be filled with the correct option from the choices provided. In addition, four multiple-choice options are displayed, each with a radio button for selection. A clearly labeled "Submit Answer" button is provided below the answer options, allowing the user to finalize and submit their response. Lastly, a "Logout" button in the top-right corner enables users to exit the test session securely.

d. Testing

The demographic data revealed that the sample consists primarily of male second-year students, predominantly from Telkom University. This composition should be considered when generalizing the results to a broader population, as the data may reflect the characteristics and experiences specific to this group.

According to Figure 8, the distribution of respondents by institution. The majority of participants, 97% (61 respondents), are from Telkom University, while 1% each are from Politeknik Negeri Bandung (1 respondent) and Institut Teknologi Bandung (1 respondent). This dominance suggests a focus on gathering feedback from students or staff affiliated with this university. Other institutions, such as Institut Teknologi Bandung and Politeknik Negeri Bandung, contribute minimally to the respondent pool, suggesting either targeted recruitment or a higher level of interest among Universitas Telkom participants.

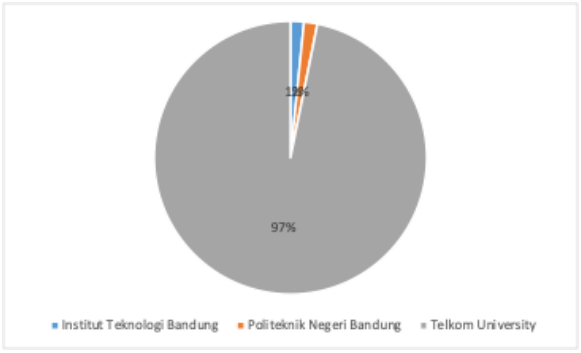

Figure 8. University Demography of Respondents

Next, Figure 9 shows the gender breakdown of participants. 73% (46 respondents) are male, while 27% (17 respondents) are female. This indicates a significant male majority in the sample. Meanwhile, Figure 10 shows the participants' academic years. The majority, 78% (49 respondents) are in their 2nd year, followed by 17% (11 respondents) in their 3rd year, and 5% (3 respondents) in their 4th year. This suggests that the sample is heavily skewed toward second-year students, with minimal representation from senior students.

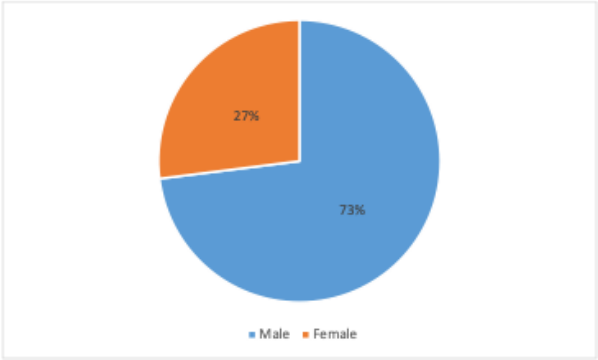

Figure 9. Gender Demography of Respondents

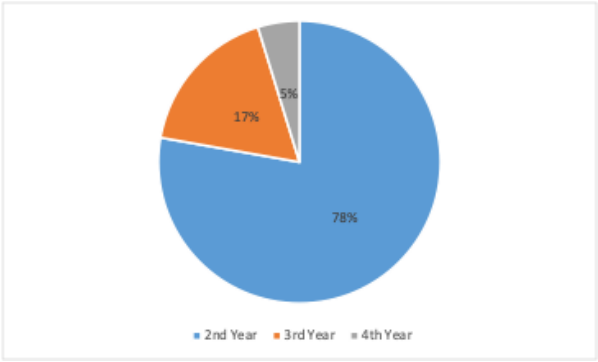

Figure 10. Level Demography of Respondents

The System Usability Scale (SUS) was used to evaluate the product's usability. A total of 63

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participants completed the questionnaire, resulting in a final SUS score of 72.46. According to established SUS benchmarks, this score falls within the "Good" range, suggesting that users generally perceived the system as effective and easy to use.

Notably, the SUS score of 72.46 exceeds the industry average of 68, reflecting a robust user experience and overall satisfaction with the system's design and functionality. Participants particularly praised specific aspects, such as the system's "ease of use and clarity," which indicates its intuitive design and user-friendly interface. However, responses to particular items also revealed areas for improvement, particularly regarding "the system's complexity or its learnability for new users."

These findings highlight the system's strengths in delivering a functional and accessible user experience while emphasizing the need to refine or improve processes for first-time users. By addressing these opportunities for improvement, the system could further elevate its usability and better accommodate a broader range of users. This analysis underscores the importance of continuous usability evaluation to ensure a balanced focus on user satisfaction, efficiency, and ease of learning.

The Short User Experience Questionnaire (UEQ-S) was employed to evaluate user perceptions of the product across two key dimensions: pragmatic and hedonic qualities. A total of 63 participants provided feedback, offering insights into how well the product meets functional and emotional expectations.

The Pragmatic Quality score of 1.810 indicates that users perceived the product as highly functional, efficient, and goal-oriented. This suggests that the system effectively supports users in completing their tasks and achieving desired outcomes. In contrast, the Hedonic Quality was rated at 0.988, reflecting moderate levels of stimulation and novelty. While this score demonstrates some degree of engagement and ent in the product design, it highlights a potential area for growth in fostering a more engaging and innovative user experience. The Overall Score of 1.399 indicates a generally positive user experience, showing a good balance between usability and emotional appeal.

These results emphasize the product's strengths in pragmatic aspects, ensuring that it serves its primary functional purposes effectively. However, the relatively lower scenic qualities provide an opportunity to enhance the system's creative and emotional elements. By introducing more engaging features, visual appeal, or interactive components, the product could become more stimulating and enjoyable for users.

In summary, the findings suggest that while the product excels at supporting functional goals, further design improvements could enhance the user experience by making it more engaging and innovative. Continuous iteration and refinement in these areas could significantly improve user satisfaction and loyalty.

e. Evaluation

Based on the results of the SUS and UEQ-S questionnaires, as well as participant feedback, the application is practical as a qualification test tool for assessing user abilities. However, there is significant room for improvement, particularly in user interaction and experience. Test takers provided several valuable suggestions to enhance the application's usability and functionality:

1. Improved Navigation:

Five test takers recommended replacing the "Submit" button in each section or question with a "Next" button to improve test flow. They suggested that the "Submit" button appear only on the final page, allowing users to submit their answers after thoroughly reviewing the test. This change would reduce potential confusion and streamline the test-taking process.

2. Bookmark Feature:

Two test takers proposed adding a bookmark feature that lets users mark specific questions for later review. This would be particularly useful for questions that are confusing or require additional thought, enabling test takers to revisit them before final submission. Such a feature could enhance test-takers' confidence and help them manage their time effectively.

Incorporating these suggestions could significantly improve the application's interactivity and user-friendliness, aligning it more closely with users' needs and expectations while maintaining its effectiveness as a qualification testing platform. However, this study has certain limitations that should be acknowledged. The majority of respondents (97%) were students at Telkom University, limiting the generalizability of the findings to a broader population. Therefore, the

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usability and user experience results may primarily reflect the perspectives of this specific group. Future research should involve participants from multiple institutions and diverse educational backgrounds to obtain more comprehensive and representative insights.

4 Conclusion

This study developed a website for a try-out English qualification test using the Feature-Driven Development (FDD) method to improve Indonesian students' English proficiency. User testing showed strong usability and positive experiences: a System Usability Scale (SUS) score of 72.46 ("Good") and a User Experience Questionnaire (UEQ) with high Pragmatic Quality (1.810) and moderate Hedonic Quality (0.988). These results indicate the platform effectively meets functional goals but could enhance engagement and emotional appeal. Overall, it serves as a promising tool for strengthening English learning, with future improvements focused on interactive and creative features.

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