

**Grammaria: An Android-Based Tutorial Application in
English for Grade 6 Students**

**A Capstone Project
Presented to the Faculty of the
Information and Communications Technology Program
STI College Balayan**

**In Partial Fulfilment
of the Requirements for the Degree
Bachelor of Science in Information Technology**

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November 2024

ENDORSEMENT FORM FOR FINAL DEFENSE

TITLE OF RESEARCH: **Grammaria: An Android-Based Tutorial Application in English for Grade 6 Students**

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for the degree Bachelor of Science in Information Technology
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November 2024

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ACKNOWLEDGEMENTS

Creating Grammaria: An Android-Based Tutorial Application in English for Grade 6 Students has been a journey of learning, growth, and collaboration, and we are deeply grateful to all those who supported us along the way.

First and foremost, we would like to express our sincere gratitude to Ms. Maria Teresa J. Olea, our thesis adviser, whose invaluable advice, tolerance, and support have been a continual source of motivation. We appreciate your encouragement to strive for excellence and your belief in our vision.

Our Capstone Project Coordinator, Ms. Terranya M. Tiamson, is also greatly appreciated for her unwavering support and ability to keep us on course. We appreciate all of your time and work in making our success possible.

We would like to express our sincere gratitude to the Capstone Panelists, Ms. Richelle Q. Abiad, Ms. April Joy A. Reyes, and Ms. Terranya M. Tiamson, who served as the Lead Panelist. Their comments and recommendations enabled us to make our work better. We sincerely appreciate your advice and insights.

Our School STI College Balayan, especially to our President, Mrs. Ellen Christy A. Dimaano, for providing us with the best education.

Fifth, to our beloved family for their unconditional support and financial assistance.

Above all, we to our Almighty God, who guided us by giving wisdom and determination in conducting this project. We are very thankful to have you, our God, for making all of these things possible.

ABSTRACT

Title of research: **Grammaria: An Android-Based Tutorial Application in English for Grade 6 Students**

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Degree: **Bachelor of Science in Information Technology**

Date of Completion: **November 2024**

Keywords: **Tutorial Application, Supplementary Tool, English Subject, Grade 6, Interactive, Android-Based**

This capstone project introduces an Android-based tutorial application in English for Grade 6 students to help them learn English. The Android-based tutorial application aims to give students a supplementary tool that will help them learn more in the English subject. It promotes learning among Grade 6 students by allowing them to explore topics and concepts independently. The application integrates elements of fun and interactivity to create an enjoyable and effective learning experience for students.

This application is an interactive tutorial app aiming to address the challenges faced by Grade 6 students in learning the English subject. Through simple and user-friendly interfaces, the application aims to make the learning process of English enjoyable

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INTRODUCTION

Technology continues to grow rapidly, incorporated into everyday life, including education and work. This leads to an innovative way for students to learn through the development of educational applications. According to Shoaib (2023), Player uses critical thinking skills to advance. This allows students to push themselves into using critical thinking, planning, and coming up with creative solutions. These problem-solving abilities go beyond the virtual environment and aid in the development of student's capacity to tackle difficulties in the actual world with consideration and analysis. This creative integration has not only revolutionized educational practices but has also led to remarkable outcomes, enhancing student involvement and promoting better understanding across different learning stages.

Project Context

Students need to understand the importance of learning English. It is one of the five core subjects along with Science, Mathematics, Filipino, and Araling Panlipunan. However, it is a challenging subject for the students to learn, because it is not their first language. But it is an important subject to learn as it can be used to communicate with people outside the country, and with the era of technology communicating through the internet is much more apparent and the main language that is used here is the English language.

Currently, the teachers in the different schools in District 1, where the developers conducted their survey, use the traditional method of teaching. The traditional method of teaching uses discussion, groupings, inquiry method, cooperative, collaborative, interactive and student- centered activity. (See Appendix C)

Based on the interview and survey conducted by the proponents, these are the following reasons why students struggle in learning English: (See Appendix C)

Lack of English practice

English is one of the hardest subjects for students to learn and with the lack of practice the students will have a hard time learning. Lack of practice in English can lead to students' having difficult time understanding English. Without many opportunities to

practice speaking, listening, reading, and writing in English, students may struggle to understand concepts.

Lack of supplementary learning materials

Most schools do not have sufficient resources for students to access a wide range of learning materials. Learning materials are more focused on basic skills in most schools, so learning materials for students lack more specialized topics. In addition, in a technological era, not all students have access to digital learning materials, which limits their ability to access these learning materials.

Purpose and Description

The primary purpose of this capstone project is to develop a tutorial application that will provide an entertaining way of learning to Grade 6 students in selected topic of English subject in which the student deemed to find most difficult, such as Tenses of Verb, Subordinating and Coordinating Conjunctions, and Adverbs of Manner, Place, and Time. The developer is making the application like a fun challenge, with quizzes and rewards to complete. This will help students stay interested and motivated to learn. The students will get better at understanding and remembering the topics that they find difficult. The application will let students learn at their own speed, which helps boost their confidence. Teachers can also use this application in class to support their lessons and let the students use it on their own to practice and improve their English skills.

The developers created an Android-based tutorial application, “Grammaria”, which is designed to be easy to use and exciting to play. The application consists of video discussions, quizzes, and mini games which focuses on developing understanding on specific topics in English such as Tenses of Verb, Subordinating and Coordinating Conjunctions, and Adverbs of Manner, Place, and Time. The player must watch the videos and answer questions in order to finish the topic. The students will receive points based on the task they have completed. This will help students stay interested and motivated to learn.

Objectives

Grammaria, is an Android-based tutorial application aiming for the Grade 6 curriculum, focusing on English lesson. The developed application includes specific topics covering grammar, vocabulary, sentence structure, and critical thinking of the students.

The general objective of the application “Grammaria” is to implement an interactive digital app aimed at addressing the specific challenges faced by Grade 6 students in mastering aspects of the English subject. This application aims to aid the students to learn different topics relating to English and make it easier to understand. The app can provide the students additional learning materials for English to help students access more specialized topics. By incorporating elements of fun and interactivity, the application is intended to foster a more enjoyable and effective learning experience for students.

The developers based the application on gathered information from interviews and surveys of the students and Grade 6 advisers. (See Appendix C and Appendix D)

The following are specific objectives of the developed application:

To develop and implement a captivating mobile learning application that offers students English practice

Most of Grade 6 students today spend a substantial amount of time immersed in various applications. To be able to help them practice their English skills and make the process more enjoyable and engaging, a learning application can be developed. By integrating conversational English elements into this app, students can learn and practice their proficiency while being entertained at the same time. This approach allows them to practice their English skills in a fun and interactive way, keeping them interested and motivated to continue learning the English language

To develop and implement a learning application that will serve as a supplementary tool for students.

The developers developed an application aims to give students a supplementary tool that will help them learn more in English. This objective focuses on empowering students to

take control of their learning journey by providing them with opportunities to progress through the app. By allowing students to explore topics and concepts independently, the app promotes self-directed learning among Grade 6 students

The Android-based tutorial application will benefit the following:

Students

The app that will be created can assist students in developing both their interest and understanding pertaining to the English language and grammar.

Teachers

The teachers will benefit from the developed application because it can be used as a teaching aid for their students. Teachers can use it to help students' practice, consolidate, and apply their knowledge and language abilities in a fun and interesting way.

Parents

This will help parents to make sure that their kids can learn through tutorial applications that emphasize English language and grammar in addition to more traditional physical methods.

Future Researchers

Future researchers will receive ideas that can be used as a guide as they conduct the same study. This will make it easier for them to create tutorial applications in the future.

Developers

The developed application will showcase the developers' technical abilities and demonstrate their creativity and problem-solving skills in designing educational tools that address specific learning challenges.

STI College Balayan

The development of the tutorial application by the students of STI College Balayan will demonstrate the dedication of the institution to offer high-quality education and training to

its students. The institution will gain a reputation for excellence in technology and programming education, attracting students who are interested in pursuing careers in this field.

Scope and Limitations

Scope

Player

Before starting the application, the player needs to log in their account by inputting their username then click the log in button. If the player does not have an account, they need to create a new account by clicking the signup button and provide a username.

Application Characters

Player

The player is the application user that is eager to learn to improve their English and grammar skills. The player interacts with Teacher Mark, participates in activities, and answer quizzes

Teacher Mark

The engaging and supportive English teacher who provides lessons and guides the player through activities

Main Menu

Home

This button will be used to display the application's home screen which includes the description of the app.

Start

This button will be used to initiate the app and directs the player to the topic's selection screen. Each topic includes English tutorial and quizzes focusing in verb tenses, conjunctions, and adverb.

User Profile

This button will be used to display the process of the user showing the highest score for each topic.

About

This button will be used to display the developers of the application.

Leaderboard

This button will be used to display the player points and players with highest points.

Exit

This button will be used to let the player leave the app.

Application Functions

The player will use these functions to perform actions in the app.

Tap

This control will be used to select and interact with buttons, menu items, and other interactive elements on the screen

Drag and Drop

This control will be used for activities that require matching or sorting words to form proper sentence.

Tap and Hold

This control will be used for activities that require attaching and connecting words to form proper sentence.

Pause Menu

This paused button will be used to stop the quiz and let players to have the options to choose.

Music Toggle

This option will allow the user to turn on or turn off the background music.

Sound Toggle

This option will allow the user to turn on or turn off the sound effects.

Resume

This option will allow the user to continue the quiz.

Exit

This option will allow the user to exit the quiz and return to previous menu.

Points Indicator

The points indicator will be display on the top right screen which allow the players to see the number of points they gained after completing the quiz. These points will be used to show the player's rank on the leaderboard.

Coins Indicator

The coins indicator will be display under the points indicator which indicates the number of coins the player gathered during the quiz. For the first time players, they will receive a total of 200 coins. These coins can be used to buy hints.

Hint Indicator

The hint indicator will be display under the coins indicator which indicates the number of hints the player has. The hint costs 100 coins and can only be used once during the quiz.

Mechanics

Upon pressing the start button on the home screen, the player will be directed to the topic's selection screen.

- **Lesson Selection and Subtopics:** Players will be presented with a screen of different lesson such as tenses of verbs, conjunctions, and adverbs. When the player selects a lesson topic, they will see the subtopics listed underneath it.
- **Subtopic Selection:** After selecting the subtopic, players will enter the quiz screen where they are presented with a series of questions designed to test their knowledge.
- **Tutorial:** To unlock the quiz, players must first watch a tutorial discussion associated with that lesson. The tutorial discussion features Teacher Mark explaining the concept, providing examples, and offering tips for understanding.
- **Interactive Quizzes:** Initially, the quizzes are locked, indicated by lock icon. Each subtopic consists of different interactive quizzes, offering a variety of challenges to keep app engaging. Questions may vary in complexity, requiring players to identify the correct answers to form a proper sentence.
- **Revisiting Tutorials:** Players can revisit the tutorials at any time for reinforcement or clarification. This encourages continuous learning and reinforces understanding of the lesson concepts.
- **Point System:** After answering each quiz, players will receive immediate feedback

on their response. Correct answers earn points, while incorrect answers do not deduct points.

- **Time Limit:** To add an extra challenge, players have a five minutes time limit to complete each quiz. This encourages quick thinking and reinforces fluency in identifying and applying the correct answers.
- **Hint System:** If players get stuck on an activity, they can use hints. Hints might provide clues about the correct answer or offer guidance on forming the sentence properly.
- **Test Completion:** At the end of each quiz, players receive feedback on their performance, including the number of correct answers, points earned, and coins rewarded.

Tenses of Verb Topic

Simple Tenses

- In this quiz, the player will be presented with a set of scattered words and must form a proper sentence by connecting them in the correct order.
- The player needs to tap and hold a word, then draws a line to connect it to the next word in the sentence. This process is repeated until all words are connected.
- The quiz consists of 10 different sentences. If the sentence is correct, the player earns 10 points. If incorrect, no points are awarded and then proceed to the next sentence until all are answered or the timer runs out.
- The player will have a total of 5 minutes to complete all ten sentences. Players must complete each sentence within this period to earn points. If the timer runs out, the quiz stops, and display the summary of their correct answers.
- Players can use hints to get assistance with forming the sentence. The hint highlights the next correct word in the sequence. The hint costs 100 coins and can only be used once during the entire quiz.
- If the player answers all 10 correctly, they will receive 100 bonus coins. If the player scores 9 correctly, they will receive 80 bonus coins and if they score 8 correctly, they will receive 50 bonus coins as a reward. If the player scores 7 correct answers or less, they will receive no rewards.

Perfect Tenses

- In this quiz, players will construct proper sentences using perfect tenses by tapping the right words in the correct order scattered on the screen. This activity aims to reinforce their understanding of how to form sentences in the perfect tenses.
- The quiz consists of 10 different sentences. If the sentence is correct, the player earns 10 points. If incorrect, no points are awarded and then proceed to the next sentence until all are answered or the timer runs out.
- The player will have a total of 5 minutes to complete all ten sentences. Players must complete each sentence within this period to earn points. If the timer runs out, the quiz stops, and display the summary of their correct answers.
- Players can use hints to get assistance with forming the sentence. The hint highlights the next correct word in the sequence. The hint costs 100 coins and can only be used once during the entire quiz.
- If the player answers all 10 correctly, they will receive 100 bonus coins. If the player scores 9 correctly, they will receive 80 bonus coins and if they score 8 correctly, they will receive 50 bonus coins as a reward. If the player scores 7 correct answers or less, they will receive no rewards.

Table 1: Tenses of Verb Topic

Topic	Activity	Mechanics
Verb Tenses	Simple Tenses Interactive Challenge: Connecting words using lines	Score: 1 correct = 10 points Hint Price: 100 coins 8/10 score reward: 50 coins 9/10 score reward: 80 coins 10/10 score reward: 100 coins
	Perfect Tenses Interactive Challenge: Tapping the words in correct order	

Conjunction Topic

Coordinating Conjunction

- In this quiz, players will complete a jigsaw puzzle to practice the use of coordinating conjunctions. The puzzle consists of jigsaw pieces: the two pieces are in fix place containing parts of sentences, and there are three pieces below containing conjunctions as options. The player must choose the jigsaw piece correctly from the options to form a proper sentence.
- The player will be presented with the jigsaw puzzle pieces on the screen. The player needs to drag the correct piece to the drop zones to form a correct sentence. The goal is to connect the two sentence pieces with the appropriate conjunction.
- The quiz consists of 10 different sentences. If the sentence is correct, the player earns 10 points. If incorrect, no points are awarded and then proceed to the next sentence until all are answered or the timer runs out.
- The player will have a total of 5 minutes to complete all ten sentences. Players must complete each sentence within this period to earn points. If the timer runs out, the quiz stops, and display the summary of their correct answers.
- Players can use hints to get assistance with forming the sentence. The hint automatically removes a piece from the options. The hint costs 100 coins and can only be used once during the entire quiz.
- If the player answers all 10 correctly, they will receive 100 bonus coins. If the player scores 9 correctly, they will receive 80 bonus coins and if they score 8 correctly, they will receive 50 bonus coins as a reward. If the player scores 7 correct answers or less, they will receive no rewards.

Subordinating Conjunction

- In this quiz, players will complete sentences using subordinating conjunctions by forming the correct conjunction from a selection of letters provided at the bottom of the screen. This activity aims to reinforce their understanding of how to use subordinating conjunctions to create complex sentences.
- The player is presented with a sentence that needs a subordinating conjunction to be complete. A set of individual letters is displayed at the bottom of the screen.

- The player needs to select and tap letters from the letter bank to form the correct conjunction. After tapping the letters, it will display to the blank space on the screen.
- The quiz consists of 10 different sentences. If the sentence is correct, the player earns 10 points. If incorrect, no points are awarded and then proceed to the next sentence until all are answered or the timer runs out.
- The player will have a total of 5 minutes to complete all ten sentences. Players must complete each sentence within this period to earn points. If the timer runs out, the quiz stops, and display the summary of their correct answers.
- Players can use hints to get assistance with forming the sentence. The hint automatically displays a correct letter in the blank space. The hint costs 100 coins and can only be used once during the entire quiz.
- If the player answers all 10 correctly, they will receive 100 bonus coins. If the player scores 9 correctly, they will receive 80 bonus coins and if they score 8 correctly, they will receive 50 bonus coins as a reward. If the player scores 7 correct answers or less, they will receive no rewards.

Table 2: Conjunction Topic

Topic	Activity	Mechanics
Conjunctions	Coordinating Conjunction Interactive Challenge: Jigsaw Puzzle Subordinating Conjunction Interactive Challenge: Sentence Completion	Score: 1 correct = 10 points Hint Price: 100 coins 8/10 score reward: 50 coins 9/10 score reward: 80 coins 10/10 score reward: 100 coins

Adverb

Adverb of Manner

- In this quiz, players will choose the correct adverb form of the given adjectives. Players will be presented with adjectives, and they need to select the appropriate adverb form from the options provided.
- The player is presented with an adjective and three adverb form options. The player needs to select the appropriate adverb form by dragging it to the corresponding answer box next to the adjective.
- The quiz consists of 10 different adjectives. If the answer is correct, the player earns 10 points. If incorrect, no points are awarded and then proceed to the next word until all are answered or the timer runs out.
- The player will have a total of 5 minutes to complete all ten questions. Players must complete each question within this period to earn points. If the timer runs out, the quiz stops, and display the summary of their correct answers.
- Players can use hints to get assistance. The hint removes one of the words in the options. The hint costs 100 coins and can only be used once during the entire quiz.
- If the player answers all 10 correctly, they will receive 100 bonus coins. If the player scores 9 correctly, they will receive 80 bonus coins and if they score 8 correctly, they will receive 50 bonus coins as a reward. If the player scores 7 correct answers or less, they will receive no rewards.

Adverb of Time

- In this quiz, players will practice identifying and matching adverbs of time to appropriate sentences. The player is presented with a sentence on the top and a list of adverbs of time below. The player needs to draw lines to connect the sentence with the correct adverb of time.
- The player is presented with a sentence and three adverbs of time. The player needs to draw a line from the sentence to the correct adverb of time below.
- The quiz consists of 10 different sentences. If the sentence is correct, the player earns 10 points. If incorrect, no points are awarded and then proceed to the next sentence until all are answered or the timer runs out.

- The player will have a total of 5 minutes to complete all ten sentences. Players must complete each sentence within this period to earn points. If the timer runs out, the quiz stops, and display the summary of their correct answers.
- Players can use hints to get assistance with forming the sentence. The hint highlights the correct adverb of time for the sentence. The hint costs 100 coins and can only be used once during the entire quiz.
- If the player answers all 10 correctly, they will receive 100 bonus coins. If the player scores 9 correctly, they will receive 80 bonus coins and if they score 8 correctly, they will receive 50 bonus coins as a reward. If the player scores 7 correct answers or less, they will receive no rewards.

Adverb of Place

- In this quiz, players will form correct sentences using adverbs of place by tapping the correct order of words into specified boxes based on an image provided. The image serves as a visual clue to help players understand the context and correctly use the adverb of place.
- The quiz consists of 10 different images. If the sentence is correct, the player earns 10 points. If incorrect, no points are awarded and then proceed to the next image until all are answered or the timer runs out.
- The player will have a total of 5 minutes to complete all ten sentences. Players must complete each sentence within this period to earn points. If the timer runs out, the quiz stops, and display the summary of their correct answers.
- Players can use hints to get assistance with forming the sentence. The hint automatically places a word in the correct box. The hint costs 100 coins and can only be used once during the entire quiz.
- If the player answers all 10 correctly, they will receive 100 bonus coins. If the player scores 9 correctly, they will receive 80 bonus coins and if they score 8 correctly, they will receive 50 bonus coins as a reward. If the player scores 7 correct answers or less, they will receive no rewards.

Table 3: Adverb Topic

Topic	Activity	Mechanics
Adverb	Adverb of Manner Interactive Challenge: Word Matching	Score: 1 correct = 10 points Hint Price: 100 coins 8/10 score reward: 50 coins 9/10 score reward: 80 coins
	Adverb of Time Interactive Challenge: Sentence Matching	10/10 score reward: 100 coins
	Adverb of Place Interactive Challenge: Sentence Structure Based on the Image	

Mini Game

Word Search

- The discussion includes a word search activity as a mini game for students.
- The word search mini-game is designed to provide a fun and interactive way for players to test their concentration and visual scanning skills. The player needs to search for words that is also related to topics in verb tenses, conjunctions, and adverbs.
- The player needs to find and click all the letters in sequence to form a word from the word list. Each set has 4 words. Every correct word earns the player 10 points.
- After a set of words is complete, players will receive the total points they earned from the number of words they found.

Table 4: Mini Game

Topic	Activity	Mechanics
Word Search	Word Search Interactive Challenge: Find the word by clicking the correct letters in sequence.	Score: 1 correct = 10 points

Limitations

The application does not support cross-platform.

The application is only compatible in Android operating system version 7.0 and higher. It does not support other operating system such as iOS, Windows, or Linux

The application only focuses in specific topics in English VI.

The application does not cover all the topics. It only consists of Tenses of Verbs, Conjunctions, and Adverbs.

The application will require an internet connection to access leaderboard.

The application needs an internet connection for accessing leaders and monitor plate.

REVIEW OF RELATED LITERATURE/SYSTEMS

Local Literature

Technology in Education

According to Espinosa, et al (2023) The COVID-19 pandemic has led to a shift from onsite to online teaching and learning in the Philippines, highlighting existing issues in technology and education. This case study aims to provide insights on how technology can address education challenges and success beyond the pandemic. It uses a systematic review of literature and rapid assessment to identify key factors affecting education technology use. Despite challenges, the study highlights scenarios where education technology can positively affect learning outcomes and education governance. The quality of technology-oriented teaching and assessment has been a growing concern, particularly in online teaching and learning, where authenticity of assessment can be difficult to maintain. Concerns include ensuring student engagement, assessing their understanding of subject matter, and maintaining academic integrity in remote learning environments. Developing effective strategies and tools for assessing student learning in a technology-oriented environment is crucial to ensure students receive quality education relevant to the 21st century demands.

The impact of digital technology on education was discussed in the associated literature. It implies that exposure to technology can improve their educational experiences. These technologies can also be used by teachers as platforms for collaboration, communication, information referencing, and instructional support. By analyzing this study, the developers can evaluate potential challenges and opportunities in integrating technology into education.

Effectiveness of Animated Video Presentation (AVP) as Supplementary Reading Materials in Reading Comprehension of Grade 3 Learners

According to Alcala, M. & Tamban, V. (2022) The study explored the effectiveness of Animated Video Presentation (AVP) in improving reading comprehension among Grade 3 students. Using a quasi-experimental design, researchers compared two groups of 72

matched participants. Both groups initially showed low reading comprehension levels in a pre-test. After the intervention, the experimental group, which used AVP, performed significantly better on reading comprehension tests than the comparison group. Statistical analysis confirmed this improvement. The study concluded that AVP is a helpful supplementary tool for enhancing reading comprehension in young learners.

This related literature is relevant to the developer's project because it highlights the benefits of using video Animated Video Presentation. This understanding guided the developers by integrating Animated Video Presentation in the developed application, ultimately contributing to the improvement of English skills and decision-making of students.

The Role of Gamification in the Academic Performance of Junior High School Students in Language Subject

According to Caballero, et al. (2022) The study aimed to investigate the impact of gamification on students' academic performance in Filipino language classes. Using purposive sampling, twenty grade seven students were selected. Both control and experimental groups were tested before and after gamification. Results showed that gamification significantly improved the experimental group's academic performance compared to the control group. This suggests that gamification positively impacts students' academic success, and students expressed enthusiasm for its use in Filipino subjects.

This literature is related to the developer's project because it highlights the positive effects of gamification in education. This understanding guided the developers to include leaderboards, points, and awards to encourage active participation and make the app fun and enjoyable. These points and leaderboards will also be used to track the progress of each student while playing the application.

Foreign Literature

Psychological Impact and Influence of Animation on Viewer's Visual Attention and Cognition

According to Praveen, et al. (2022) Animation is a fun and innovative way to engage

audiences, with applications in various fields such as knowledge, marketing, advertising, and age groups. This communication reviews the impact of animation on visual attention, highlighting its integration of different stimuli and organized presentation. Animation aids in conceptual understanding and cognitive response, making it beneficial in learning skills, food marketing, and teaching strategies. The study also discusses drawbacks, future recommendations, challenges, and open issues faced, and highlights priority areas for animation in enhancing visualization of large pool data, providing smart communication, and designing modeling structures.

This related literature is relevant to the developer's project. The insights from the paper can guide the developers in utilizing the animation and design of the app. This helped the developers to develop an app that can captivate the visual attention of the students and motivate them to play.

The Roles Sounds Play in Games: A Thematic Literature Study on Immersion, Inclusivity and Accessibility in Game Sound Research

According to Guillen-Hanson, et al. (2021) The role of audio in video games is increasingly relevant as technologies and sophistication evolve. The design and development of auditory components play a significant role in enabling immersive experiences and promoting inclusivity. Sound design not only deepens immersion but also facilitates accessibility for people with different physical and psychological abilities. It also challenges gender and heritage stereotypes. Designers have explored various methods to facilitate accessibility and inclusion, sometimes intentionally challenging auditory experiences. This study aims to review 47 academic studies on the perceived role of game sound design, its impact on immersion, and its ability to enhance inclusivity and accessibility within games.

This related literature highlights the role of audio in games. This helped the developers to use the right sounds or audio in the development of the application. This will enable the developers to create an app to provide immersive experiences with the use of appropriate sounds.

Simulating the Software Development Lifecycle: The Waterfall Model

According to Saravacos, et al. (2023) The waterfall model remains relevant and widely used in software development, despite the popularity of agile and iterative approaches. A 2019 study found that 28.1% of software developers used waterfall, but this may be too low. Although Agile has become the standard methodology, waterfall remains a foundational model for computing education. Hybrid models combining elements from both waterfall and agile methodologies have emerged, aiming to increase efficiency throughout the software development lifecycle. Some researchers take a more agnostic approach to waterfall, recognizing that there is no one superior software development lifecycle, but each has its strengths and weaknesses. Waterfall is best suited for complex, reliable systems, such as safety or security-critical systems. However, the waterfall model may be best known for its weaknesses, such as risky implementation and resource allocation issues. Despite these challenges, the waterfall model remains a valuable tool for understanding and implementing software development processes.

This related literature is relevant to the developer's project that will utilize the Waterfall Method in the development of the application. This method uses structured approach including requirement gathering, designing, deployment, implementation, and maintenance. This will serve as a valuable tool for the development process.

Local Studies

BookKnight: An Educational Game in English Vocabulary for the Grade 6 Students

According to Alindogan, et al. (2022) This capstone project aims to create a mobile educational game, BookKnight, for Grade 6 students to learn English vocabulary, spelling, and grammar. The game is designed to guide students on specific English topics and uses vocabulary and grammar skills to complete challenges. The game has four stages with different playstyles and challenging gameplay, focusing on understanding specific English topics. Each level has instructions for how to progress and what to accomplish within the given requirements. The game aims to provide an engaging learning experience for students.

This study is relevant to the developer's project. Their development of a 2D educational game focused on exploration of the concept of English vocabulary through gamification that aligns with the developer's objectives. Developing an immersive user experience is crucial for fostering student engagement, as evidenced by insights on improving usability and accessibility.

Balarila: Deep Learning for Semantic Grammar Error Correction in Low-Resource Settings

According to Espiritu P., et al. (2023), writing sentences in a certain language requires skills that are only developed through a lot of practice. A sufficient understanding of the rules and syntax of a language is necessary to avoid breakdowns in communication. The Filipino language is not exempted from such a necessity. Grammar checkers are widely available for many languages, most notably English. However, the ones available for the low-resource Filipino language are limited to correcting lexical problems. A freely accessible grammar checker for Filipino that can also handle more complicated semantic problems is still lacking. Thus, this study saw a chance to provide Balarila, a deep learning-based Filipino GEC model that draws inspiration from the GECToR methodology. An automated pipeline for error production was developed in order to overcome the lack of a training and test dataset. It generated synthetic datasets of Filipino sentences with and without errors from different web sources news outlets.

The review of the study is relevant to the developer's tutorial application, "Grammaria," because it emphasizes the importance of using correct grammar in writing sentences. By highlighting the significance of grammatical accuracy, the study supports the need for a dedicated application to help users improve their English skills.

PORTALOGICA: A 2D LOGIC GATE GAME-BASED LEARNING APPLICATION DEVELOPED IN UNITY GAME ENGINE IN C#

According to Lagayan, et al. (2023) Traditional learning methods for teaching logic gates are limited and not immersive for students. A digital game-based approach, gamification, has proven effective in inspiring students to understand and learn about logic gates.

Researchers invited participants to play PortaLogica and used a survey questionnaire to evaluate the game's features and functionality. The Cronbach Alpha statistical test was used to evaluate the results, revealing the effectiveness of the gamification approach in teaching logic gates. This study aims to improve the learning experience for students and encourage them to explore the concept of logic gates through gamification.

This related study prompted the developers to choose the Unity Game Engine for the development of the develop tutorial application. Unity is a powerful game engine that allows creators to manipulate scenes, navigate project folders, and enhance graphics. This visual editor allows for easy manipulation and property adjustments, reducing development time and increasing student engagement and enjoyment in applications like "Grammaria."

Foreign Studies

WordBricks: Mobile Technology and Visual Grammar Formalism for Gamification of Natural Language Grammar Acquisition

According to Purgina, M., Mozgovoy, M., & Blake, J. (2019) Gamifying language learning has become very popular in recent years. The widespread use of smartphones and mobile games has made this trend possible, as developers can reach many users and know that they will likely enjoy game-like features. However, most language learning apps still use traditional methods like reading, listening, translating, and quizzes. This article talks about how the mobile app WordBricks gamifies grammar learning in a more user-focused, lab-style way. WordBricks has users make correct sentences by putting together jigsaw-like blocks and gives instant feedback on whether the blocks fit together correctly. Inspired by Scratch, this virtual lab uses computational linguistics models to help users learn grammar through trial and error. The app was tested in various settings, showing how gamification can aid in learning a second language. We also discuss features that encourage users to play and explore some challenges faced by different language learning systems.

The insights on this paper are helpful for the developers because it provided significant information and insightful data to continually improve the app and ensures that the developers can make an app that will help players understand grammar better and can apply

it effectively.

Elsa Speak App: Automatic Speech Recognition (ASR) for Supplementing English Pronunciation Skills

According to Kholis, A. (2021). Artificial intelligence has become important in language teaching because it helps enhance language learning at all educational levels. A notable example is the Elsa Speak App, which uses Automatic Speech Recognition to teach pronunciation. This app analyzes how students pronounce English words and provides feedback to improve their pronunciation. A study was conducted with English Department students at Nahdlatul Ulama University of Yogyakarta to test the effectiveness of ELSA Speak. Data were collected through pronunciation tests and interviews, and the researcher also taught in the classroom. The results showed that ELSA Speak significantly improved students' pronunciation skills. The app's features, such as instant feedback, helped students pronounce words more accurately and confidently.

The study provided important insights into the effectiveness of using applications to in English learning. The subjects used are the same and will offer relevant information that the developers used in the application "Grammaria".

SmartChem: An Android Application for Learning Multiple Representations of Acid-Base Chemistry

According to Eliyawati et al. (2020). An Android app called SmartChem was developed to teach acid-base chemistry using different representations. This paper describes the design, development, validation, and testing of SmartChem with pre-service science teachers. SmartChem helps students understand acid-base concepts through symbolic, macroscopic, and submicroscopic representations. The app's validity was evaluated by five expert judges using Aiken's validity index (Aiken's V). The results indicated that some parts of SmartChem needed revisions, particularly in connecting submicroscopic content with symbolic representations. Trials with trainee teachers showed that SmartChem helped them understand multiple chemical representations. However, lower-achieving students focused more on technical issues, while higher-achieving students valued the content and

learning experience.

This study helped the developers by providing insights because it is an android-based application. It will serve as a guide for the developers to use the learnings found and apply it to the tutorial application "Grammaria". SmartChem aligns with the goal of the developers, which is to make an android application that students can use to learn about specific topics.

Synthesis

Analyzing similar research, studies, and existing systems are very important for developing Grammaria, a tutorial application. These references provide valuable information about applications, aiding in the understanding of what makes aspects are important for a tutorial application to be effective, especially for students who struggle with the English subject. This understanding assists not only in the development of Grammaria but also in assessing its potential usefulness. To summarize, the combined knowledge from these studies strongly suggest that Grammaria could be helpful for Grade 6 students in improving their knowledge in English.

METHODOLOGY

Technical Background

Overview of Current Technologies to be Used in the System

Modern technologies have become significant in transforming education by providing innovative tools and platforms that enhance learning experiences. These technologies enable the creation of increasingly immersive and visually stunning experiences. In app development, the creation of tutorial application can be used to enhance student engagement and improve their knowledge in various subjects, including English.

According to Tamosevicius (2022), application-based learning integrates characteristics and principles of games into educational activities, fostering student engagement and enthusiasm for learning. Components such as points systems, badges, leaderboards, discussion boards, quizzes, and classroom response systems are commonly utilized. Academic rewards, such as extended deadlines after reaching specific point thresholds, further incentivize learning. Despite common concerns about the negative effects of online gaming on children's development, game-based learning offers numerous cognitive benefits. One of its key advantages is promoting active learning among children, with games easily adaptable to various instructional approaches.

The key technologies that the developers used includes various tools such as Unity as the game engine and Visual Studio employing C# as the primary programming language. Additionally, Canva for designing the app interface, while Synfig Studio is use for 2D animation. These tools allow the proponents to create gameplay mechanics, user interfaces, and interactive elements of the app. The tutorial application would be possible to implement with the help of these technology.

Calendar of Activities

The calendar of activities contains the activities of the developers that are carried out and will be done in the development of the project.

Group Meeting

The developers conducted a group meeting to discuss and plan the proposal. The proponents also discuss the potential beneficiaries for the project. This also include sharing ideas and discussion about the current process of the propose system.

Letter Development

The developers composed letters to beneficiaries explaining the project, the project goals, and seeking collaboration or support. The letter is given to the beneficiaries to ask permission for conducting an interview and survey.

Making Interview and Survey Questions

The developers developed a set of questions for interviews and surveys that will gather relevant information such as user preference and opinions for the app development.

Conduct Interview and Survey

The developers conducted interviews with the beneficiaries and distribute the surveys to gather data and feedback that is used for the development of the system.

Document Development

The developers began drafting documents that start with Project Introduction followed by the Project Context, Purpose and Description, Objectives, and Scope and Limitations. After that, the proponents search for Review of Related Literatures/Systems to look for valuable insights that is associated with the project. Subsequently, the proponents focus on Technical Background, search for current technological trends and listing the resources for the system. Then details the research and implementations procedures in the methodology, and put the references used. This also includes the compilation of appendices.

Adviser Consultation

The developers conducted a meeting with the capstone adviser to discuss the progress and seek guidance for better improvement of the project.

Revision

The developers reviewed and updated the project documents for clarity incorporated by the capstone adviser and coordinator.

PowerPoint Presentation Development

The developers created an informative PowerPoint presentation summarizing the project for presentation.

Proposal Defense

This is the final part of the project proposal where the developers presented and defended their project.

Application Development

This is the activity where the developers began to develop the project.

Creating Database

This activity let the developers to create a database for storing data of the developed system.

App Designing

this activity, the developers began to create the design of the developed system including interface, settings, and modules. This also includes the prototyping of the system.

Programming

This activity let the developers to program the app using the Unity as the game engine and C# as the primary programming language.

Application Testing

This is an activity where the developers tested their developed system to see if there is a problem or error.

App Deployment

This activity let the developers deploy their developed system to the beneficiaries

Gantt Chart of Activities: IT Capstone 1

Table 5: IT Capstone 1 Gantt Chart of Activities

MONTH	FEBRUARY		MARCH		APRIL		MAY		JUNE	
ACTIVITY										
Group Meeting			■	■						
Letter Development			■	■						
Making Interview and Survey Questions		■								
Conduct Interview and Survey			■	■						
Document Development										
Introduction										
Project Context				■	■					
Purpose and Description				■	■					
Objectives				■	■					
Scope and Limitation				■	■					
Review of Related Literature/Studies					■	■	■			
Technical Background					■	■				
Methodology					■	■				
Adviser Consultation				■				■	■	
Revision					■	■	■	■	■	
PowerPoint Presentation Development							■			
Proposal Defense							■		■	

Gantt Chart of Activities

IT Capstone 2

Table 6: IT Capstone 2 Gantt Chart of Activities

MONTH	JULY			AUGUST			SEPTEMBER			OCTOBER			NOVEMBER		
ACTIVITY															
Group Meeting	■		■				■								
Adviser Consultation				■			■			■			■		
Application Development															
Creating Database		■	■	■			■	■							
Designing				■	■	■									
Programming							■	■	■	■					
Testing								■	■	■	■		■	■	
Deployment													■	■	■
Application Revision							■			■	■	■			
Final Defense														■	

Legend:

Member 1: Zyber Riel L. Adona	■		Member 3: Mark Jonel H. Garcia	■	All Members	■
Member 2: Harold G. Factor	■		Member 4: Kenneth P. Jardiniano	■		

Resources

Hardware Resources

Laptop

According to Volle A. (2024), Laptops usually have a clamshell design, in which the screen is located on the interior of the upper lid and the keyboard is located on the interior of the lower lid. Laptop screens are protected when users close their lids. Batteries power the machines during mobile use and are recharged via alternating current (AC) power chargers. Like desktop computers, modern laptops possess such input/output (I/O) components as keyboards, point devices (e.g., touch pads), and speakers. Data storage amount, memory capacity, and processor speed depend on the model and user configuration.

The developers used laptop device with Intel Core i5 or better and 4GB of RAM or higher for development, serving as the primary tool for designing, programming, testing, and publishing the application

Mouse

According to Fisher T. (2023), the mouse is a hand-operated input device used to manipulate computer screens. It uses a laser, ball, wired or wireless, and sends instructions to the computer to move the cursor to interact with files, windows, and other software elements. Although a peripheral device outside the main computer housing, the mouse is essential in most non-touch systems.

The developers used mouse to control the cursor on the screen, select objects, and click on buttons. This peripheral will help the proponents to easily interact with the system.

Smartphone

Android Version 7.0 and higher.

According to Kirvan P. (2023), a smartphone is a cellular phone with an integrated computer, web browsing, and software application functionality. It is used by consumers and businesses, providing access to various mobile applications and computing functions, making it an integral part of modern life.

The developers used smartphone with Android Version 7.0 and higher as a secondary device for developing the app. The smartphone will be used as the emulator when testing the application. This device can help for prototyping, testing, and performance optimization of the application.

Printer

According to Taylor (2022), a printer is a hardware peripheral in a computer that can print text, images, or a combination of both. It is a device that converts a soft copy of a document stored electronically in a computer into a hard copy on paper, which can be physically signed, distributed, or used for other purposes.

The developers used printer for printing documents and reports that is needed for documentation.

Software Resources

Firebase Database

According to Younis (2020), Firebase Database is a cloud database for your mobile and web applications. You can save and retrieve data from Firebase Database by using the API's provided by Firebase and can be used in many technologies including Android.

The developers used Firebase Database to store data of the users and track their progress. It is also used for storing application data.

Unity Game Engine

According to Lacoma T. (2023), Unity is a game engine based on Microsoft C# that supports the creation of 2D, 3D, and other types of games. Its tools are friendly for new users, making it one of the most popular game engines for first-time artists and at-home developers trying to make it big.

The developers used Unity as the primary game engine in developing the project. This is

the highly recommended development tool for beginners.

Visual Studio

According to Nunns J. (2023), developers often need to collaborate on coding projects and debugging and they do so through an integrated development environment (IDE), which is exactly what Microsoft Visual Studio is. Microsoft created this platform, which is typically used to develop computer programs compatible with Windows, as well as Android and iOS. Visual Studio was first launched in 1997 and, since then, it has become one of the most popular IDEs on the market. It is a development environment that allows users to create websites, web applications, web services, and mobile applications.

The developers used Visual Studio for writing, debugging and testing codes that is necessary in developing the system.

Requirements Analysis

User Analysis

The Android-based tutorial application is designed to address the educational needs of Grade 6 students by providing an engaging and interactive learning experience. It functions as a comprehensive tutorial tool that enhances English language skills through a variety of interactive lessons and activities. This approach complements traditional classroom learning and supports students' educational goals effectively.

The application is accessible on Android smartphones and tablets, making it suitable for use in various environments, including classrooms, homes, and other educational settings. Its flexibility allows students to engage with the content at any time that fits their schedules, whether during lessons in the classroom or outside the school.

The application supplements traditional, static textbooks and worksheets with interactive components like interactive lessons. This innovative method improves student engagement and effectiveness while providing a useful tool to help students in Grade 6 improve their

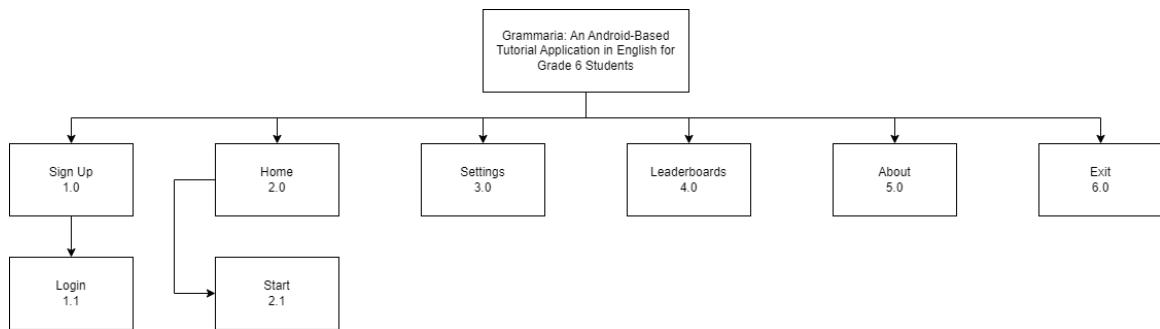
English language proficiency.

Software Analysis

The developers developed a tutorial application using Unity as the main development tool. Unity is highly useful for development because it provides a flexible, all-in-one platform that simplifies creating, testing, and deploying applications across a wide range of devices and platforms. Canva is used to create the video tutorials, making sure that users can learn when using the application. Canva's simplicity makes it easy to make quick edits and adjustments to video tutorials, allowing creators to tweak text captions, swap images, or adjust animations without needing complex editing skills. The app is designed to run on Android version 7 or up to ensure that most of the students can access the application. Using this software allows the developers to create an engaging and enjoyable experience for Grade 6 to use and meets the project's design and learning goals.

Requirements Documentation

Figure 1: Hierarchical Diagram of Grammaria



This diagram shows the process of how the users will use the application by starting the tutorial, playing the quizzes, viewing settings, leaderboards, and about.

1.0 Sign Up

When in Sign Up the player will input their username to create an account.

1.1 Login

This section is where the player input their username to enter the application.

2.0 Home

This module explains what the application has to offer.

2.1 Start

When the player selects start, they can select a topic.

3.0 Settings

This is where you can turn on and off the music and sounds.

4.0 Leaderboard

When the leaderboard is selected it will show the user the rankings of all the users.

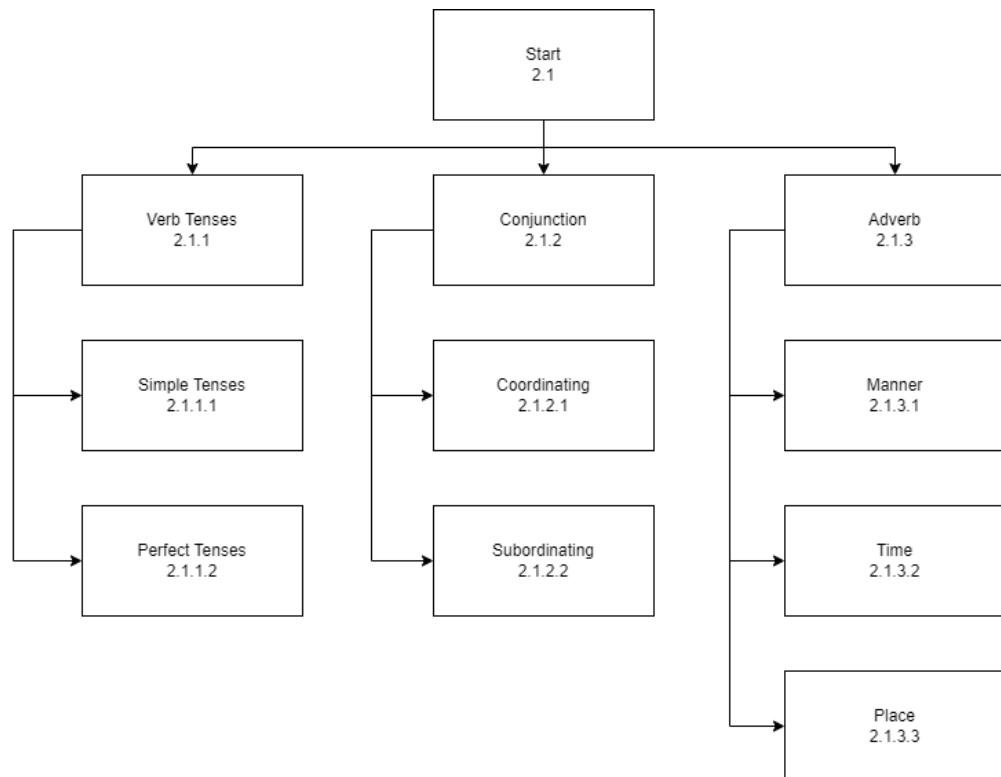
5.0 About

When the about is selected it will show the names of the developers.

6.0 Exit

When the exit is selected it will close the application.

Figure 2: Hierarchical Diagram of Grammaria: Tutorial Topics



This diagram shows the process of selecting topics and sub-topics.

2.1.1 Verb Tenses

This section focuses on Verb Tenses which the user can choose between two sub-topics.

2.1.1.1 Simple Tenses

This section focuses only on the Simple Tenses.

2.1.1.2 Perfect Tenses

This section focuses only on the Perfect Tenses.

2.1.2 Conjunction

This section focuses on Conjunctions which the user can choose between two sub-topics.

2.1.2.1 Coordinating

This section focuses only on the Coordinating Conjunctions.

2.1.2.2 Subordinating

This section focuses only on the Subordinating Conjunctions.

2.1.3 Adverb

This section focuses on Adverbs which the user can choose between three sub-topics.

2.1.3.1 Manner

This section focuses only on the Adverb of Manner.

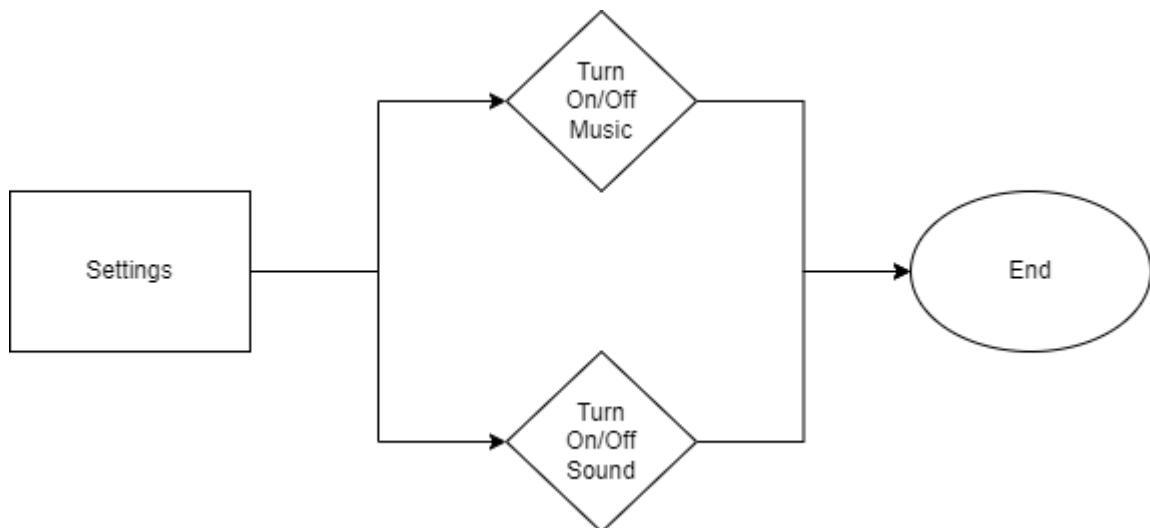
2.1.3.2 Time

This section focuses only on the Adverb of Time.

2.1.3.3 Place

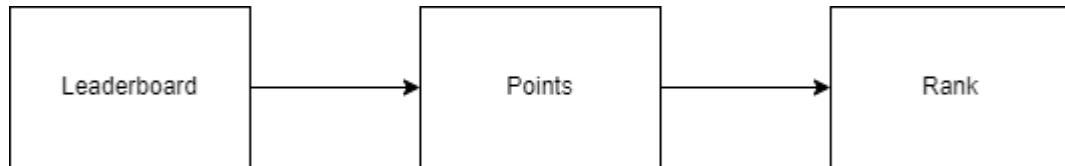
This section focuses only on the Adverb of Place.

Figure 3: Block Diagram of Grammaria – Settings



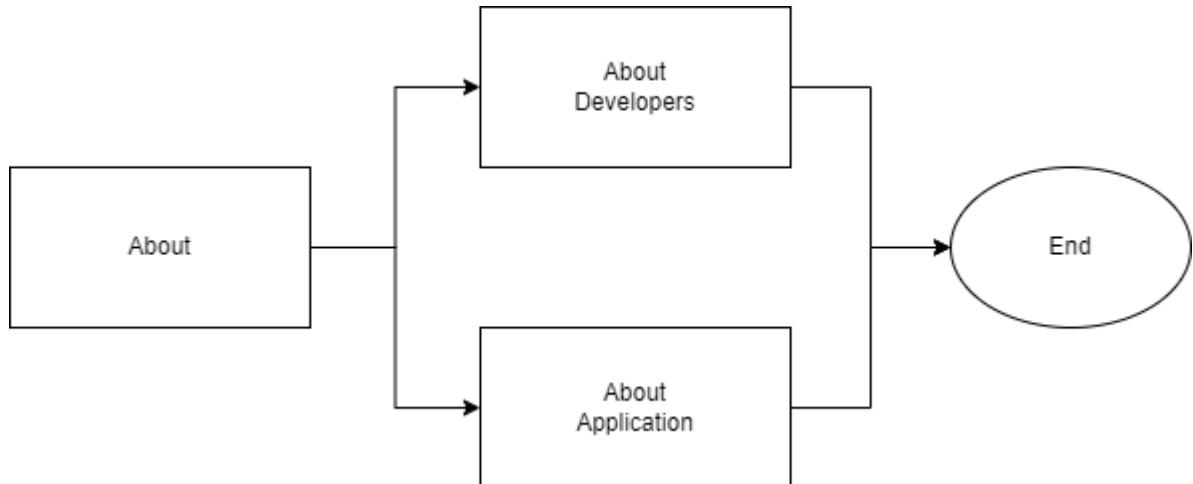
This diagram shows the function of Settings.

Figure 4: Block Diagram of Grammaria – Leaderboards



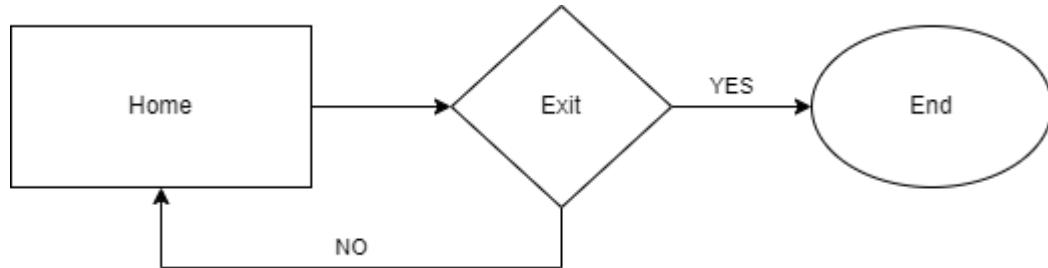
This diagram shows how the leaderboard works.

Figure 5: Block Diagram of Grammaria – About



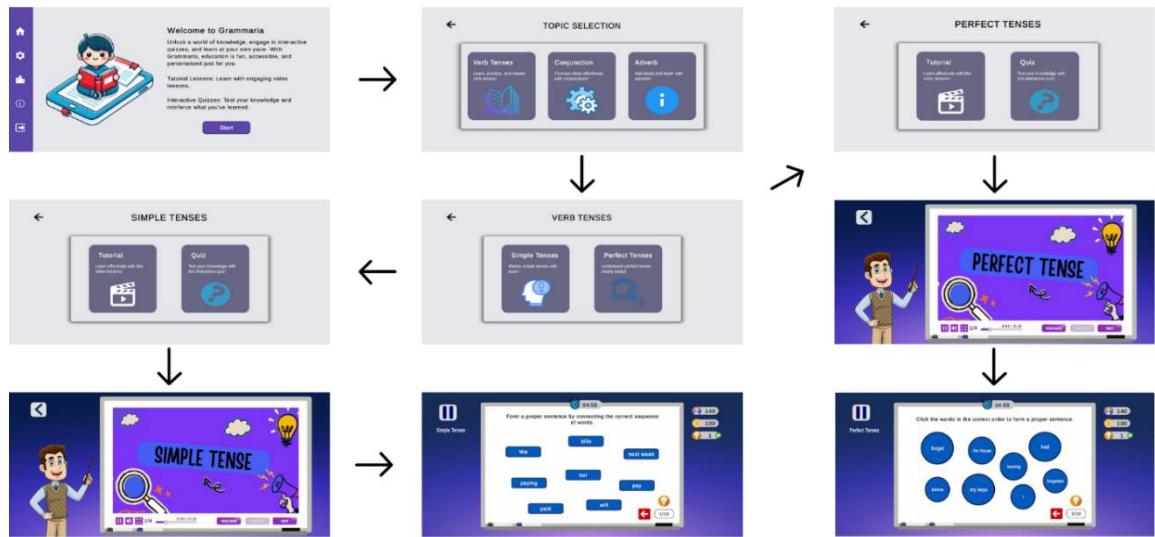
This diagram shows the process of about.

Figure 6: Block Diagram of Grammaria - Exit



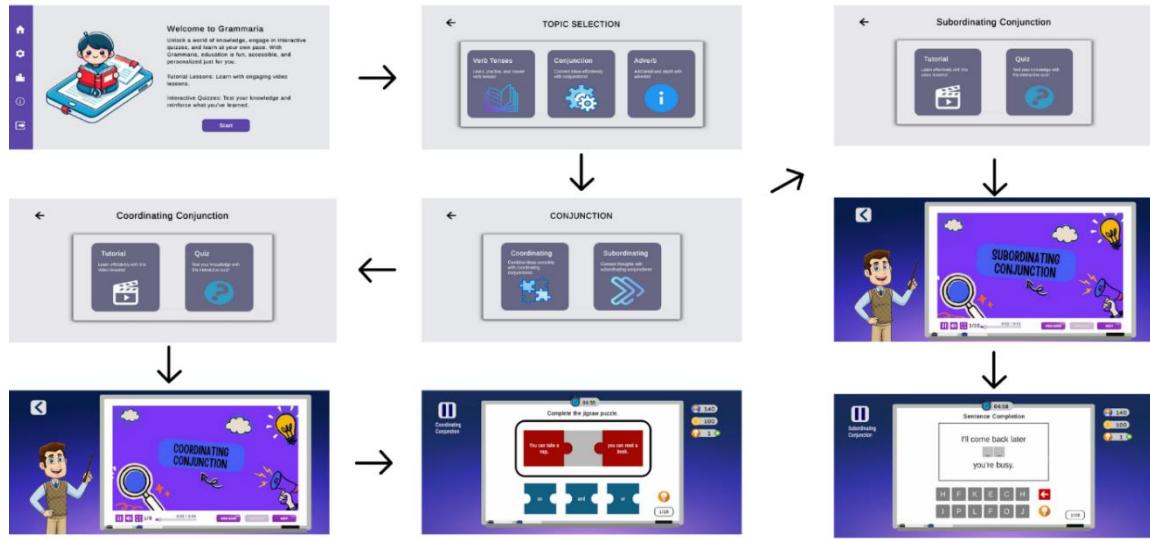
This diagram shows the process of exiting the application.

Figure 7: Storyboard of Grammaria from Main Menu to Verb Tenses Topic



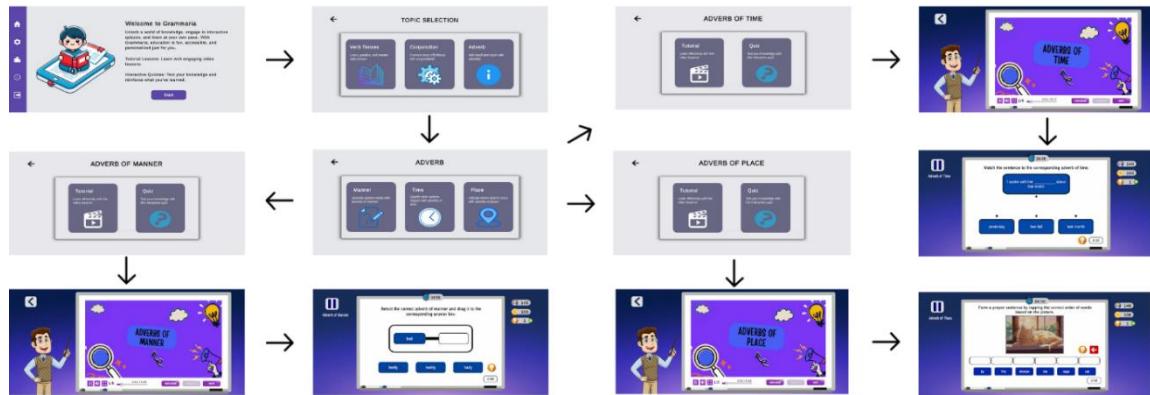
The player must choose the start button on the main menu for the app to start it process. After clicking, the app will lead to the topic's selection. Upon choosing the verb tenses topic, the player has the option to choose between simple and perfect tenses for its subtopics. After opening, the player has two options which is the tutorial and the quiz. In tutorial, it will display teacher Mark who is teaching the verb tenses topic. In the quiz option, it will display an interactive quiz which allow the students test their knowledge about the verb tenses

Figure 8: Storyboard of Grammaria from Main Menu to Conjunction Topic



The player must choose the start button on the main menu for the app to start it process. After clicking, the app will lead to the topic's selection. Upon choosing the conjunction topic, the player has the option to choose between coordinating and subordinating tenses for its subtopics. After opening, the player has two options which is the tutorial and the quiz. In tutorial, it will display teacher Mark who is teaching the conjunction topic. In the quiz option, it will display an interactive quiz which allow the students test their knowledge about conjunctions

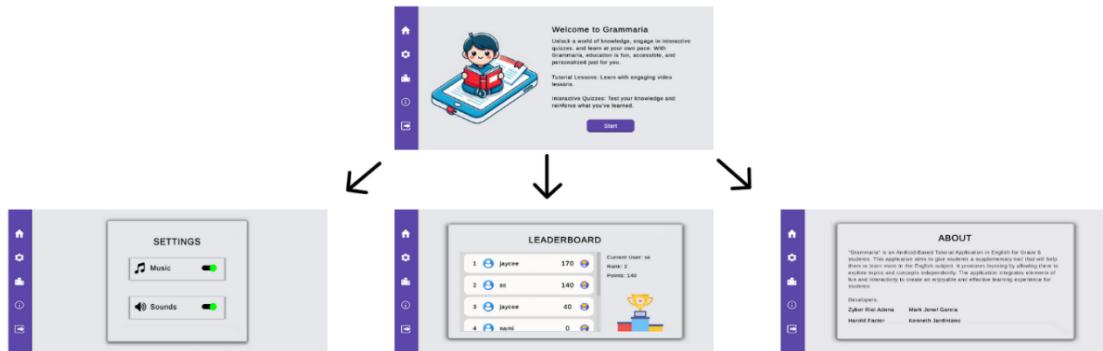
Figure 9: Storyboard of Grammaria from Main Menu to Adverb Topic



The player must choose the start button on the main menu for the app to start it process.

After clicking, the app will lead to the topic's selection. Upon choosing the adverb topic, the player has the option to choose between adverb of manner, time, and place for its subtopics. After opening, the player has two options which is the tutorial and the quiz. In tutorial, it will display teacher Mark who is teaching the adverb topic. In the quiz option, it will display an interactive quiz which allow the students test their knowledge about adverbs.

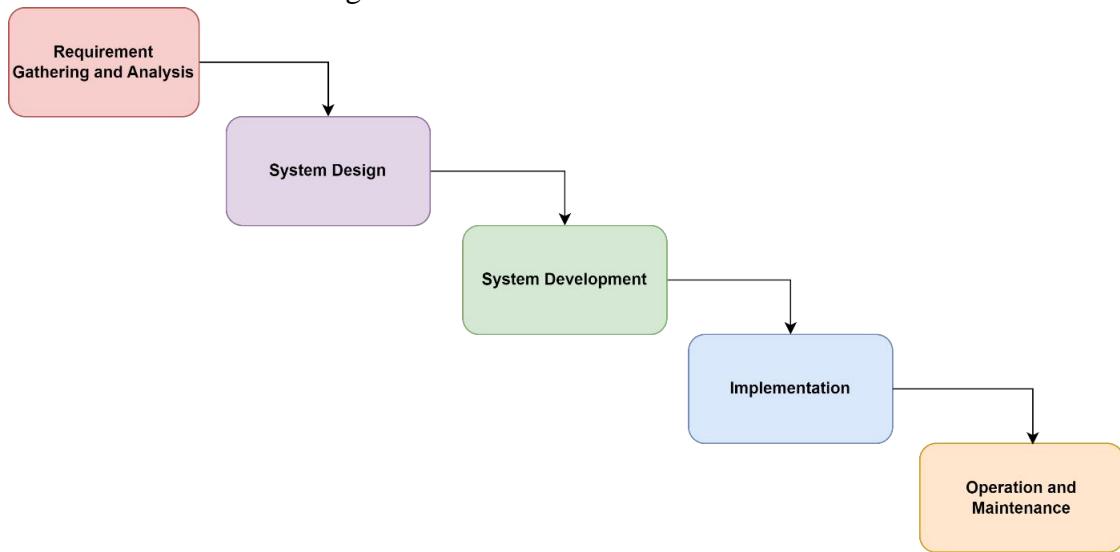
Figure 10: Storyboard of Grammaria – Main Menu Module



The main menu module consists of start button where it starts the app process. The settings button which allows the users to turn off or turn on the sound and music from the app. The leaderboards button that shows the ranking and scores of the users who uses the app. The about button that shows the developers of the tutorial application Grammaria.

Design of Software, System, Product, and/or Processes

Figure 11: Waterfall Model of Grammaria



According to Solanki (2021), the waterfall model, known as the linear sequential life cycle model, stands as one of the earliest and most inflexible approaches to development and testing. It adheres to a vertical, sequential progression, wherein each subsequent phase commences only after the completion of the preceding one. Due to its linear structure, there is no provision for revisiting completed phases, rendering it costly for applications necessitating frequent modifications.

The developers used the waterfall model, which consists of multiple phases such as requirement gathering and analysis, system design, system development, implementation, and operation and maintenance.

Requirements Gathering and Analysis

In the initial phase, the developers identified the objectives of the application. This includes the subject matter, learning outcomes, and target audience. The developers gathered information from teachers and the preferences of the target audience.

System Design

In the second phase of development, the gathered requirements will be used to create a

detailed design that will outline the quiz, the interface, topics, audio, assets, and the tools that will be needed. In this phase, the developers focused on creating a user-friendly, interactive, and appealing interface design that aligns with the curriculum standards and learning objectives.

System Development

In the third phase, the design created by the developers developed into a functional application. The software that will be used is Unity, along with Microsoft Visual Studio as the development environment that the developers used. The software that is used to create the tutorial video for the educational feature of the application is Canva.

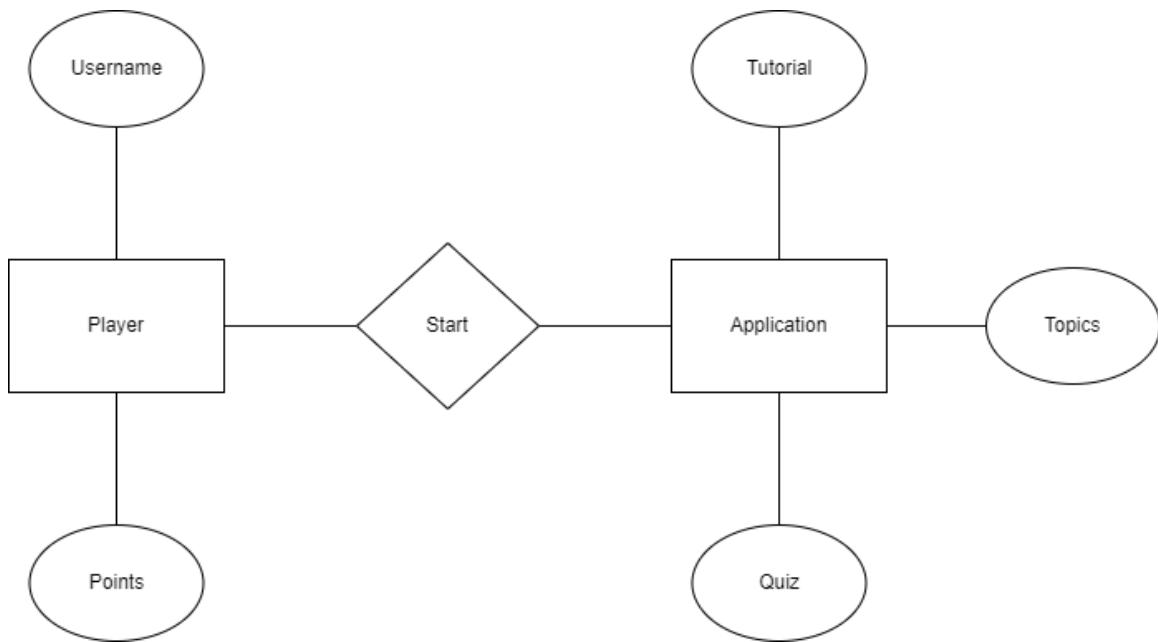
Implementation

In the fourth phase, the tutorial content, interface, and audio will be integrated into a cohesive tutorial application. The developers performed a test to identify and debug any issues that can be found in the system.

Operation and Maintenance

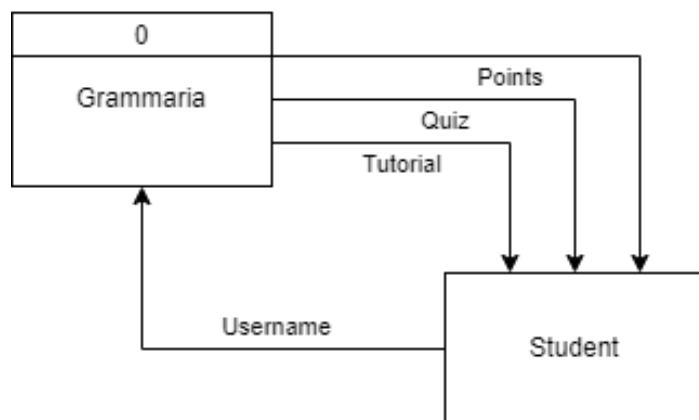
In the final phase, the developed application is operational. The application is distributed to schools for operational use. The developers evaluated the feedback given and perform maintenance, updates, and bug fixes to improve the application.

Figure 12: Entity Relationship Diagram of Grammaria



The diagram shows how the player interacts with the application. The player can set their username while using the application. The player can view tutorial and topics, they can also play the quiz.

Figure 13: Context Diagram of Grammaria



The diagram shows that the user of the application are students in grade 6. The students will provide their results, progress, and points to the application.

Data Dictionary

Data Dictionary for Users

Table 7: Data Dictionary: Users

Name:	Users		
Description:	This file is for storing user data such as username and total points		
Contents:	{“username”:}		
	Field Name	Data Type	Description
	username	String	Name of User

The table shows relevant information for storing data of users and serves as the repository for the user's total points

Data Dictionaries for Leaderboard

Table 8: Data Dictionary: Leaderboards

Name:	Leaderboards		
Description:	This file is for storing leaderboards data of the application.		
Contents:	{“username”: +, “totalpoints”: +, “rank”: +}		
	Field Name	Data Type	Description
	username	String	Name of Player
	totalpoints	int	Total points
	rank	int	Current rank

The table shows relevant information for storing data of the leaderboards and will be used as rankings for users based on their total points.

Development

The development process has been done according to the Waterfall methodology, meaning investigation, analysis, design, development, implementation, and ending with maintenance. It started with the investigation phase, which provided information on setting the functional and structural aspects of the system in order for developers to conceptualize and understand exactly what needs to be carried out within the project. Following this was the analysis phase, where the requirements had to be properly scrutinized and documented that they were well-defined and achievable. Consequently, the developers did much creation of detailed plans and storyboards in the design phase to capture the layout of the system, features, and user interface. At the development stage, coding and integration of various components of the system were carried out based on these specifications. This implementation phase, after development, contained the strict testing of the system to ensure that it worked according to the desired fashion, and met the requirement. Any bugs found were fixed on time. Finally, in the maintenance phase, the developers gave support and updates to maintain the system in working condition. In all phases, the developers have given importance to user data privacy by providing strong security and abiding by legal requirements, making sure that all the content is used with due permission and any copyright violation does not occur.

Data Privacy

The app does not collect or store any personal information from players. Instead, it retains the player's username, password, points, and rank, which are used in the leaderboard system and securely stored in a fire-base system.

Anti-Copyright Infringement

Originality was a key focus in the development of Grammaria. The developers were committed to producing unique educational content that aligned with Grade 6 English curriculum standards. To achieve this, the team created original educational materials, mini games, puzzles, scattered words and must form a proper sentence by connecting them in the correct order. Drag and drop and interactive elements, specifically designed for the application.

Anti-Plagiarism

The developers upheld academic integrity by ensuring that all the content that is used in the application is original and properly cited. The questions, tutorial videos, and other materials are made with extensive research of English topics for grade 6 students. All information used are properly credited to ensure that the application did not compromise ethical standards.

Results and Discussion

Testing

Home Module Testing

Table 9: Home Module Testing

Functionality	Expected Outcome	No. of times tested	Pass	Fail
Start	Present the three topics.	10	10	0
User Profile	Update the highest score of the player	10	9	1
Leaderboard	Accurately display the player's score	10	7	3
About	Present information about the app and its developers	10	10	0

Exit	Terminates the app appropriately	10	10	0
------	----------------------------------	----	----	---

The table present the outcomes of unit testing conducted on the Home Module. All the functionalities under the main menu modules worked as intended. Functionalities such as the User Profile and Leaderboard have failed a few times due the flawed code.

Signup Module Testing

Table 10: Signup Module Testing

Functionality	Expected Outcome	No. of times tested	Pass	Fail
Username Input	Let the player input their username.	10	10	0

The table presents the unit testing conducted on the sign-up module. All the functionalities are working as intended. There is no problem in inputting the player's username.

Start Module Testing

Table 11: Start Module Testing

Functionality	Expected Outcome	No. of times tested	Pass	Fail
Start	Bring player to topic selection screen	10	10	0
Verb Tense	Brings the player to verb tenses sub topics	10	10	0
Conjunction	Brings the	10	10	0

	player to conjunction sub topics			
Adverb	Brings the player to adverb sub topics	10	9	1

The table presents the unit testing conducted on the start module. The functionalities are working as expected expect for adverb which failed 1 time due to code error.

Tutorial Module Testing

Table 12: Tutorial Module Testing

Functionality	Expected Outcome	No. of times tested	Pass	Fail
Tutorial	Display the tutorial video	10	8	2
Video pause	Stops the video from playing	10	9	1
Next button	Proceeds to the next video	10	10	0
Previous button	Go back to the previous video	10	9	1
Mini game	Display the Word Search mini game	10	9	1

The table presents the unit testing conducted on the tutorial module. The functions are working as intended aside from a few fails due to coding error.

User Profile Module Testing

Table 13: User Profile Module Testing

Functionality	Expected Outcome	No. of times tested	Pass	Fail
Score	Player updates the score based on the highest score.	10	10	0

The table present the unit testing conducted on the user profile module. The functions are working as intended, the score updates without a problem.

Leaderboard Module Testing

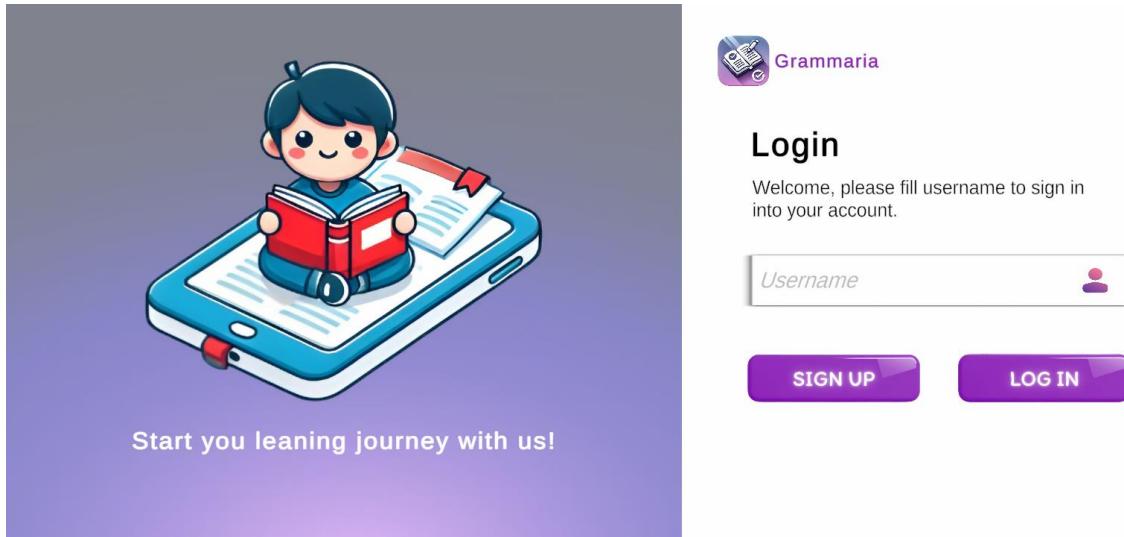
Table 14: Leaderboard Module Testing

Functionality	Expected Outcome	No. of times tested	Pass	Fail
Leaderboard	Shows the list of the watched information video	10	9	1
Back	It goes back to main menu	10	10	0

The table presents the outcomes of unit testing conducted on the Leaderboards Module. All functionalities worked as intended except for one time the scores did not update due to coding issues.

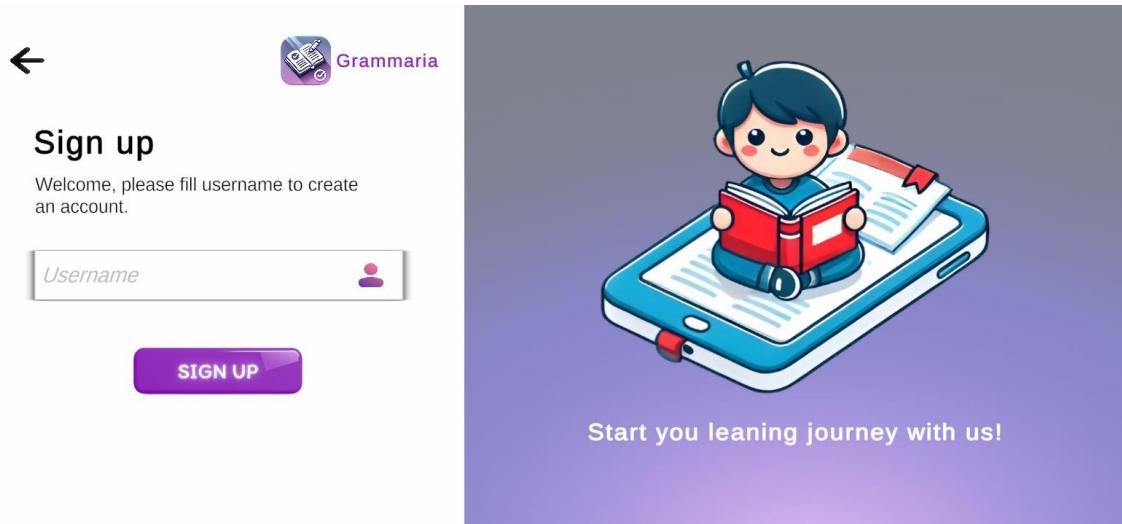
Description Prototype

Figure 14: Start Screen



Description: This shows the Login screen and a Signup button for when the player makes a new account or needs to login their existing account.

Figure 15: Sign-up

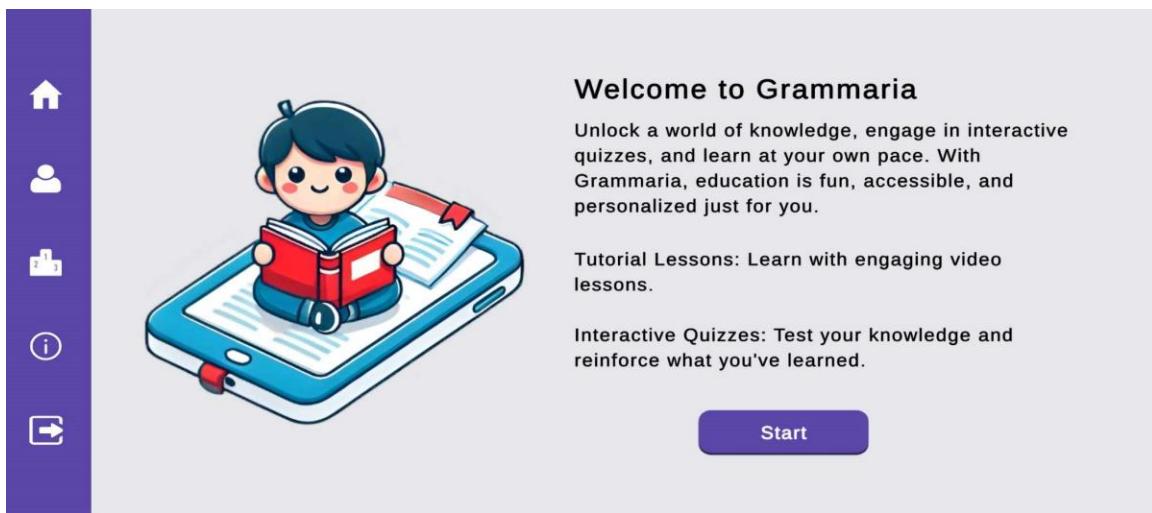


Description: This is where the player inputs their username to create a new account

- **Username Input**

Allows the player to input their desired username.

Figure 16: Home



Description: This module displays the Home of the application, featuring the following options:

- **Start**

This allows the player to access the topics that contains the tutorial and quizzes.

- **User Profile**

The user profile contains the score of the player in each topic.

- **Leaderboard**

The scoreboard section showcases the highest scores achieved by players, offering a competitiveness to attain the top positions.

- **About**

The about section provides players with insights into the app and its developers, offering a glimpse into the background and details

- **Exit**

The exit option serves as a convenient button for player to exit the application.

Figure 17: Topic Selection



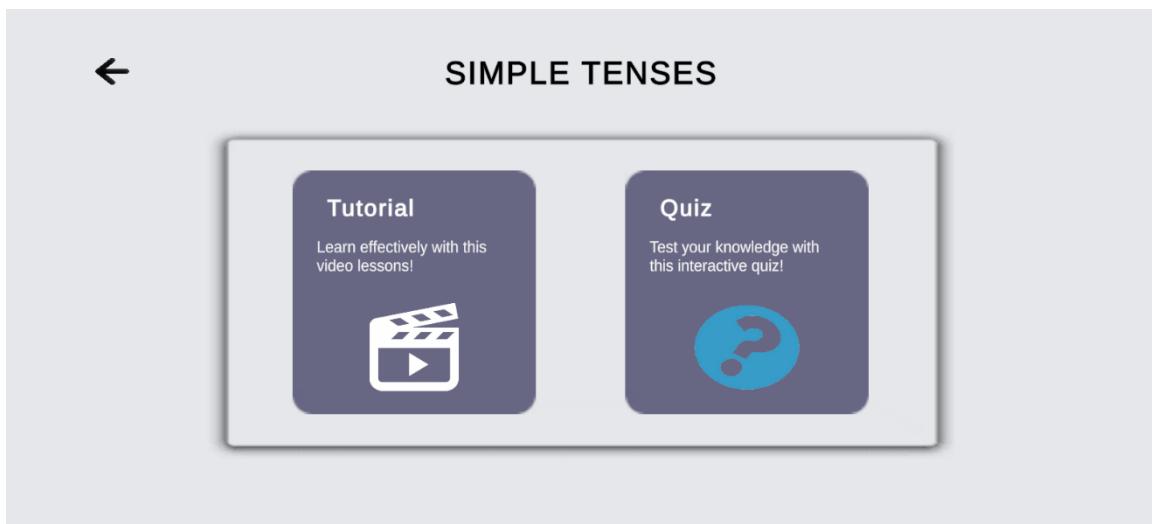
Description: This module allows the player to choose which topic they want to learn.

Figure 18: Verb Tenses



Description: In this module the player can choose the verb tenses sub-topics.

Figure 19: Activity Selection



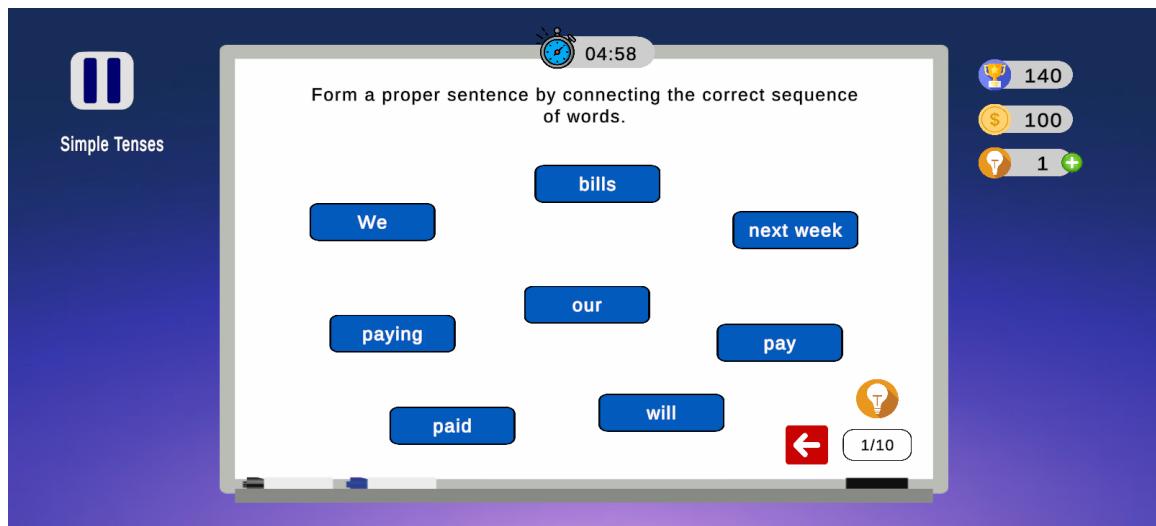
Description: This module is where the player can choose to watch the video tutorial and take a quiz

Figure 20: Verb Tense Tutorial Video



Description: This module is where the player can learn about the verb tenses.

Figure 21: Simple Tense Quiz



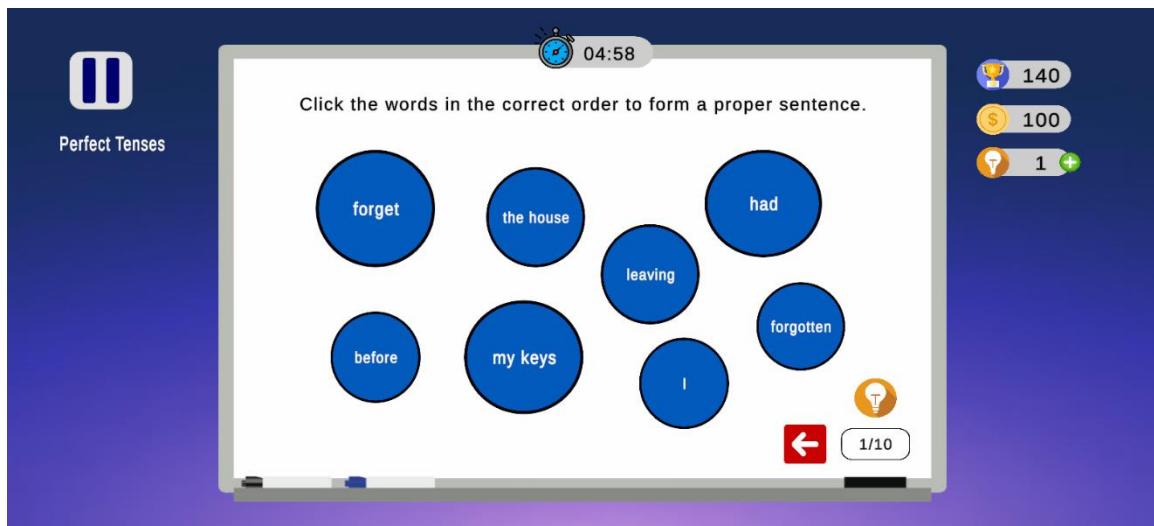
Description: This module is where the player can test their knowledge about the simple tense.

Figure 22: Perfect Tense Tutorial Video



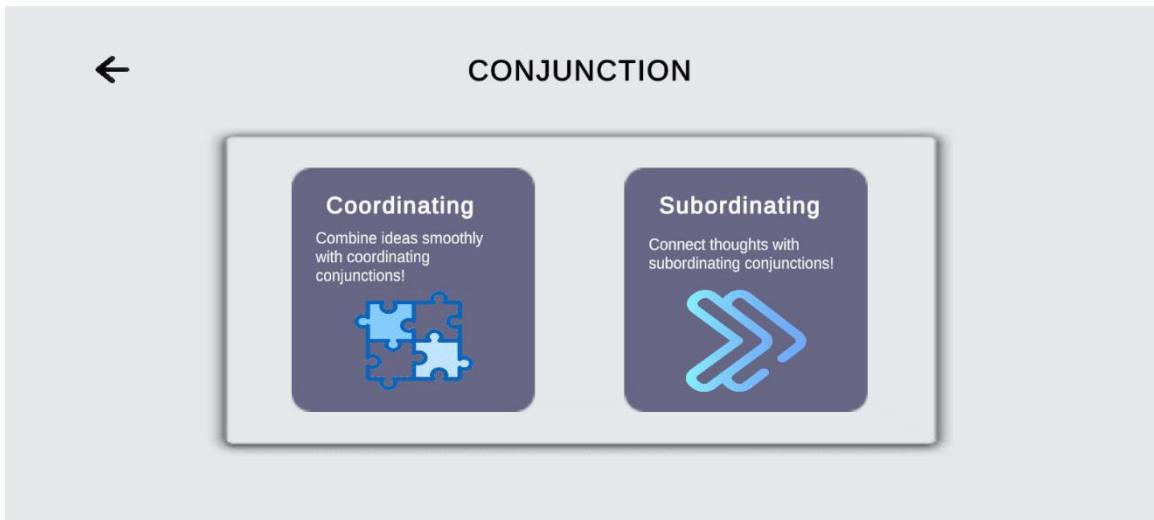
Description: This module is where the player can learn about perfect tense.

Figure 23: Perfect Tense Quiz



Description: This module is where the player can test their knowledge about the perfect tense.

Figure 24: Conjunction



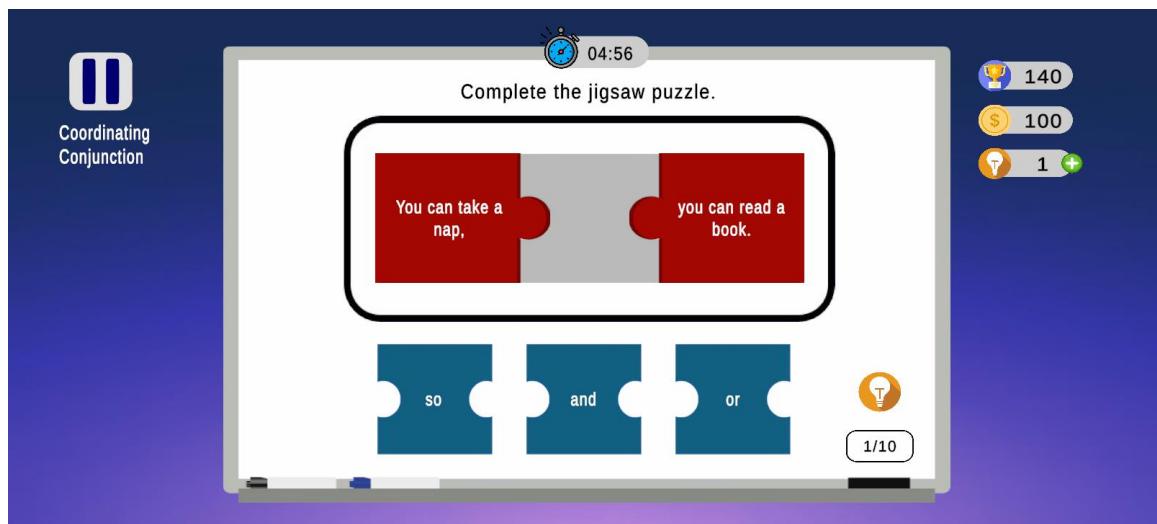
Description: In this module the player can choose the conjunction sub-topics.

Figure 25: Coordinating Conjunction Tutorial Video



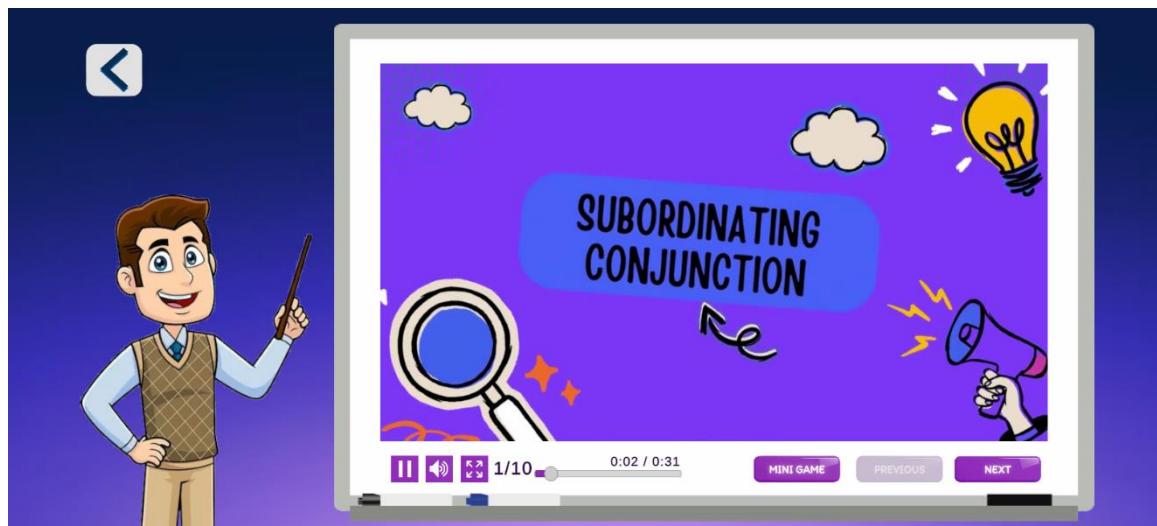
Description: This module is where the player can learn about coordinating conjunction.

Figure 26: Coordinating Conjunction Quiz



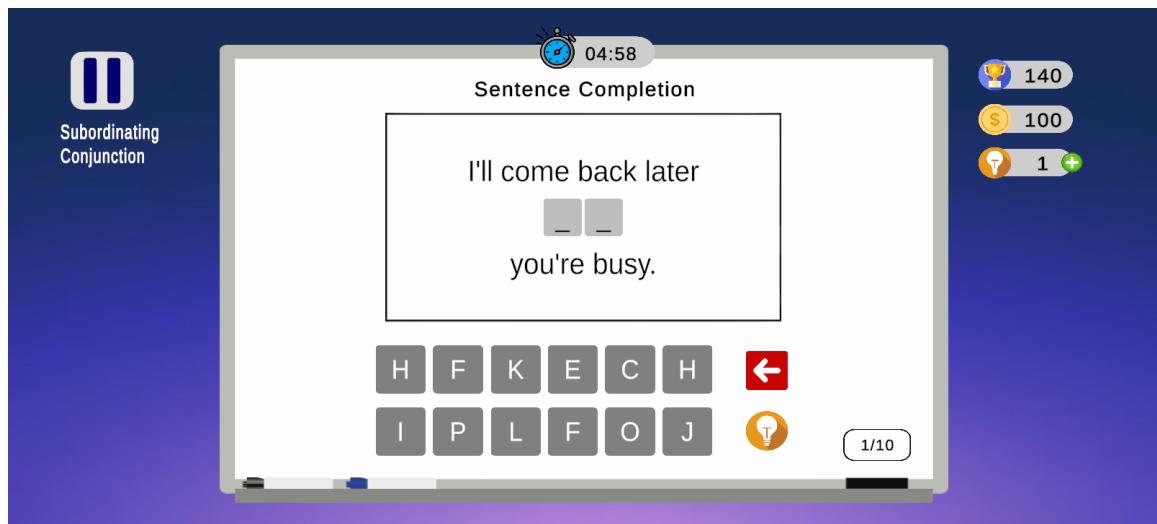
Description: This module is where the player can test their knowledge in coordinating conjunction.

Figure 27: Subordinating Conjunction Tutorial Video



Description: This module is where the player learns about subordinating conjunction.

Figure 28: Subordinating Conjunction Quiz



Description: This module is where the player can test their knowledge in subordinating conjunction.

Figure 29: Adverbs



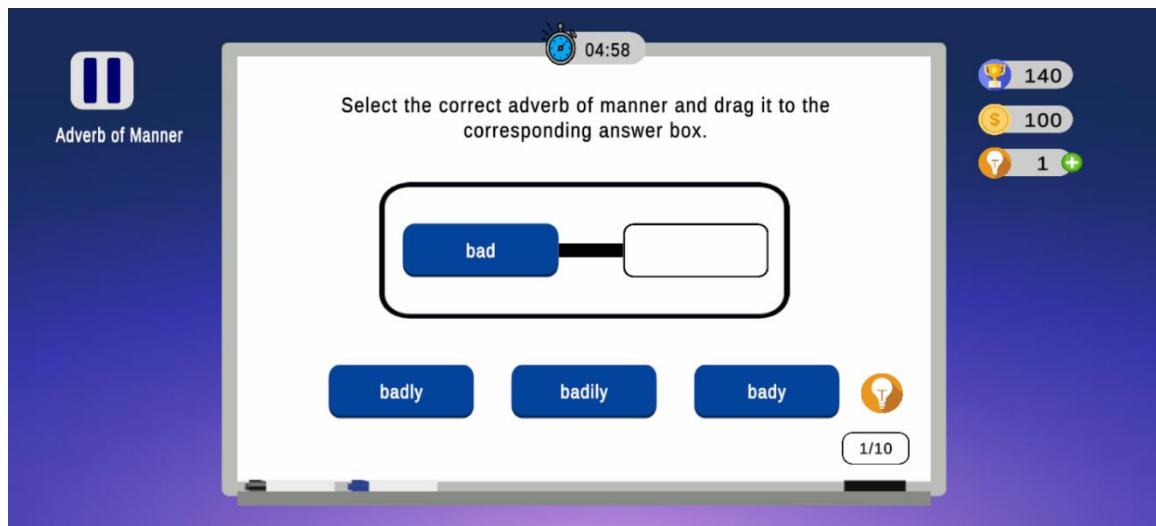
Description: This module is where the player can choose adverb sub-topics.

Figure 30: Adverb of Manner Tutorial Video



Description: This module is where the player can learn about adverb of manner.

Figure 31: Adverb of Manner Quiz



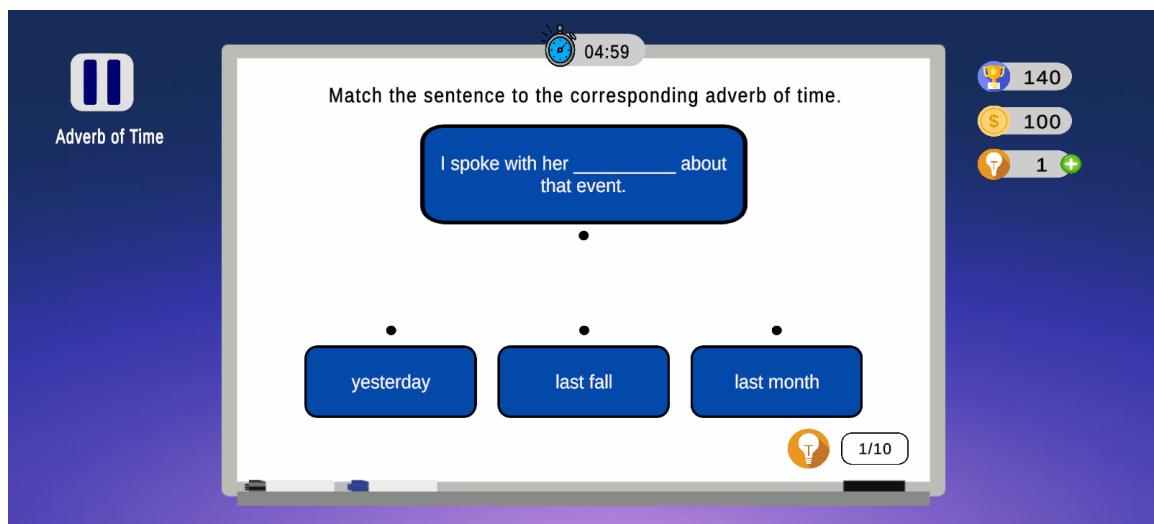
Description: This module is where the player can test their knowledge in adverb of manner.

Figure 32: Adverb of Time Tutorial Video



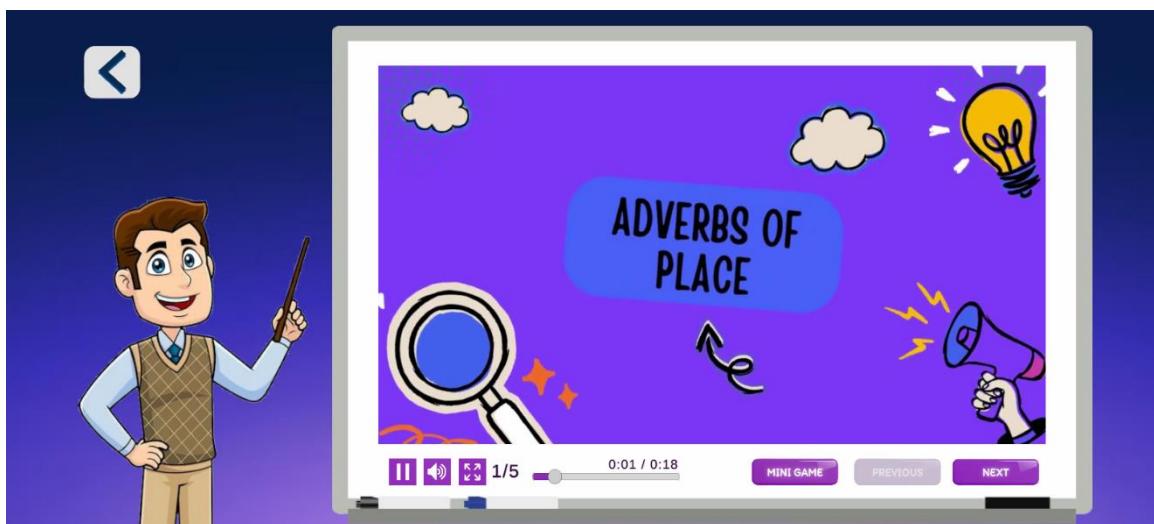
Description: This module is where the player learns about adverbs of time.

Figure 33: Adverb of Time Quiz



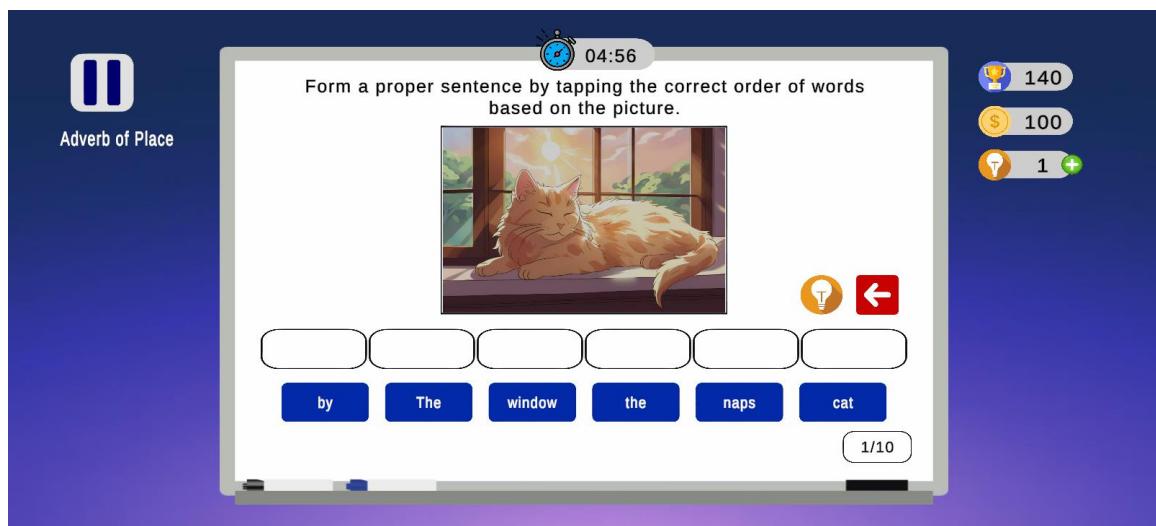
Description: This module is where the player can test their knowledge in adverb of time.

Figure 34: Adverb of Place Tutorial Video



Description: This module is where the play learns about adverb of place.

Figure 35: Adverb of Place Quiz



Description: This module is where the player can test their knowledge in adverb of place.

Figure 36: User Profile

A screenshot of a mobile application interface titled "USER PROFILE". On the left is a vertical purple sidebar with five icons: a house, a person, a plus sign, an info circle, and a right-pointing arrow. The main area shows the username "vivo". Below the username are three tables under the headings "Verb Tenses", "Conjunction", and "Adverb".

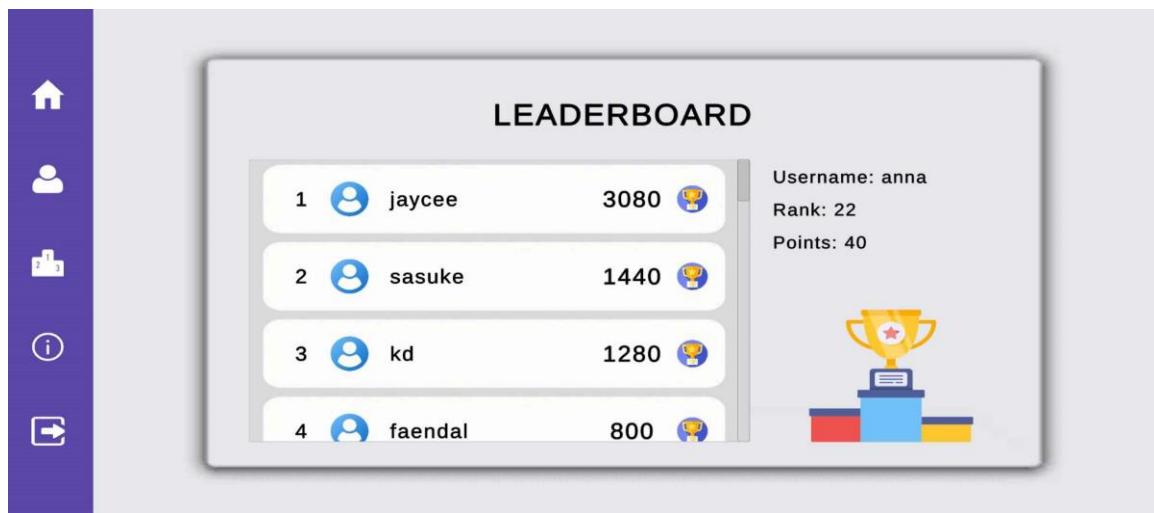
Subtopics	Highest Score
Simple Tenses	0/10
Perfect Tenses	0/10

Subtopics	Highest Score
Coordinating	0/10
Subordinating	0/10

Subtopics	Highest Score
Manner	0/10
Time	0/10
Place	9/10

Description: This module is where the user progress and high scores stored.

Figure 37: Leaderboard



Description: This module shows the total points gained while playing the game and rank of the player.

Figure 38: About



Description: This module displays the information about the developers and the app.

Implementation Plan

The implementation plan for Grammaria will begin with careful testing to ensure it works smoothly on Android devices. The developers will guide the Teachers on how to use Grammaria in the classroom and connect it to English lessons, making it easy to integrate into their teaching. After launching the app with a simple installation guide, students will be introduced to Grammaria to improve their grammar skills, with an exciting experience to keep them engaged. Regular feedback from students and teachers will guide future changes. This plan aims to make Grammaria a valuable learning tool for Grade 6 English students.

Implementation Results

The implementation of Grammaria proved successful in achieving a smooth and user-friendly experience on Android devices. Most features worked as intended, with minor exceptions. The line in the quiz is inconsistent depending on the phone size. The tutorial video is accurate and working as intended. Overall Grammaria provided consistency and an enjoyable learning experience. The tutorial application is set to deliver a reliable and improved user satisfaction in all areas of the application.

Conclusion

In conclusion, the implementation of Grammaria has been largely successful, providing an engaging and user-friendly tool for improving grammar skills among Grade 6 English students. The thorough testing and guidance provided to teachers enabled a smooth integration into the classroom, enhancing the learning experience. Although minor adjustments may be needed, particularly regarding quiz on different phone sizes, the overall feedback has been positive. The continued collection of feedback from both students and teachers will allow for ongoing improvements, ensuring that Grammaria remains a valuable and reliable educational tool for grammar instruction.

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APPENDICES

APPENDIX A. RESORCE PERSON

Resource Person

Edna L. Ilao
edna.ilao002@deped.gov.ph
0936-821-0943
English Teacher
Pook Elementary School

Jasmin S. Cabral
jasmin.cabral001@deped.gov.ph
0905-128-6701
English Teacher
Baclaran Elementary School

Joan P. Contreras
English Teacher
joan.contreras@deped.gov.ph
0936-201-9693
Santol Elementary School

APPENDIX B

Letter to the Beneficiary

APPENDIX B -1
Letter to the Beneficiary
(Mrs. Aida S. Cudiamat - Pook Elementary School)



February 26, 2024

Mrs. Aida S. Cudiamat
Principal
Pook Elementary School
Barangay Pooc, Balayan, Batangas

Dear Mrs. Cudiamat,

We, the Bachelor of Science in Information Technology (BSIT) students from STI College Balayan, Zyber Riel L. Adona, Harold G. Factor, Mark Jonel H. Garcia, and Kenneth P. Jardiniano would like to request your good school to be one of the beneficiaries of our project in developing an educational game for learning English subject.

In line with this, we would like to conduct an interview with your teachers and conduct a survey with your Grade 6 students. Be assured that all the information you will give us will be treated with utmost confidentiality and will only be used to serve its purpose.

We greatly appreciate your consideration to our request. Thank you very much.

Sincerely yours,

Zyber Riel L. Adona
Group Coordinator

Noted By:

Ms. Terranya M. Thamson
Thesis Coordinator/BSIT Program Head

Engr. Oliver B. Noriega
Academic Head

Mr. Jose Arnel V. Dimaano
Chief Operating Officer

Mrs. Ellen Christy A. Dimaano
School President

Approved By:

Mrs. Aida S. Cudiamat
Principal
Pook Elementary School

APPENDIX B -2

Letter to the Beneficiary

(Mr. Eric B. Panganiban- Baclaran Elementary School)



February 26, 2024

Mr. Eric B. Panganiban
Principal
Baclaran Elementary School
Barangay Baclaran, Balayan, Batangas

Dear Mrs. Panganiban,

We, the Bachelor of Science in Information Technology (BSIT) students from STI College Balayan, Zyber Riel L. Adona, Harold G. Factor, Mark Jonel H. Garcia, and Kenneth P. Jardiniano would like to request your good school to be one of the beneficiaries of our project in developing an educational game for learning English subject.

In line with this, we would like to conduct an interview with your teachers and conduct a survey with your Grade 6 students. Be assured that all the information you will give us will be treated with utmost confidentiality and will only be used to serve its purpose.

We greatly appreciate your consideration to our request. Thank you very much.

Sincerely yours,

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Engr. Oliver B. Noriega
Academic Head

Mrs. Ellen Christy A. Dimaano
School President

Mr. Jose Arnel V. Dimaano
Chief Operating Officer

Approved By:

Mrs. Eric B. Panganiban
Principal
Baclaran Elementary School

APPENDIX B -3

Letter to the Beneficiary

(Mrs. Geresa C. Alday - Santol Elementary School)



February 26, 2024

Mrs. Geresa C. Alday
Principal
Santol Elementary School
Barangay Santol, Balayan, Batangas

Dear Mrs. Alday,

We, the Bachelor of Science in Information Technology (BSIT) students from STI College Balayan, Zyber Riel L. Adona, Harold G. Factor, Mark Jonel H. Garcia, and Kenneth P. Jardiniano would like to request your good school to be one of the beneficiaries of our project in developing an educational game for learning English subject.

In line with this, we would like to conduct an interview with your teachers and conduct a survey with your Grade 6 students. Be assured that all the information you will give us will be treated with utmost confidentiality and will only be used to serve its purpose.

We greatly appreciate your consideration to our request. Thank you very much.

Sincerely yours,

Zyber Riel L. Adona
Group Coordinator

Noted By:

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Thesis Coordinator/BSIT Program Head

Engr. Oliver B. Noriega
Academic Head

Mrs. Ellen Christy A. Dimaano
School President

Mr. Jose Arnel V. Dimaano
Chief Operating Officer

Approved By:

Mrs. Geresa C. Alday
Principal
Santol Elementary School

APPENDIX C
Transcript of Interview

APPENDIX C -1
Transcript of Interview
Pook Elementary School

Name of school: Pook Elementary School

1. What topics are being discuss in your subject?

In English, evaluating narratives and grammatical structures.

2. In what method do you deliver the topics?

Inquiry method, cooperative; depending on the subject matter. We sometimes do games.

3. What are the basic problems that students encounter in learning this subject?

Not all but mostly the focus. Maybe the factors to be considered such as interest, the level of understanding.

4. Do you think an educational game will help your students to learn these topics/lessons?

Of course. Learner's today are the 20th Century learners.

5. If we make a game, what topic you want to focus?

More on English Grammar.

6. What do you prefer? Mobile or desktop game?

It must be desktop because it could be utilized or shred by two or three learners but since we do not have desktop, I'll prefer mobile.

7. If desktop, does your school have computers? How many computers do you have?

That is the problem in our school since we were attacked by robbers, our access was stolen.

8. Do you prefer the game online or offline?

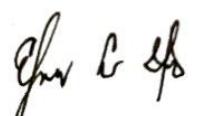
Both are useful but I prefer offline so that it can be used anytime I wish.

9. If online, does your school have access on internet?

Yes, we have.

10. How many Grade 6 students does your school have?

We have 50 grade 6 learners.



EDNA L. ILAO

APPENDIX C -2
Transcript of Interview
Baclaran Elementary School

Name of school: Baclaran Elementary School

1. What topics are being discussed in your subject?

Q1

Identify real or make-believe, fact or non-fact images

Interpret the meaning suggested in visual media through a focus on visual elements, for example, line, symbols, colour, gaze, framing and social distance

Make connections between information viewed and personal experiences

Q2

Identify the purpose, key structural and

language features of various types of informational/factual text

Recognize evaluative word choices to detect biases and propaganda devices used by speakers

Compare and contrast content of materials viewed to other sources of information (print, online and broadcast)

Q3

Present a coherent, comprehensive report on differing viewpoints on an issue EN10LC-IIId-3.18

Evaluate narratives based on how the author developed the elements

Q4

Compose clear and coherent sentences using appropriate grammatical structures (verb tenses, conjunctions, adverbs)

Compose a persuasive essay on self-selected topic

2. In what method do you deliver the topics?

It depends on the component and structure of every class. Most of the activity given by teacher is more on collaborative, interactive and student-centered activity. Communicative language teaching also is delivered.

3. What are the basic problems that students encounter in learning this subject?

Lack of motivation

Cultural differences / family orientation

Limited reading and comprehension skills

Lack of confidence

Different learning Styles

Lack of learning Materials

4. Do you think an educational game will help your students to learn this topics/lesson?

YES

5. If we make a game, what topic you want us to focus?

Topics that focus on comprehension, vocabulary and reading skills of the learners.

6. What do you prefer? Mobile or desktop game?

Both.

7. If desktop, does your school have computers? How many computers do you have?

Every teacher has its own personal laptop only.

8. Do you prefer the game online or offline?

Both

9. If online, does your school have access on internet?

Yes

10. How many Grade 6 students does your school have?

52 pupils



JASMIN S. CABRAL
English 6 Teacher

APPENDIX C -3
Transcript of Interview
Santol Elementary School

Name of school: Santol Elementary School

1. What topics are being discuss in your subject?

See attached bow for Semesters

2. In what method do you deliver the topics?

Discussion, Groupings

3. What are the basic problems that students encounter in learning this subject?

Medium – Language itself

4. Do you think an educational game will help your students to learn these topics/lessons?

Offline Game

5. If we make a game, what topic you want to focus?

Grammar

6. What do you prefer? Mobile or desktop game?

Mobile

7. If desktop, does your school have computers? How many computers do you have?

None

8. Do you prefer the game online or offline?

Yes, Offline

9. If online, does your school have access on internet?

Yes

10. How many Grade 6 students does your school have?

Total of 56 grade 6 pupils



JOAN P. CONTRERAS
English 6 Teacher

APPENDIX D

Sample Survey Questionnaire

Survey Form for Grade 6 Students

Direction: Put a check (✓) mark in the box to show your answers.

1. Which of the following topics/lessons you find difficult?

- Subordinating and Coordinating Conjunctions
- Adverbs of Manner, Place, and Time
- Analyzing Pictures
- Identifying Tenses of Verbs
- Identifying Elements of the Story
- Determining Elements of a Plot

2. Would you like to have or use an educational game to help you learn this topic?

- Yes
- No

3. Which type of game do you prefer to play?

- Adventure Game
- Puzzle Game
- Role-Playing Game (RPG)

4. What kind of game do you prefer?

- Online
- Offline

5. Do you want the game to have leaderboards?

- Yes
- No

6. Do you have gadgets you can use to play games?

- Yes
- No

7. If yes, what type of gadget are you using?

- Android (Ex. Samsung, Huawei, Realme)
- IOs (Ex. iPhone)

8. How often do you play video games?

- Daily
- Occasionally
- Rarely
- Never

APPENDIX E
Survey Summary

APPENDIX E - 1
Survey Result (Baclaran Elementary School)

Survey Form for Grade 6 Students

Direction: Put a check (✓) mark in the box to show your answers.

1. Which of the following topics/lessons you find difficult?

- Subordinating and Coordinating Conjunctions
- Adverbs of Manner, Place, and Time
- Analyzing Pictures
- Identifying Tenses of Verbs
- Identifying Elements of the Story
- Determining Elements of a Plot

2. Would you like to have or use an educational game to help you learn this topic?

- Yes
- No

3. Which type of game do you prefer to play?

- Adventure Game
- Puzzle Game
- Role-Playing Game (RPG)

4. What kind of game do you prefer?

- Online
- Offline

5. Do you want the game to have leaderboards?

- Yes
- No

6. Do you have gadgets you can use to play games?

- Yes
- No

7. If yes, what type of gadget are you using?

- Android (Ex. Samsung, Huawei, Realme)
- IOs (Ex. iPhone)

8. How often do you play video games?

- Daily
- Occasionally
- Rarely
- Never

Slovin's Formula (Baclaran Elementary School)

Given:

$$n = \frac{N}{1 + Ne^2}$$

$$n = \frac{52}{1 + 52(0.05)^2}$$

$$n = \frac{52}{1 + 52(0.025)}$$

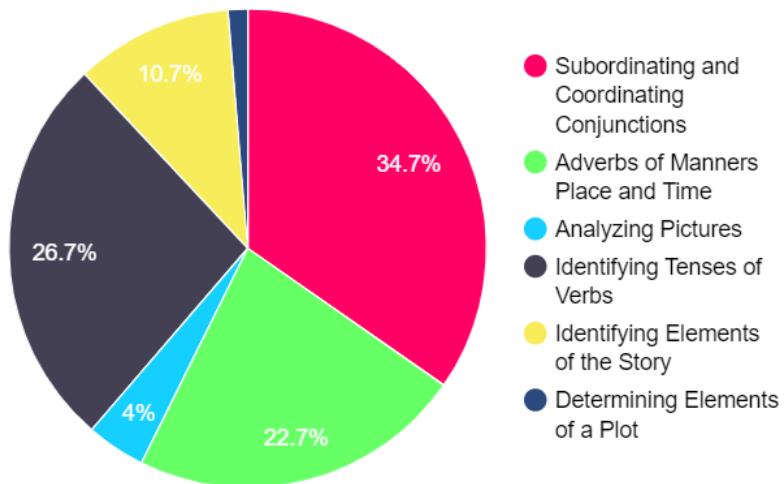
$$n = \frac{52}{1 + 0.13}$$

$$n = \frac{52}{1.13}$$

$$\mathbf{n = 46.018}$$

Appendix D - 1 Survey Result (Baclaran Elementary School)

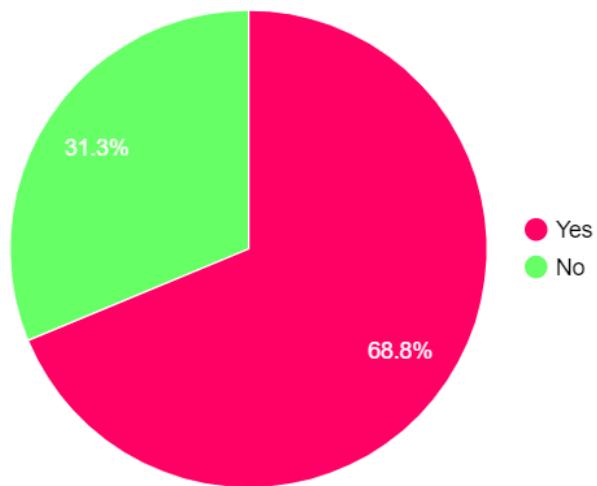
Q1. Which of the following topics/lessons you find difficult?



Subordinating and Coordinating Conjunctions	34.7% (26 students)
Adverbs of Manners, Place, and Time	22.7% (17 students)
Analyzing Pictures	4% (3 students)
Identifying Tenses of Verbs	26.7% (20 students)
Identifying Elements of the Story	10.7% (8 students)
Determining Elements of a Plot	1.2% (1 student)

The figure provides the percentage breakdown for survey question number 1. Among the 46 students, the result shows that 34.7% of the respondents answered “Subordinating and Coordinating Conjunctions”, 26.7% of them answered “Identifying Tenses of Verbs”, and 22.7% answered “Adverbs of Manners, Place, and Time”, indicating that these topics are the most difficult for them.

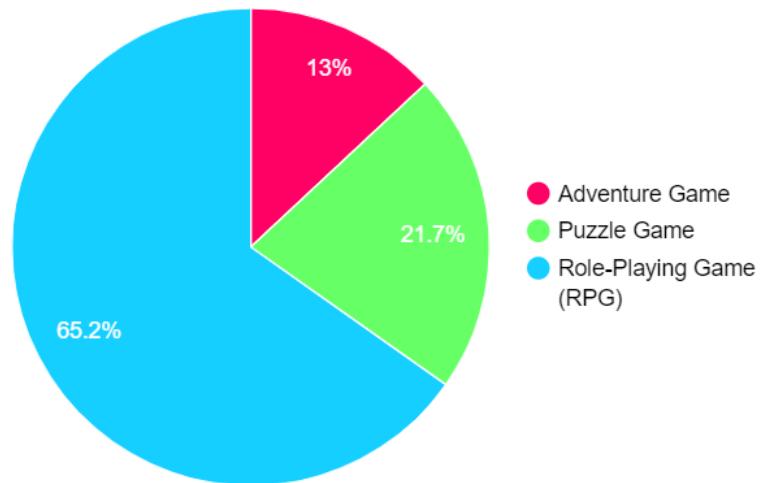
Q2. Would you like to have or use an educational game to help you learn this topic?



Yes	68.8% (32 students)
No	31.3% (14 students)

The figure provides the percentage breakdown for survey question num 2. Among the 46 students, the result shows that 68.8% of the respondents answered “Yes”, indicating that they are in favor of using educational game to help them learn their topics. The remaining 31.3% respondents answered “No”, indicating that they do not agree to use educational game for their learning.

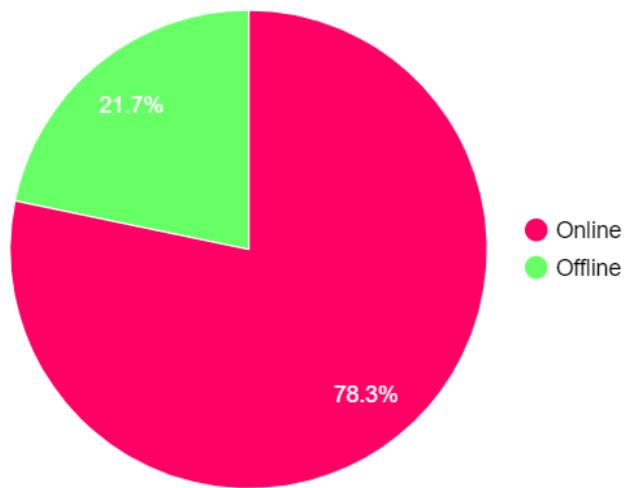
Q3. Which type of game do you prefer to play?



Adventure Game	13% (6 students)
Puzzle Game	21.7% (10 students)
Role-Playing Game (RPG)	65.2% (30 students)

The figure provides the percentage breakdown for survey question number 3. Among the 46 students, the result shows that 65.2% of the respondents answered “Role-Playing Game (RPG)”, indicating that they prefer to play this type of game.

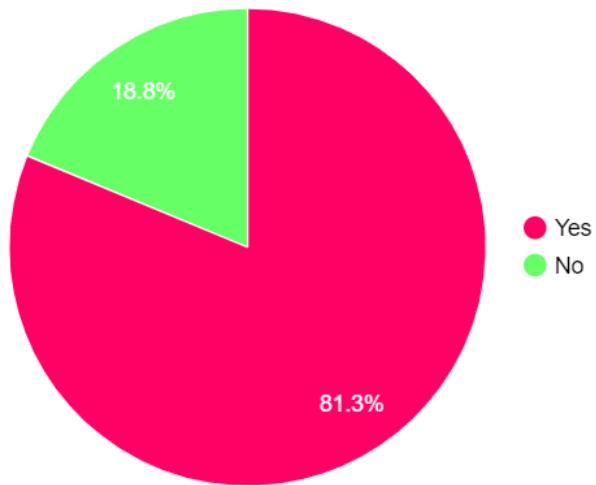
Q4. What kind of game do you prefer?



Online	78.3% (36 students)
Offline	21.7% (10 students)

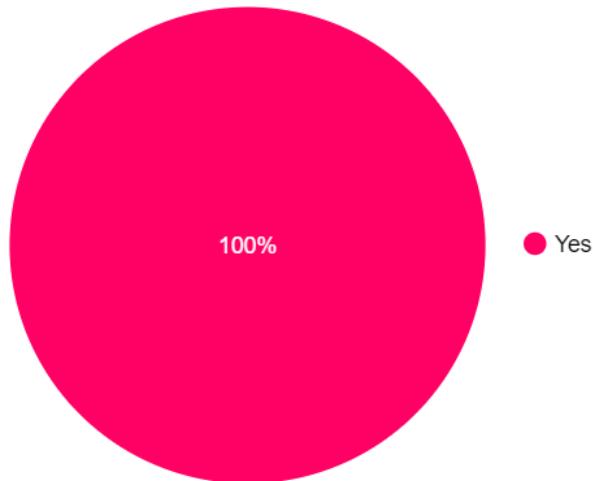
The figure provides the percentage breakdown for survey question number 4. Among the 46 students, the result shows that 78.3% of the respondents answered “Online”, indicating that they prefer an online game. The remaining 21.7% respondents answered “Offline”, indicating that they prefer an offline game.

Q5. Do you want the game to have leaderboards?



The figure provides the percentage breakdown for survey question number 5. Among the 46 students, the result shows that 81.3% of the respondents answered “Yes”, indicating that they want a game with leaderboards to track their progress. The remaining 18.8% respondents answered “No”, indicating that they want a game with no leaderboards.

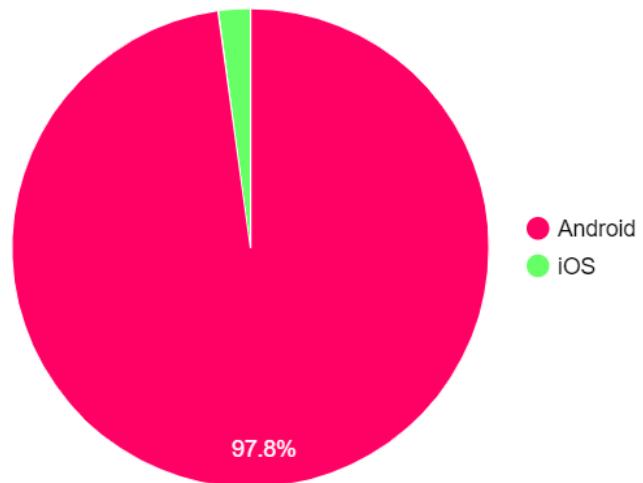
Q6. Do you have gadgets you can use to play games?



Yes	100% (46 students)
No	0% (0 student)

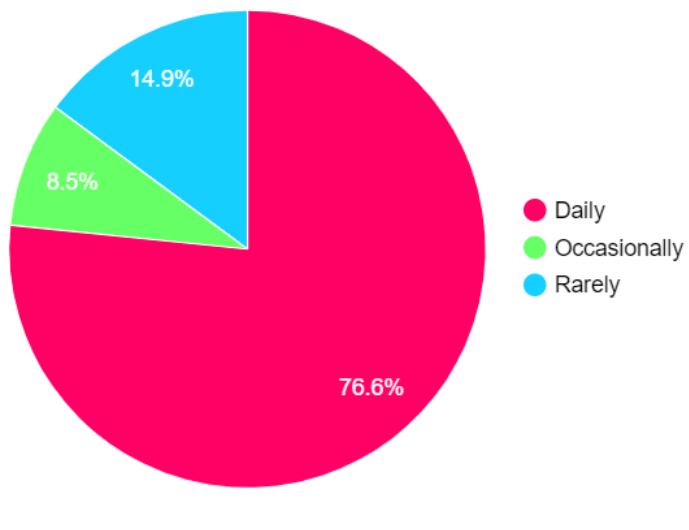
The figure provides the percentage breakdown for survey question number 6. Among the 46 students, the result shows that 100% of the respondents answered “Yes”, indicating that they have gadgets to play games.

Q7. If yes, what type of gadget are you using?



The figure provides the percentage breakdown for survey question number 7. Among the 46 students, the result shows that 97.8% of the respondents answered “Android”, indicating that they use android type of gadget such as Samsung, Huawei, and Realme. The remaining 2.2% respondents answered “iOS”, indicating that they use iOS type of gadget.

Q8. How often do you play video games?



Daily	76.6% (35 students)
Occasionally	8.5% (4 students)
Rarely	14.9% (7 students)
Never	0% (0 student)

The figure provides the percentage breakdown for survey question number 8. Among the 46 students, the result shows that 76.6% of the respondents answered “Daily”, indicating that they play video games daily. Additionally, 14.9% percents of the respondents answered “Rarely”, indicating that they play video games once in a while. The remaining 8.5% respondents occasionally play games and 0% of them never play

APPENDIX E - 2
Survey Result (Pook Elementary School)

Survey Form for Grade 6 Students

Direction: Put a check (✓) mark in the box to show your answers.

1. Which of the following topics/lessons you find difficult?

- Subordinating and Coordinating Conjunctions
- Adverbs of Manner, Place, and Time
- Analyzing Pictures
- Identifying Tenses of Verbs
- Identifying Elements of the Story
- Determining Elements of a Plot

2. Would you like to have or use an educational game to help you learn this topic?

- Yes
- No

3. Which type of game do you prefer to play?

- Adventure Game
- Puzzle Game
- Role-Playing Game (RPG)

4. What kind of game do you prefer?

- Online
- Offline

5. Do you want the game to have leaderboards?

- Yes
- No

6. Do you have gadgets you can use to play games?

- Yes
- No

7. If yes, what type of gadget are you using?

- Android (Ex. Samsung, Huawei, Realme)
- IOs (Ex. iPhone)

8. How often do you play video games?

- Daily
- Occasionally
- Rarely
- Never

Slovin's Formula (Pook Elementary School)

Given:

$$n = \frac{N}{1 + Ne^2}$$

$$n = \frac{50}{1 + 50(0.05)^2}$$

$$n = \frac{50}{1 + 50(0.025)}$$

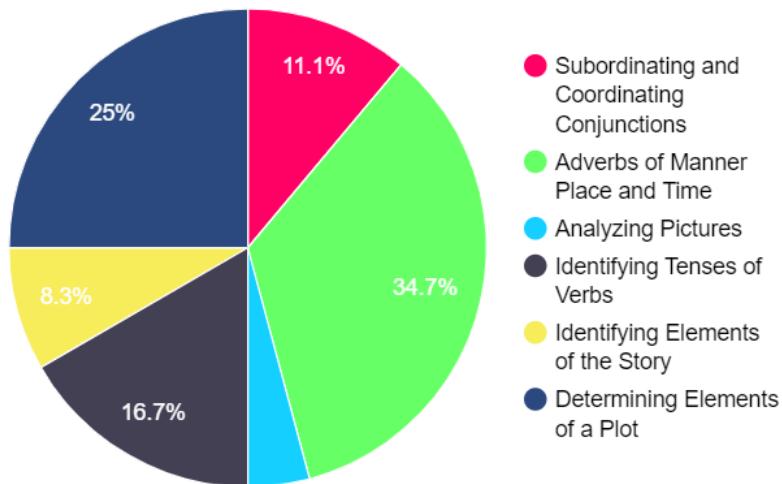
$$n = \frac{50}{1 + 0.125}$$

$$n = \frac{52}{1.125}$$

$$n = 44.444$$

Appendix D - 2 Survey Result (Pook Elementary School)

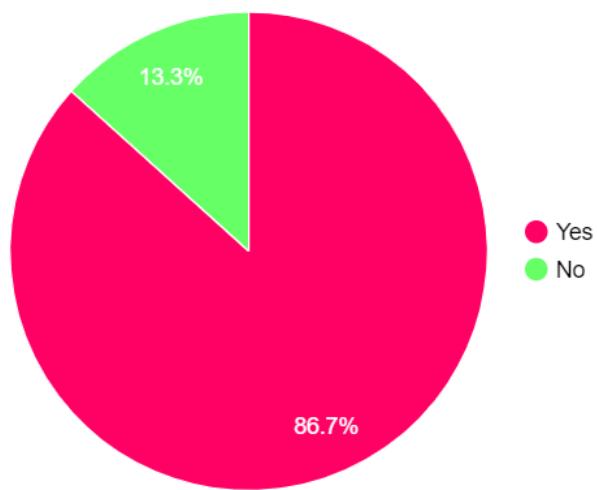
Q1. Which of the following topics/lessons you find difficult?



Subordinating and Coordinating Conjunctions	11.1% (8 students)
Adverbs of Manner, Place, and Time	34.7% (25 students)
Analyzing Pictures	5.5% (3 students)
Identifying Tenses of Verbs	16.7% (12 students)
Identifying Elements of the Story	8.3% (6 students)
Determining Elements of a Plot	25% (18 students)

The figure provides the percentage breakdown for survey question number 1. Among the 44 students, the result shows that 34.7% of the respondents answered “Adverbs of Manner, Place, and Time”, 25% of them answered “Determining Elements of a Plot”, and 16.7% answered “Identifying Tenses of Verbs”, indicating that these topics are the most difficult for them.

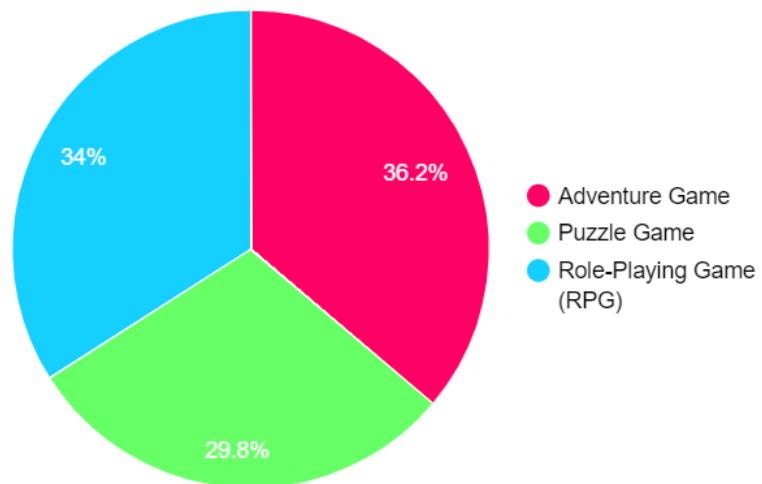
Q2. Would you like to have or use an educational game to help you learn this topic?



Yes	86.7% (38 students)
No	13.3% (6 students)

The figure provides the percentage breakdown for survey question num 2. Among the 44 students, the result shows that 86.7% of the respondents answered “Yes”, indicating that they are in favor of using educational game to help them learn their topics. The remaining 13.3% respondents answered “No”, indicating that they do not agree to use educational game for their learning.

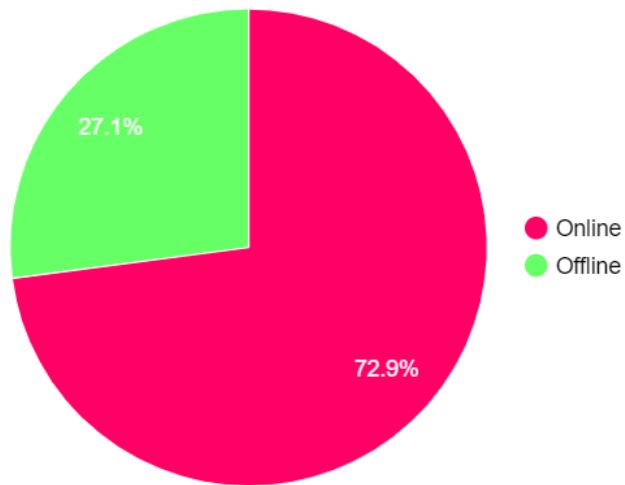
Q3. Which type of game do you prefer to play?



Adventure Game	36.2% (16 students)
Puzzle Game	29.8% (13 students)
Role-Playing Game (RPG)	34% (15 students)

The figure provides the percentage breakdown for survey question number 3. Among the 44 students, the result shows that 36.2% of the respondents answered “Adventure Game”, indicating that they prefer to play this type of game.

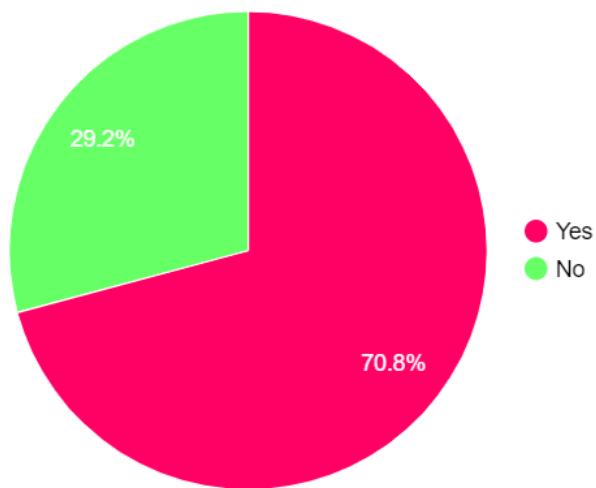
Q4. What kind of game do you prefer?



Online	72.9% (33 students)
Offline	27.1% (11 students)

The figure provides the percentage breakdown for survey question number 4. Among the 44 students, the result shows that 72.9% of the respondents answered “Online”, indicating that they prefer an online game. The remaining 27.1% respondents answered “Offline”, indicating that they prefer an offline game.

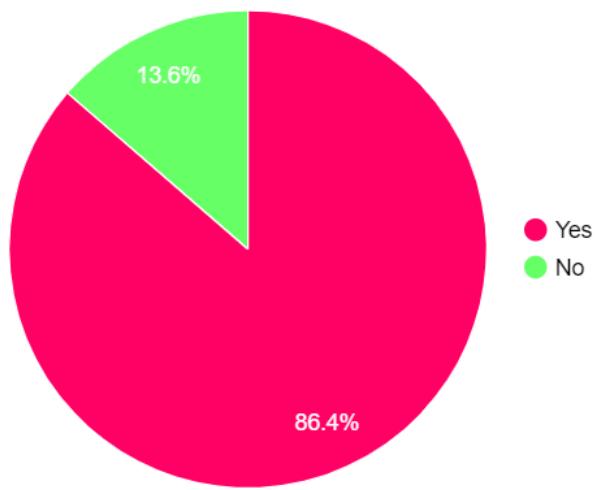
Q5. Do you want the game to have leaderboards?



Yes	70.8% (32 students)
No	29.2% (12 students)

The figure provides the percentage breakdown for survey question number 5. Among the 44 students, the result shows that 70.8% of the respondents answered “Yes”, indicating that they want a game with leaderboards to track their progress. The remaining 29.2% respondents answered “No”, indicating that they want a game with no leaderboards.

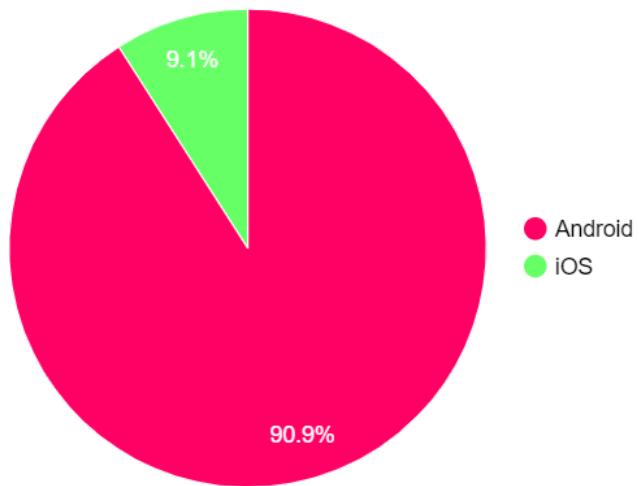
Q6. Do you have gadgets you can use to play games?



Yes	86.4% (38 students)
No	13.6% (6 students)

The figure provides the percentage breakdown for survey question number 6. Among the 44 students, the result shows that 86.4% of the respondents answered “Yes”, indicating that they have gadgets to play games. The remaining 13.6% respondents answered “No”, indicating that they do not have gadgets.

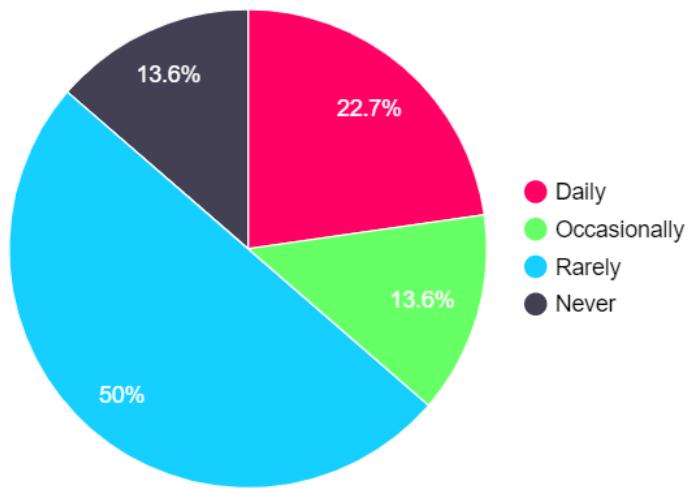
Q7. If yes, what type of gadget are you using?



Android	90.9% (40 students)
iOS	9.1% (4 students)

The figure provides the percentage breakdown for survey question number 7. Among the 44 students, the result shows that 90.9% of the respondents answered “Android”, indicating that they use android type of gadget such as Samsung, Huawei, and Realme. The remaining 9.1% respondents answered “iOS”, indicating that they use iOS type of gadget.

Q8. How often do you play video games?



Daily	22.7% (10 students)
Occasionally	13.6% (6 students)
Rarely	50% (22 students)
Never	13.6% (6 students)

The figure provides the percentage breakdown for survey question number 8. Among the 44 students, the result shows that 50% of the respondents answered “Rarely”, indicating that they play video games once in a while. Additionally, 22.7% percents of the respondents answered “Daily”, indicating that they play video games daily. The remaining respondents occasionally play games and some of them never play.

APPENDIX E - 3
Survey Result (Santol Elementary School)

Survey Form for Grade 6 Students

Direction: Put a check (✓) mark in the box to show your answers.

1. Which of the following topics/lessons you find difficult?

- Subordinating and Coordinating Conjunctions
- Adverbs of Manner, Place, and Time
- Analyzing Pictures
- Identifying Tenses of Verbs
- Identifying Elements of the Story
- Determining Elements of a Plot

2. Would you like to have or use an educational game to help you learn this topic?

- Yes
- No

3. Which type of game do you prefer to play?

- Adventure Game
- Puzzle Game
- Role-Playing Game (RPG)

4. What kind of game do you prefer?

- Online
- Offline

5. Do you want the game to have leaderboards?

- Yes
- No

6. Do you have gadgets you can use to play games?

- Yes
- No

7. If yes, what type of gadget are you using?

- Android (Ex. Samsung, Huawei, Realme)
- IOs (Ex. iPhone)

8. How often do you play video games?

- Daily
- Occasionally
- Rarely
- Never

Slovin's Formula (Santol Elementary School)

Given:

$$n = \frac{N}{1 + Ne^2}$$

$$n = \frac{56}{1 + 56(0.05)^2}$$

$$n = \frac{56}{1 + 56(0.025)}$$

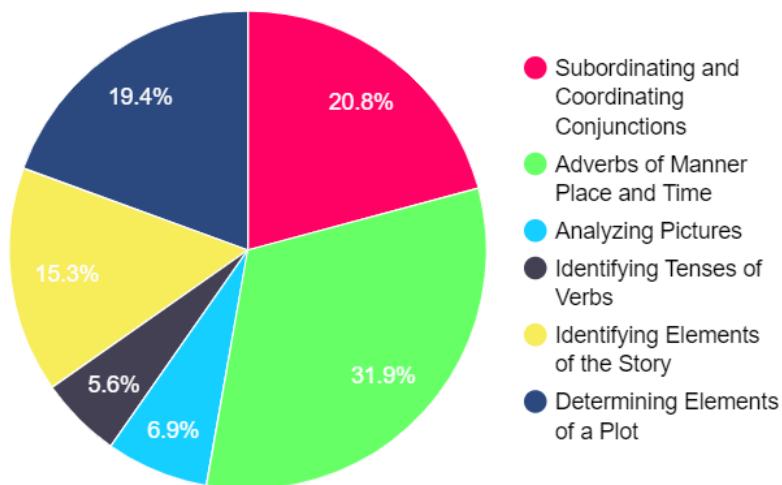
$$n = \frac{56}{1 + 0.14}$$

$$n = \frac{52}{1.14}$$

$$n = 49.123$$

Appendix D - 3 Survey Result (Santol Elementary School)

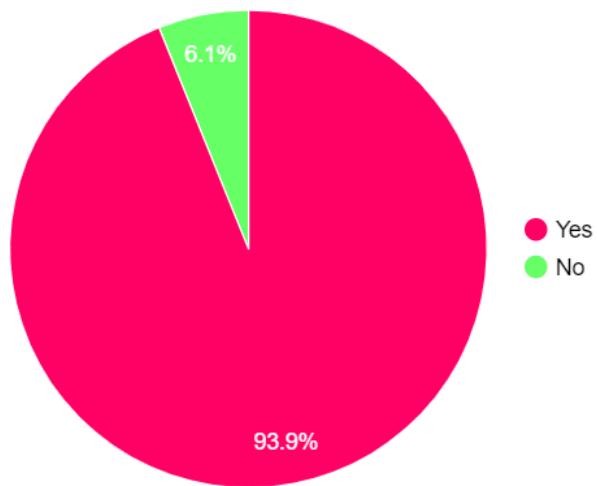
Q1. Which of the following topics/lessons you find difficult?



Subordinating and Coordinating Conjunctions	20.8% (15 students)
Adverbs of Manner, Place, and Time	31.9% (23 students)
Analyzing Pictures	6.9% (5 students)
Identifying Tenses of Verbs	5.6% (4 students)
Identifying Elements of the Story	15.3% (11 students)
Determining Elements of a Plot	19.4% (14 students)

The figure provides the percentage breakdown for survey question number 1. Among the 49 students, the result shows that 31.9% of the respondents answered “Adverbs of Manner, Place, and Time”, 19.4% of them answered “Determining Elements of a Plot”, and 16.7% answered “Subordinating and Coordinating Conjunctions”, indicating that these topics are the most difficult for them.

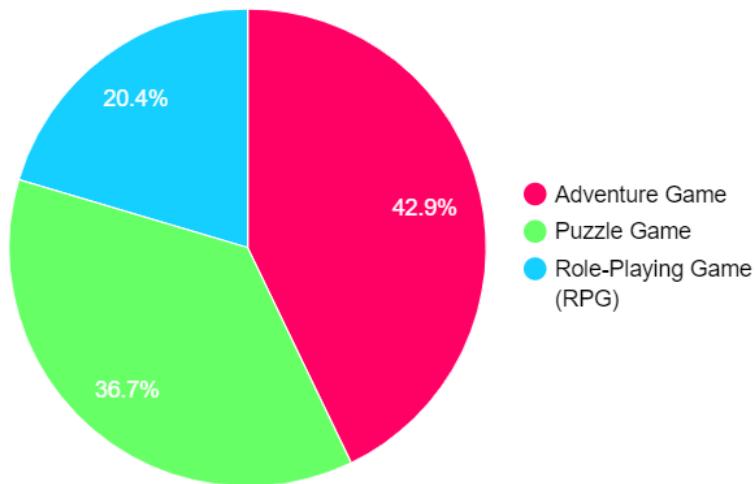
Q2. Would you like to have or use an educational game to help you learn this topic?



Yes	93.9% (46 students)
No	6.1% (3 students)

The figure provides the percentage breakdown for survey question num 2. Among the 49 students, the result shows that 93.9% of the respondents answered “Yes”, indicating that they are in favor of using educational game to help them learn their topics. The remaining 6.1% respondents answered “No”, indicating that they do not agree to use educational game for their learning.

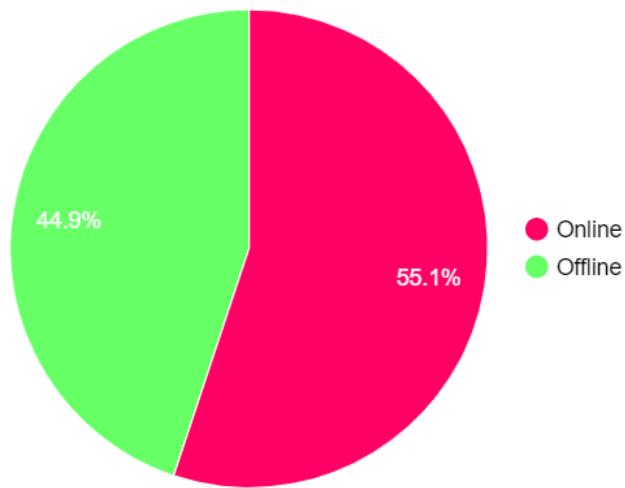
Q3. Which type of game do you prefer to play?



Adventure Game	42.9% (21 students)
Puzzle Game	36.7% (18 students)
Role-Playing Game (RPG)	20.4% (10 students)

The figure provides the percentage breakdown for survey question number 3. Among the 49 students, the result shows that 42.9% of the respondents answered “Adventure Game”, indicating that they prefer to play this type of game.

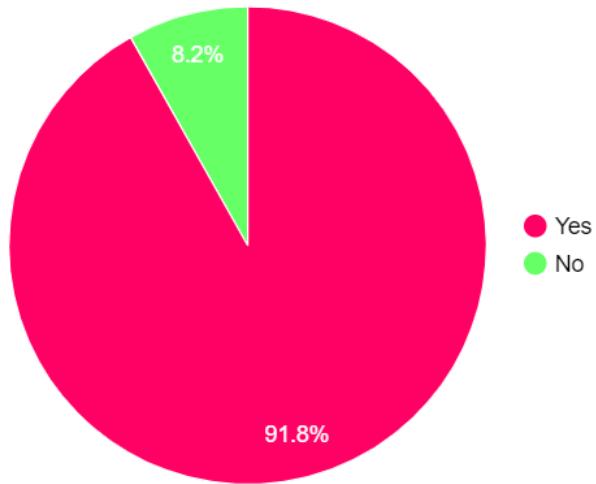
Q4. What kind of game do you prefer?



Online	55.1% (27 students)
Offline	44.9% (22 students)

The figure provides the percentage breakdown for survey question number 4. Among the 49 students, the result shows that 55.1% of the respondents answered “Online”, indicating that they prefer an online game. The remaining 44.9% respondents answered “Offline”, indicating that they prefer an offline game.

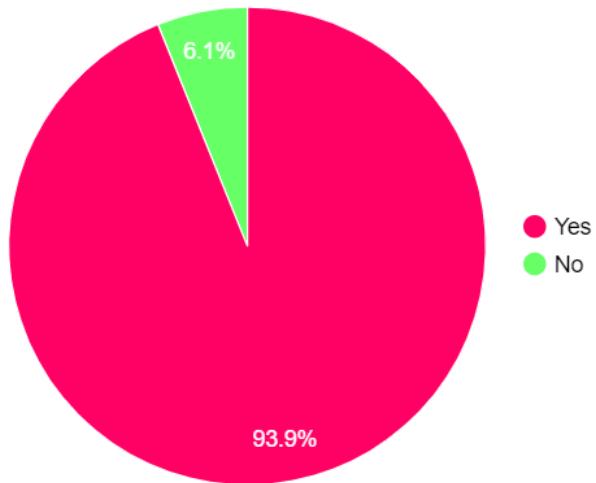
Q5. Do you want the game to have leaderboards?



Yes	91.8% (45 students)
No	8.2% (4 students)

The figure provides the percentage breakdown for survey question number 5. Among the 49 students, the result shows that 91.8% of the respondents answered “Yes”, indicating that they want a game with leaderboards to track their progress. The remaining 8.2% respondents answered “No”, indicating that they want a game with no leaderboards.

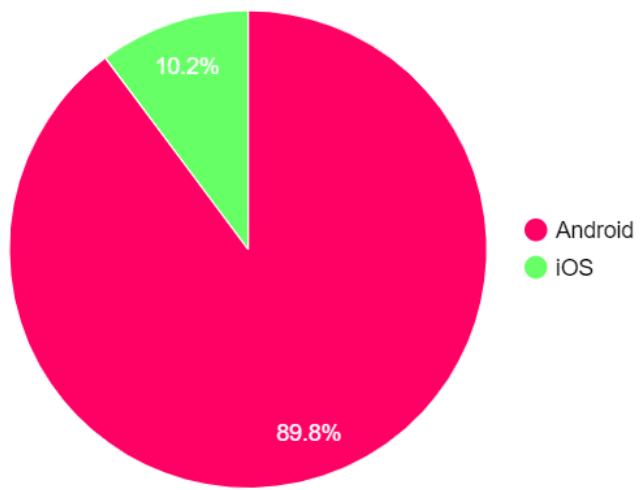
Q6. Do you have gadgets you can use to play games?



Yes	93.9% (46 students)
No	6.1% (3 students)

The figure provides the percentage breakdown for survey question number 6. Among the 49 students, the result shows that 93.9% of the respondents answered “Yes”, indicating that they have gadgets to play games. The remaining 6.1% respondents answered “No”, indicating that they do not have gadgets.

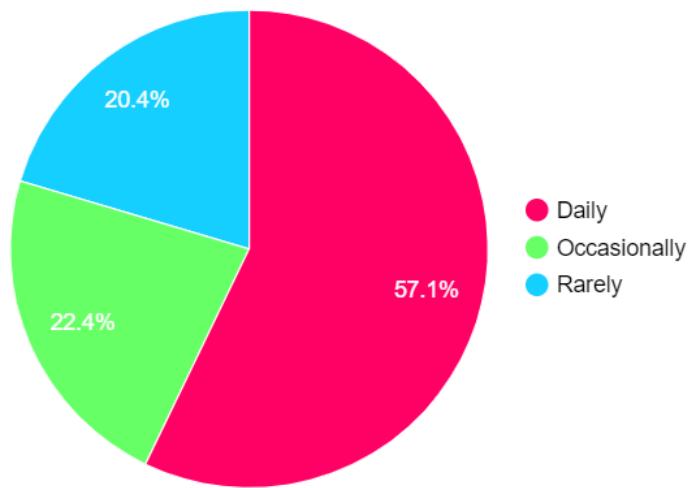
Q7. If yes, what type of gadget are you using?



Android	89.8% (44 students)
iOS	10.2% (5 students)

The figure provides the percentage breakdown for survey question number 7. Among the 49 students, the result shows that 89.8% of the respondents answered “Android”, indicating that they use android type of gadget such as Samsung, Huawei, and Realme. The remaining 10.2% respondents answered “iOS”, indicating that they use iOS type of gadget.

Q8. How often do you play video games?



Daily	57.1% (28 students)
Occasionally	22.4% (11 students)
Rarely	20.4% (10 students)
Never	0% (0 student)

The figure provides the percentage breakdown for survey question number 8. Among the 49 students, the result shows that 57.1% of the respondents answered “Daily”, indicating that they play video games daily. Additionally, 22.4% percents of the respondents answered “Occasionally”, indicating that they play video games often. The remaining 20.4% respondents rarely play games.

APPENDIX F

Subject Content

W1	Learning Area Quarter	ENGLISH FOUR	Grade Level Date	SIX
I. LESSON TITLE	Tenses of Verbs			
II. MOST ESSENTIAL LEARNING COMPETENCIES (MELCs)	Compose clear and coherent sentences using appropriate grammatical structures: tenses of verbs			
III. CONTENT/CORE CONTENT	Composing Clear and Coherent Sentences Using Appropriate Grammatical Structures: Tenses of Verbs			

IV. LEARNING PHASES AND LEARNING ACTIVITIES

I. Introduction (Time Frame: 5 minutes)

Before we begin this week's lesson, let us first have a recall on the lesson that you have taken up when you were in Grade 5.

Read the passage below. Let us see if you can remember what the highlighted words are.

Phillip is an incoming grade 6 pupil. He is very excited because finally, it is his last year as an Elementary pupil. He **prepares** all things that he will need for the next school year. He **brought** ball pens, notebooks and papers. He decided that he **will iron** his clothes the day before the opening of classes. He excitedly **puts** his things inside his bag and kept it in his cabinet. A day before opening of classes, he **covered** his notebooks with plastic and **pasted** his name on his ball pens. After a week, the school year started. Phillip **woke-up** early and **prepared** his things. He did not **forget** to wear his facemask. He knows that he needs to wear it every time he goes to school. Phillip is very excited but at the same time he is a bit afraid because COVID 19 is still there. Even though he felt that way, he still knew that he **will learn** a lot in school.

Do you now remember what the highlighted words are? Yes! They are called verbs. Did you notice that the highlighted verbs happen in different times? These differences in verb tenses will be the focus of our lesson today.

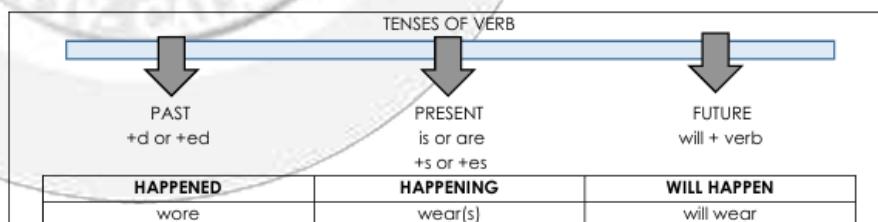
After going through this lesson, you are expected to compose clear and coherent sentences using appropriate grammatical structures: tenses of verbs.

D. Development (Time Frame: 5 minutes)

Now analyze the table below, notice that the verbs you have read from the paragraphs above were categorized as to when the action happened. These are called verb tenses.

HAPPENED	HAPPENING	WILL HAPPEN
brought	covered	prepares
pasted	woke-up	forgot
prepared	puts	will iron
		will learn

Verb has multiple forms called tenses. These tenses are used to show **when** an action is done. In composing sentences using the tense of the verb we need to remember the following:



Past Tense: are actions, events or feelings **happened** at an earlier point in time or already **happened in the past**. To change the verb in past tense just add +ed but if the verb ends with e simply add +d, but for some verbs they change their spelling when they are changed in past tense and they are called **irregular verb**.

Ex: Yesterday the Grade 6 pupils **wore** their facemask when they went to school.

Present Tense: are actions, events or feelings that are **currently happening or repeatedly happens**. If the subject is singular, we use the **"be" verb is** or we simply add +s or +es to the **action verb**. If the subject is plural, we use the **"be" verb are** and the action verb that we use will remain without adding anything on it.

IV. LEARNING PHASES AND LEARNING ACTIVITIES

Ex: Phillip wears his face shield when he goes out.

↓ ↓
 [singular subject] [s form of the verb]
 Phillip is an obedient citizen; he follows health
 protocols.
 ↓ ↓
 [singular subject] [be verb]

The Grade 6 pupils always wear their facemask in going to school.

↓ ↓
 [plural subject] [base form of the verb]
 The Grade 6 pupils are industrious; they regularly sanitize their room.
 ↓ ↓
 [plural subject] [be verb]

Future Tense: are actions, events or feelings that will happen in the future. To change the verb into its future tense just add "will" before the verb.

Ex: The Grade 6 pupils will wear their facemask tomorrow in going to school.

E. Engagement (Time Frame: 20 minutes)

Learning Task 1

Directions: Use the appropriate past form of the verb to make the sentence clear and coherent. Do this in your notebook.

1. Ysabella's mother (**notice**) a great change in her attitude and work.
2. She (**know**) Ysabella was a great student but due to current academic situation she lags behind her classmates.
3. Her mother (**talk**) to her to know her problem.
4. Ysabella (**realize**) her mistake. She (**make**) up her mind to study harder.
5. She (**begin**) to get high scores in the tests and she (**receive**) three academic awards last Quarter.

Learning Task 2

Directions: Using the correct past form of the verb compose your own sentence. Write your answer in your notebook.

VERB	PAST FORM	SENTENCE
1. notice		
2. know		
3. talk		
4. realize		
5. begin		

Learning Task 3

Directions: Make the sentences clear and coherent by choosing the correct **Present Tense**. Write your answer in your notebook.

Akila (**wash, washes**) her hands regularly. She (**put, puts**) some alcohol in her hands whenever she can't wash them immediately. She (**drink, drinks**) 8 glasses of water every day. She also (**take, takes**) vitamins to keep herself healthy. Akila (**wear, wears**) her facemask every time she goes out of the house.

Learning Task 4

Directions: What are your plans? What are your goals or dreams? Where do you see yourself 10 years from now?

Talk about your plans by means of writing a journal. Do not forget to use verbs in Future Tense. Underline the verbs in Future Tense that you used in your paragraph. Do this in your notebook.

My Personal Future

W2	Learning Area	ENGLISH	Grade Level	SIX
	Quarter	FOUR	Date	
I. LESSON TITLE		Composing Clear and Coherent Sentences Using Appropriate Grammatical Structures: Subordinating and Coordinating Conjunctions		
II. MOST ESSENTIAL LEARNING COMPETENCIES (MELCs)		Compose clear and coherent sentences using appropriate grammatical structures: Subordinating and Coordinating Conjunctions EN6G-Ig-4.4.1		
III. CONTENT/CORE CONTENT		Composing clear and coherent sentences using appropriate grammatical structures: Subordinating and Coordinating Conjunctions		

IV. LEARNING PHASES AND LEARNING ACTIVITIES

I. Introduction (Time Frame: 5 minutes)

In our previous lesson, you learned about identifying conjunctions in sentences. Conjunctions are used to connect a variety of sentence elements. They can connect smaller parts of writing, such as words and phrases, but they are also used to connect separate sentences or independent clauses together into bigger and more complex sentences.

This time you will learn the different subordinating and coordinating conjunctions and how they are used in sentences.

After going through this lesson, you are expected to compose clear and coherent sentences using appropriate grammatical structures: subordinating and coordinating conjunctions

II. Development (Time Frame: 5 minutes)

To begin with, read the story about "My First Train Ride."

My First Train Ride

Just as I woke up on Saturday morning, my dad told me he has a surprise! Though it wouldn't be revealed until 1 p.m., dad told me that this surprise is something that I was definitely going to enjoy! As soon as I heard about the surprise, I jumped out of bed and got ready for the day. Although I was busy getting ready, I tried to keep guessing what the surprise could be! Once it was 12:30 in the afternoon, dad said that we needed to go to the car so we could arrive at the surprise on time.

Once we were all packed in the car, we left to drive to the surprise. Until we arrived, I kept thinking what the surprise could be. Just as we pulled into a parking lot, I saw a train. I asked dad if we are going on a train ride, as soon as I asked him, he smiled. Before he could say anything else, I knew that's the surprise. Just as we got out of the car, we heard the buzzing from the train that it's closing and it's ready to go.

Even though we don't have running shoes, we ran to make sure we hopped onto the train before it leaves. While on the train, we had a wonderful time and met many people.

Whenever I see a train now, I think of this fond memory. It was my very first train ride.

Read and analyze the sentences taken from the story, "My First Train Ride."

1. I jumped out of bed **and** get ready for the day.
2. Dad said that we needed to go to the car **so** we could arrive at the surprise on time.
3. **While** on a train, we had a wonderful time!
4. **Once** we were all packed in the car, we left to drive to the surprise.
5. **Even though** we don't have running shoes, we ran to make sure we hopped onto the train before it leaves.

What is the highlighted word in the first sentence? In the second? Third? Fourth? Last? What do you call these highlighted words?

A conjunction is a word that connects or join together words, phrases, clauses or sentences. There are two kinds of conjunctions: the subordinate and coordinate conjunctions.

Coordinate conjunctions are used to connect two or more simple sentences or clauses called independent clauses.

Examples:

- ❖ Erning drank some water for he was thirsty.
- ❖ Maria doesn't drink milk nor does she eat butter
- ❖ Tasyo studied a lot but he didn't pass the test.
- ❖ Jose can buy a book or he can borrow it from the library.
- ❖ Protacio woke up early for school yet he was still late.

IV. LEARNING PHASES AND LEARNING ACTIVITIES

It is easier to remember the coordinating conjunction if you think of the word FANBOYS.

Coordinating Conjunctions	Functions
For	Presents a reason
And	Presents non-contrasting ideas
Nor	Presents non-contrasting negative ideas
But	Presents contrast
Or	Presents an alternative or a choice
Yet	Presents a contrast or exception
So	Presents a consequence

Subordinating or coordinating conjunctions connect or join a dependent clause to an independent clause in a sentence. You can write most sentences with a subordinating conjunction in one or two different ways.

Example:

When my friends arrived, I was still doing my homework.

I was still doing my homework when my friends arrived.

If a sentence begins with a subordinating conjunction, use a comma to separate the two clauses.

These are some of the examples of subordinating conjunctions.

After	Before	If	So that	When
Although	By the time	In case	Than	Whenever
As	Even if	Now that	The first time	Whether or not
As soon as	Even though	Once	Unless	While
because	Every time	Since	until	Why

E. Engagement (Time Frame: 20 minutes)**Learning Task 1**

Directions: Compose clear and coherent sentences by pairing the conjunctions to sentences in the first and third column. Make sure your sentences will make sense. Do this in your notebook.

I like coffee.	for	I have a headache.
I've drunk six cups of coffee today.	but	She ate everything immediately.
She must have been hungry.	nor	My wife prefers tea.
He doesn't eat cake.	yet	Does she eat biscuits?
He is overweight and feels terrible.	so	He continues to eat lots of cakes and biscuits.

Learning Task 2

Directions: Complete the sentences below to form clear and coherent sentences using subordinate conjunctions. Do this in your notebook

1. I will study hard while _____.
2. My mother has to work for hours because _____.
3. I need to think hard if _____.
4. I could not finish it although _____.
5. I will go home when _____.

Learning Task 3

Directions: Read the sentences in first the column. Find related sentences in the third column. Choose the appropriate coordinating conjunction to combine sentences. Do this in your notebook.

1. Stir together 1 cup butter and 1 ½ cups of brown sugar in a bowl.	or	Then, add 2 eggs.
2. Put 2 cups of flour into another bowl and add 1 teaspoon of baking soda.	so	Stir.

LEARNER'S PACKET (LeAP)

KS2

W4	Learning Area Quarter	ENGLISH FOUR	Grade Level Date	SIX
I. LESSON TITLE	Adverbs of Manner, Place and Time			
II. MOST ESSENTIAL LEARNING COMPETENCIES (MELCs)	Compose clear and coherent sentences using appropriate grammatical structures: Adverbs of Manner, Place, and Time EN6G-Ig-4.4.1			
III. CONTENT/CORE CONTENT	Composing clear and coherent sentences using Adverbs of Manner, Place, and Time			

IV. LEARNING PHASES AND LEARNING ACTIVITIES

I. Introduction (Time Frame: 3 minutes)

Composing clear and coherent sentences using grammatical structure is one of the important skills that a kid like you should know and develop.

An adverb is a part of speech that provides description to a verb, an adjective, and another adverb. Adverbs of manner, time, and place are other types of adverb. They answer questions how, when, and where. They help us add detail to our sentences.

Let us read and study the sentences below.

He **patiently** spent the whole night trying to prevent the flow of water from the dike.
My family decided to have lunch **at the beach**
They were at the museum **yesterday**.

How did he spend the whole night to prevent the flow of water from the dike?

Where did my family decide to have lunch?

When did they go to the museum?

Notice the highlighted words in each sentence. They are examples of adverbs of manner, place, and time.

After going through this lesson, you are expected to compose clear and coherent sentences using appropriate grammatical structures: adverbs of manner, place, and time.

D. Development (Time Frame: 20 minutes)

Let's read the selection.

It is **Sunday morning**, Lhiana woke up early because **today** is her birthday. She's so excited because their family will go **somewhere**. They **happily** prepared foods and packed all the stuff needed for the trip. They put them **inside** their bags **carefully** and checked if they didn't forget anything. They waited **patiently** for some of her cousins before they go. **Here** they are! Mother exclaimed when she saw Cassie and Aryah coming.

At exactly **9:00 o'clock in the morning**, they left home. They ride in a van. Lhiana **quickly** sits **beside** Aryah because they love chatting and they missed each other so much. **After** thirty minutes of travelling, they are now in Munting Talao-Talao Beach Resort, one of the newly developed resorts in Lucena City. They look around and see the beauty of the place. They swim, eat, and play. They had so much fun. They really enjoyed their stay in that resort.

They went back home with a smile on their faces. Spending the day with family and loved ones is the best. For Lhiana, it's the happiest birthday indeed!

Let us read and study some of the following sentences taken from the selection above.

1. It is **Sunday morning**, Lhiana woke up early. (**Sunday morning** tells when Lhiana woke up early)
(**Today** tells when her birthday is)
2. **Today** is her birthday. (**Happily** describes how they prepared foods)
(**Somewhere** tells where they will go)
3. They **happily** prepared foods and packed all the stuff needed for the trip. (**Carefully** describes how they put their stuff inside their bag, and **inside** tells where they put them)
4. They put their stuff **inside** their bags **carefully**. (**Carefully** describes how they put their stuff inside their bag, and **inside** tells where they put them)
5. At exactly **9:00 o'clock in the morning**, they left home. (**9:00 o'clock in the morning** tells the exact time when they left home)
(**Quickly** describes how Lhiana sits beside Aryah, and **beside** tells where she sits)
6. Lhiana **quickly** sits **beside** Aryah.

What can you say about the highlighted words in each sentence? Right! They tell time, place and how the action is done.

Adverbs of Manner describe how the action is carried out in the sentence. We form adverbs of manner by adding -ly to adjectives. Others, however, do not end in -ly.

Here are some rules in forming adverbs of manner

Rule #1

Adverbs of manner are formed by adding -ly to the adjectives.

Examples:

brave – bravely strong – strongly sad – sadly

Jenny went home **sadly** after hearing the news.

Rule #2

When the adjective ends in -y, change -y to -i and add -ly

Examples:

busy – busily lazy – lazily hungry – hungrily

The branches swayed **lazily** in the cold breeze.

Rule #3

When the adjective ends in -l, add -ly

Examples:

careful – carefully peaceful – peacefully dreadful – dreadfully

Sometimes, I am dreadfully sorry for her.

Rule #4

When the adjective ends with -le, remove the -e and add -y

Examples:

understandable – understandably terrible – terribly humble – humbly

David is understandably reluctant to talk about his problems.

Rule #5

Some adverbs do not end in -ly. They look the same as their adjective counterpart. The distinction between the use of these words will depend on what is being described. For example, if nouns are described by the words fast, well or straight they are therefore used as adjectives. However, if these words described a verb, they are therefore considered adverbs.

Examples:

fast – fast well – well straight – straight

You need to run **fast** if you don't want to miss the bus. (**Fast** describes the verb run therefore, it is used as adverb)
Fast describes the noun Carlo therefore, it is used as adjective)

Adverbs of manner are usually placed either after the main verb or after the object. It cannot be placed between a verb and its direct object.

INCORRECT: She ate greedily the pizza.

CORRECT: She ate the pizza greedily.

CORRECT: She greedily ate the pizza.

Adverbs of Place tell where something is done. They also indicate both location and movement. These may be one-word adverbs or adverbial phrases.

One-word Adverbs	Adverbial Phrases
here	over here/there
somewhere	behind the building
sideways	around the yard

Who has travelled **around the world**?

↓ ↓
 main verb adverb of place

I searched **everywhere** but I didn't find any green stone.

↓ ↓
 main verb adverb of place

The boys must hurry. They **are getting** behind. (preposition)

↓
 Their bus **is falling** behind the big truck. (prepositional phrase)

Adverbs of place are usually placed after the main verb or after the clause that they modify.

Prepositions and prepositional phrases can also be used as adverbs of place.

Adverbs of Time tell when an action happened and for how long. Like adverbs of place, these may be one-word adverbs or phrases.

One-word Adverbs	Adverbial Phrases
today	last year
yesterday	two days ago
tomorrow	at three o'clock

APPENDIX G

Letter of Approval



November 02, 2024

Mrs. Jasmin S. Cabral
Teacher III
Baclaran, Elementary School
Baclaran, Balayan, Batangas.

Dear Mrs. Cabral,

We, the Bachelor Science in Information Technology (BSIT) students from STI College Balay Adona, Kenneth Jardiniano, Mark Jonel Garcia, and Harold Factor are writing to request you support for our thesis project, titled “Grammaria: An Android Based Tutorial Application Grade 6 Students”. This project aims to develop and implement a supplemental learning tool for teachers like yourself in improving student understanding of Conjunction, Adverbs, Verb Tense, and an engaging, interactive approach.

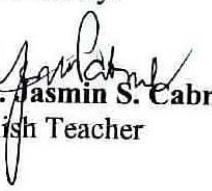
To gather insights and ensure the application meets classroom needs, we would appreciate the opportunity to discuss this project further and gain your valuable input. Please be assured that all information will be treated with the utmost confidentiality and used solely to enhance the app's development.

We greatly appreciate your consideration to our request. Thank you very much.

Sincerely yours,


Zyber Riel L. Adona
Group Coordinator

Approved By:


Mrs. Jasmin S. Cabral
English Teacher

Teacher Evaluation Survey

Do you think this app could be used as a supplemental learning tool for Grade 6 students?

Yes

Was the application content appropriate for Grade 6 students?

Yes

How engaged were you while using the tutorial application?

The level of difficulty is appropriate to G6 pupils.

Do you think the quiz questions is effective on checking the Grade 6 students' understanding?

It is effective for G6 pupils to measure the level of their understanding because by its app, there is an indicator whether their answers are correct or not.

Would you consider using this or similar tutorial application to support Grade 6 students' classroom lessons?

Yes.

Do you think this tutorial application could encourage Grade 6 students to discuss or ask questions about the topic?

Yes.

What improvements would you suggest to make the application more effective for Grade 6 students?

Proper punctuation is needed and must apply.

*W. Jennifer
JASMIN S. CABRAL*

APPENDIX H

Relevant Source Code

Login Module

```
public class LogIn : MonoBehaviour
{
    [SerializeField] private TMP_InputField usernameInputFieldForLogin;
    [SerializeField] private TMP_InputField usernameInputFieldForSignup;
    [SerializeField] public TMP_Text invalidTextOfLogin;
    [SerializeField] public TMP_Text invalidTextOfSignup;
    private UserManager userManager;

    private void Start()
    {
        userManager = FindAnyObjectByType<UserManager>();
    }

    public void OnSignUp()
    {
        string username = usernameInputFieldForSignup.text;
        if (string.IsNullOrEmpty(username))
        {
            invalidTextOfSignup.text = "Username cannot be empty.";
            invalidTextOfSignup.color = Color.red;
            return;
        }
        bool signUpSuccessful = userManager.SignUp(username);
        if (signUpSuccessful)
        {
            usernameInputFieldForSignup.text = "";
            SceneManager.LoadScene("MainMenu");
            UIManager uiManager = FindAnyObjectByType<UIManager>();
            if (uiManager != null)
            {
                uiManager.UpdateUI();
            }
            invalidTextOfSignup.text = "User signed up successfully.";
            invalidTextOfSignup.color = Color.green;

            Debug.Log("User signed up successfully.");
        }
        else
        {
            usernameInputFieldForSignup.text = "";
            invalidTextOfSignup.text = "Username already exists.";
            invalidTextOfSignup.color = Color.red;
        }
    }
}
```

```

        }

    public void OnLogin()
    {
        string username = usernameInputFieldForLogin.text;
        bool loginSuccessful = userManager.Login(username);
        if (loginSuccessful)
        {
            SceneManager.LoadScene("MainMenu");
            UIManager uiManager = FindAnyObjectByType<UIManager>();
            if (uiManager != null)
            {
                uiManager.UpdateUI();
            }
            invalidTextOfLogin.text = "Login successful!";
            invalidTextOfLogin.color = Color.green;
        }
        else
        {
            invalidTextOfLogin.text = "Invalid username!";
            invalidTextOfLogin.color = Color.red;
        }
    }
}

```

Leaderboard Manager

```

public class LeaderboardManager : MonoBehaviour
{
    public GameObject leaderboardEntryPrefab;
    public Transform leaderboardContent;
    public TMP_Text currentUserRankText;
    public TMP_Text currentUserPointsText;
    public TMP_Text currentUserUsernameText;
    private DatabaseReference leaderboardRef;
    public TMP_Text noInternet;

    private void Start()
    {
        FirebaseApp.CheckAndFixDependenciesAsync().ContinueWithOnMainThread(task =>
    {
        FirebaseApp app = FirebaseApp.DefaultInstance;
        leaderboardRef = FirebaseDatabase.DefaultInstance.RootReference.Child("leaderboard");
        // Attempt to display online leaderboard first
        DisplayOnlineLeaderboard();
    });
}

```

```

    });

    noInternet.gameObject.SetActive(false);
}

public void DisplayOnlineLeaderboard()
{
    ClearLeaderboardUI();
    if (Application.internetReachability != NetworkReachability.NotReachable)
    {

leaderboardRef.OrderByChild("points").GetValueAsync().ContinueWithOnMainThread(task =>
{
    if (task.IsCompleted)
    {
        DataSnapshot snapshot = task.Result;
        if (snapshot.Exists)
        {

            Debug.Log("Data snapshot retrieved successfully.");
            LoadLeaderboardEntries(snapshot);
            noInternet.gameObject.SetActive(false);
        }
        else
        {
            Debug.LogWarning("No data found in leaderboard.");
        }
    }
    else
    {
        Debug.LogError("Failed to retrieve data from Firebase.");
    }
});
}
else
{
    DisplayOfflineUserRank();
    Debug.Log("No internet connection.");
    noInternet.gameObject.SetActive(true);
}
}
}

private void LoadLeaderboardEntries(DataSnapshot snapshot)

```

```

{
    List<(string username, int point)> leaderboardEntries = new List<(string, int)>();

    foreach (DataSnapshot userSnapshot in snapshot.Children)
    {
        string username = userSnapshot.Child("username").Value.ToString();
        int point = int.Parse(userSnapshot.Child("points").Value.ToString());
        leaderboardEntries.Add((username, point));
    }
    leaderboardEntries.Sort((a, b) => b.point.CompareTo(a.point));

    for (int i = 0; i < leaderboardEntries.Count; i++)
    {
        CreateLeaderboardEntry(i + 1, leaderboardEntries[i].username,
        leaderboardEntries[i].point);
    }
    DisplayCurrentUserRank(leaderboardEntries);
}

private void DisplayCurrentUserRank(List<(string username, int point)> leaderboardEntries)
{
    User currentUser = UserManager.instance.GetCurrentUser();
    if (currentUser == null)
    {
        Debug.LogWarning("No current user found.");
        return;
    }
    int currentUserRank = -1;
    for (int i = 0; i < leaderboardEntries.Count; i++)
    {
        if (leaderboardEntries[i].username == currentUser.username)
        {
            currentUserRank = i + 1;
            break;
        }
    }
    if (currentUserRank > 0)
    {
        currentUserRankText.text = $"Rank: {currentUserRank}";
        currentUserPointsText.text = $"Points: {currentUser.point}";
        currentUserUsernameText.text = $"Username: {currentUser.username}";
    }
    else
}

```

```

        {
            currentUserRankText.text = "Rank: N/A";
            currentUserPointsText.text = $"Points: {currentUser.point}";

            currentUserUsernameText.text = $"Username: {currentUser.username}";
        }
    }

private void DisplayOfflineUserRank()
{
    User curentUser = UserManager.instance.GetCurrentUser();

    currentUserUsernameText.text = $"Username: {curentUser.username}";
    currentUserRankText.text = "Rank: N/A";
    currentUserPointsText.text = $"Points: {curentUser.point}";
}

private void CreateLeaderboardEntry(int rank, string username, int point)
{
    GameObject entry = Instantiate(leaderboardEntryPrefab, leaderboardContent);
    TMP_Text rankText = entry.transform.Find("RankText").GetComponent<TMP_Text>();
    TMP_Text usernameText =
        entry.transform.Find("UsernameText").GetComponent<TMP_Text>();
    TMP_Text pointText = entry.transform.Find("PointText").GetComponent<TMP_Text>();

    rankText.text = rank.ToString();
    usernameText.text = username;
    pointText.text = point.ToString();
}

private void ClearLeaderboardUI()
{
    foreach (Transform child in leaderboardContent)
    {
        Destroy(child.gameObject);
    }

    UserManager.instance.SyncLocalDataToFirebase(); // Optional: sync local data
}
}

// Helper class to hold the list of users
[System.Serializable]

```

```

private class UserList
{
    public List<User> users;
}
}

```

Tutorial Video

```

public class VideoPlayBack : MonoBehaviour
{
    [SerializeField] private RectTransform videoScreen; // The green video screen object
    [SerializeField] private RectTransform whiteboard; // The green video screen object
    [SerializeField] private RectTransform leftButtons; // The green video screen object
    [SerializeField] private RectTransform rightButtons; // The green video screen object

    [SerializeField] private Button MiniGameButton;
    [SerializeField] private Button BackButton;
    [SerializeField] private GameObject Teacher;

    public VideoClip[] videoClip;
    private VideoPlayer videoplayer;
    private int videoClipIndex;

    private bool isMuted = false;

    private void Awake()
    {
        videoplayer = GetComponent<VideoPlayer>();
    }
    private void Start()
    {
        videoplayer.clip = videoClip[0];
        UpdateClipNumber();

        UpdateButtonStates();

        UpdateProgressBar(); // Initialize the progress bar

        // Add listener for slider
        // progressBar.onValueChanged.AddListener(OnSliderValueChanged); // Add listener for slider
        fullScreenButton.onClick.AddListener(ToggleFullscreen);
        PlayCircleButton.onClick.AddListener(playPause);
        playPauseButton.onClick.AddListener(playPause);
    }
}

```

```

        muteButton.onClick.AddListener(ToggleMute);
        nextButton.onClick.AddListener(playNext);
        previousButton.onClick.AddListener(playPrevious);

        videoplayer.loopPointReached += OnVideoFinished; // Add event listener for video end
    }

    private void Update()
    {
        if (videoplayer.isPlaying)
        {
            UpdateProgressBar(); // Continuously update progress bar and time display
        }
    }

    // Event handler when the video finishes
    private void OnVideoFinished(VideoPlayer vp)
    {
        string tutorialName = videoplayer.clip.name;

        UserManager.instance.MarkTutorialAsCompleted(tutorialName);

        PlayCircleButton.gameObject.SetActive(true);
        playPauseButton.image.sprite = play; // Change the button image to "play" when video
finishes
    }

    // Toggle mute and unmute
    private void ToggleMute()
    {
        isMuted = !isMuted; // Toggle the mute state
        videoplayer.SetDirectAudioMute(0, isMuted); // Mute/unmute audio on track 0

        if (isMuted)
        {
            muteButton.image.sprite = muteImage; // Show muted icon
        }
        else
        {
            muteButton.image.sprite = unmuteImage; // Show unmuted icon
        }
    }

```

```

private IEnumerator PlayPreparedVideo()
{
    videoplayer.Prepare();
    while (!videoplayer.isPrepared)
    {
        yield return null; // Wait until the video is prepared
    }
    videoplayer.Play();
    PlayCircleButton.gameObject.SetActive(false);
    playPauseButton.image.sprite = pause;
}

private void playNext()
{
    videoClipIndex++;
    if (videoClipIndex >= videoClip.Length)
    {
        videoClipIndex = 0;

    }
    videoplayer.clip = videoClip[videoClipIndex];
    UpdateClipNumber();
    UpdateButtonStates();
    ResetProgressBar();
    StartCoroutine(PlayPreparedVideo()); // Play only when the video is prepared
}

private void playPrevious()
{
    videoClipIndex--;
    if (videoClipIndex < 0)
    {
        videoClipIndex = videoClip.Length - 1;
    }
    videoplayer.clip = videoClip[videoClipIndex];
    UpdateClipNumber();
    UpdateButtonStates();
    ResetProgressBar();
    StartCoroutine(PlayPreparedVideo()); // Play only when the video is prepared
}
}

```

Simple Tenses Quiz

```
public class QuestionManagerForSimpleTenses : MonoBehaviour
{
    [SerializeField] private QuizDataForSimpleTenses questionDataScriptable;
    [SerializeField] private List<TMP_Text> wordTexts; // List to hold the words
    [SerializeField] public List<GameObject> wordItems; // List of word GameObjects
    private int currentQuestionIndex = 0;
    private QuestionForSimpleTenses currentQuestion;
    private List<QuestionForSimpleTenses> selectedQuestions; // List to store selected questions
    for the current game
    [SerializeField] private TMP_Text timerText;
    private float timeRemaining = 300f;

    private bool isPaused = false;

    [SerializeField] private GameObject checkIcon;
    [SerializeField] private GameObject xIcon;

    [SerializeField] private AudioSource src;
    [SerializeField] private AudioClip correct, wrong, click_sound;

    public Button hintButton;
    public Button buyHintButton; // Button to buy hints
    public Button resetButton;
    public GameObject QuizPanel;
    public GameObject ResultPanel;
    public TMP_Text ScoreText;
    public TMP_Text resultText;
    public TMP_Text PointsText;
    public TMP_Text bonusCoinsText;
    public TMP_Text NumberText;
    public Button pauseButton;
    public Button resumeButton;

    public int Score;
    public int Points;
    public int Coins;

    UIManager uiManager;
    User currentUser;

    private void Start()
    {
```

```

selectedQuestions = SelectRandomQuestions(questionDataScriptable.questions, 10);
SetQuestion();
StartCoroutine(TimerCoroutine());
pauseButton.onClick.AddListener(PauseTimer);

resumeButton.onClick.AddListener(OnResumeButtonClick);
hintButton.onClick.AddListener>ShowHint();
resetButton.onClick.AddListener(ResetSelectedWords);
buyHintButton.onClick.AddListener(BuyHint);

uiManager = FindAnyObjectByType<UIManager>();
currentUser = UserManager.instance.GetCurrentUser();
}

private void UpdateTimerDisplay()
{
    TimeSpan timeSpan = TimeSpan.FromSeconds(timeRemaining);
    timerText.text = timeSpan.ToString(@"mm\:ss");
}

private IEnumerator TimerCoroutine()
{
    while (timeRemaining > 0)
    {
        while (isPaused)
        {
            yield return null;
        }
        yield return new WaitForSeconds(1);
        timeRemaining--;
        UpdateTimerDisplay();
    }
    if (timeRemaining <= 0)
    {
        GameOver();
    }
}

public void PauseTimer()
{
    isPaused = true;
}

```

```

public void OnResumeButtonClick()
{
    isPaused = false;
}

public void ShowHint()
{
    if (currentUser.hint > 0)
    {
        foreach (var word in wordItems)
        {
            var wordComponent = word.GetComponent<CorrectWords>();
            if (wordComponent != null)
            {
                wordComponent.ShowHint();
                break; // Only show the hint for one word
            }
        }

        currentUser.hint -= 1;
        UserManager.instance.SaveUsers(); // Save the updated user data

        // Update UI to reflect the new coins and hint count
        if (uiManager != null)
        {
            uiManager.UpdateUI(); // Update hint count
        }
        hintButton.interactable = false;
    }
    else
    {

        Debug.Log("No hints available");
    }
}

public void BuyHint()
{
    if (currentUser != null)
    {
        if (currentUser.coin >= 100)
        {

```

```

        currentUser.coin -= 100; // Deduct 100 coins for purchasing a hint
        currentUser.hint += 1; // Add 1 hint to the user's hint count

        UserManager.instance.SaveUsers(); // Save the updated user data

        // Update UI to reflect the new coins and hint count
        if (uiManager != null)
        {
            uiManager.UpdateUI(); // Update hint count
        }

        Debug.Log("Hint purchased. Current coins: " + currentUser.coin + " Hints: " +
        currentUser.hint);
    }
    else
    {
        Debug.Log("Not enough coins to purchase a hint.");
    }
}
}

private void GameOver()
{
    QuizPanel.SetActive(false);
    ResultPanel.SetActive(true);

    ScoreText.text = Score + "/10";
    PointsText.text = Points.ToString();

    if (Score >= 8)
    {
        resultText.text = "Passed";
        resultText.color = new Color(0f, 0.4113207f, 0.01012429f); // dark green
    }
    else
    {
        resultText.text = "Failed";
        resultText.color = Color.red; // Change the color to red for "Failed"
    }
    if (Score == 10)
    {
        Coins = 100;
    }
}

```

```

else if (Score == 9)
{
    Coins = 80;
}
else if (Score == 8)
{
    Coins = 50;
}
else
{
    Coins = 0;
}
bonusCoinsText.text = Coins.ToString();

// Update the current user's points and coins in the UserManager
UpdateUserProgress(Points, Coins);

```

```

// Get the UIManager instance and update points and coins
uiManager.UpdateUI();
}

```

Perfect Tenses Quiz

```

public class QuestionManagerForPerfectTenses : MonoBehaviour
{
    public static QuestionManagerForPerfectTenses instance;

    [SerializeField] private QuizDataForPerfectTenses questionDataScriptable;
    [SerializeField] private CorrectSequence[] optionsWordList;

    [SerializeField] private TMP_Text timerText;
    private float timeRemaining = 300f;

    [SerializeField] private Button hintButton;

    [SerializeField] private GameObject checkIcon;
    [SerializeField] private GameObject xIcon;
    [SerializeField] private AudioSource src;
    [SerializeField] private AudioClip correct, wrong, click_sound;

    public int currentQuestionIndex = 0;
    public List<QuestionDataForPerfectTenses> selectedQuestions; // List to store selected
questions for the current game

```

```

private List<string> selectedWords = new List<string>(); // List to keep track of selected words

public Button buyHintButton;
public GameObject QuizPanel;
public GameObject ResultPanel;
public TMP_Text ScoreText;
public TMP_Text resultText;
public TMP_Text PointsText;
public TMP_Text bonusCoinsText;

public TMP_Text NumberText;
public Button pauseButton;
public Button resumeButton;

public int Score;
public int Points;
public int Coins;
private bool isPaused = false;

UIManager uiManager;
User currentUser;

private void Awake()
{
    if (instance == null)
        instance = this;
    else
        Destroy(this.gameObject);
}

void Start()
{
    // Shuffle and select questions at the start
    selectedQuestions = SelectRandomQuestions(questionDataScriptable.questions, 10);
    SetQuestion();
    StartCoroutine(TimerCoroutine()); // Start the timer

    pauseButton.onClick.AddListener(PauseTimer);
    resumeButton.onClick.AddListener(OnResumeButtonClick);
    hintButton.onClick.AddListener>ShowHint(); // Assign the ShowHint method to the button click event
}

```

```

buyHintButton.onClick.AddListener(BuyHint);
uiManager = FindAnyObjectByType<UIManager>();
currentUser = UserManager.instance.GetCurrentUser();
}

void UpdateTimerDisplay()
{
    TimeSpan timeSpan = TimeSpan.FromSeconds(timeRemaining);
    timerText.text = timeSpan.ToString(@"mm\:ss"); // Format time as minutes and seconds
}

IEnumerator TimerCoroutine()
{
    while (timeRemaining > 0)
    {
        while (isPaused)
        {
            yield return null; // Wait here until isPaused is false
        }
        yield return new WaitForSeconds(1);
        timeRemaining--;
        UpdateTimerDisplay();
    }

    // Time's up!
    if (timeRemaining == 0)
    {
        GameOver();
    }
}

public void PauseTimer()
{
    isPaused = true;
}

public void OnResumeButtonClick()
{
    isPaused = false;

}

public void ShowHint()

```

```

{
    if (currentUser.hint > 0)
    {
        QuestionDataForPerfectTenses currentQuestion =
selectedQuestions[currentQuestionIndex];
        string correctWord =
currentQuestion.correctSentenceWords[CorrectSequence.currentAnswerIndex];

        // Hide the correct word option from the options list
        foreach (var wordOption in optionsWordList)
        {
            if (wordOption.wordValue == correctWord &&
wordOption.gameObject.activeInHierarchy)
            {
                // Simulate the word being selected by invoking the button click programmatically
                wordOption.GetComponent<Image>().color = Color.blue;
                break;
            }
        }
        AudioManager.instance.PlaySoundEffect(click_sound);

        currentUser.hint -= 1;
        UserManager.instance.SaveUsers(); // Save the updated user data

        // Update UI to reflect the new coins and hint count
        if (uiManager != null)
        {
            uiManager.UpdateUI(); // Update hint count
        }
        hintButton.interactable = false;
    }
    else
    {
        Debug.Log("No hints available");
    }
}

public void BuyHint()
{
    if (currentUser != null)
    {
        if (currentUser.coin >= 100)
        {

```

```

        currentUser.coin -= 100; // Deduct 100 coins for purchasing a hint
        currentUser.hint += 1; // Add 1 hint to the user's hint count

        UserManager.instance.SaveUsers(); // Save the updated user data

        // Update UI to reflect the new coins and hint count
        if (uiManager != null)
        {
            uiManager.UpdateUI(); // Update hint count
        }

        Debug.Log("Hint purchased. Current coins: " + currentUser.coin + " Hints: " +
        currentUser.hint);
    }
    else
    {
        Debug.Log("Not enough coins to purchase a hint.");
    }
}

void GameOver()
{
    QuizPanel.SetActive(false);
    ResultPanel.SetActive(true);
    ScoreText.text = Score + "/10";
    PointsText.text = Points.ToString();

    if (Score >= 8)
    {
        resultText.text = "Passed";
        resultText.color = new Color(0f, 0.4113207f, 0.01012429f); // dark green
    }
    else
    {
        resultText.text = "Failed";
        resultText.color = Color.red; // Change the color to red for "Failed"
    }
    if (Score == 10)
    {
        Coins = 100;
    }
}

```

```

else if (Score == 9)
{
    Coins = 80;
}
else if (Score == 8)
{
    Coins = 50;
}
else
{
    Coins = 0;
}
bonusCoinsText.text = Coins.ToString();

// Update the current user's points and coins in the UserManager
UpdateUserProgress(Points, Coins);

// Get the UIManager instance and update points and coins
UIManager uiManager = FindAnyObjectOfType<UIManager>();
if (uiManager != null)

{
    uiManager.UpdateUI();
}
}

```

Coordinating Conjunction Quiz

```

public class QuestionManagerForCoordinating : MonoBehaviour
{
    [SerializeField] private QuizDataForCoordinating questionDataScriptable;
    [SerializeField] private TMP_Text questionText1;
    [SerializeField] private TMP_Text questionText2;
    [SerializeField] private List<DraggableScriptForCoordinating> answers; // List of draggable
answers
    [SerializeField] private AnswerBox answerBox; // Single answer box

    private int currentQuestionIndex = 0;
    private QuestionDataForCoordinating currentQuestion;

    private List<QuestionDataForCoordinating> selectedQuestions; // List to store selected
questions for the current game

```

```

[SerializeField] private TMP_Text timerText;
private float timeRemaining = 300f;
private bool isPaused = false;

[SerializeField] private GameObject checkIcon; // GameObject to display check icon
[SerializeField] private GameObject xIcon;

[SerializeField] private AudioSource src;
[SerializeField] private AudioClip correct, wrong;

public Button hintButton;
public Button buyHintButton;

public GameObject QuizPanel;
public GameObject ResultPanel;

public TMP_Text ScoreText;
public TMP_Text resultText;
public TMP_Text PointsText;
public TMP_Text bonusCoinsText;
public TMP_Text NumberText;
public Button pauseButton;
public Button resumeButton;

public int Score;
public int Points;
public int Coins;

UIManager uiManager;
User currentUser;

private void Start()
{
    selectedQuestions =
SelectRandomQuestions(questionDataScriptable.questionsForCoordinating, 10);
    SetQuestion();
    StartCoroutine(TimerCoroutine()); // Start the timer

    pauseButton.onClick.AddListener(PauseTimer);
    resumeButton.onClick.AddListener(OnResumeButtonClick);
    hintButton.onClick.AddListener>ShowHint);
    buyHintButton.onClick.AddListener(BuyHint);
}

```

```

uiManager = FindAnyObjectOfType<UIManager>();
currentUser = UserManager.instance.GetCurrentUser();
}

void UpdateTimerDisplay()
{
    TimeSpan timeSpan = TimeSpan.FromSeconds(timeRemaining);
    timerText.text = timeSpan.ToString(@"mm\:ss"); // Format time as minutes and seconds
}

IEnumerator TimerCoroutine()
{
    while (timeRemaining > 0)
    {
        while (isPaused)
        {
            yield return null; // Wait here until isPaused is false
        }
        yield return new WaitForSeconds(1);
        timeRemaining--;
        UpdateTimerDisplay();
    }

    // Time's up!
    if (timeRemaining == 0)
    {
        GameOver();
    }
}

public void PauseTimer()
{
    isPaused = true;
}

public void OnResumeButtonClick()
{
    isPaused = false;
}

private void ShowHint()
{
    if (currentUser.hint > 0)
    {
        // Find all incorrect answers
        List<DraggableScriptForCoordinating> incorrectAnswers = answers.Where(a =>

```

```

!a.isCorrectAnswer).ToList();

if (incorrectAnswers.Count > 0)
{
    // Randomly select one incorrect answer to remove
    DraggableScriptForCoordinating answerToRemove =
incorrectAnswers[UnityEngine.Random.Range(0, incorrectAnswers.Count)];
    answerToRemove.gameObject.SetActive(false); // Hide the answer

    currentUser.hint -= 1;
    UserManager.instance.SaveUsers(); // Save the updated user data

    // Update UI to reflect the new coins and hint count
    if (uiManager != null)
    {
        uiManager.UpdateUI(); // Update hint count
    }
    hintButton.interactable = false; // Disable the hint button after use
}

else
{
    Debug.Log("No hints available");
}

public void BuyHint()
{
    if (currentUser != null)
    {
        if (currentUser.coin >= 100)
        {
            currentUser.coin -= 100; // Deduct 100 coins for purchasing a hint
            currentUser.hint += 1; // Add 1 hint to the user's hint count
            UserManager.instance.SaveUsers(); // Save the updated user data

            // Update UI to reflect the new coins and hint count
            if (uiManager != null)
            {
                uiManager.UpdateUI(); // Update hint count
            }
        }
    }
}

```

```

        Debug.Log("Hint purchased. Current coins: " + currentUser.coin + " Hints: " +
currentUser.hint);
    }
    else
    {
        Debug.Log("Not enough coins to purchase a hint.");
    }
}

void GameOver()
{
    QuizPanel.SetActive(false);
    ResultPanel.SetActive(true);
    ScoreText.text = Score + "/10";
    PointsText.text = Points.ToString();

    if (Score >= 8)
    {
        resultText.text = "Passed";
        resultText.color = new Color(0f, 0.4113207f, 0.01012429f); // dark green
    }
    else
    {
        resultText.text = "Failed";
        resultText.color = Color.red; // Change the color to red for "Failed"
    }
    if (Score == 10)
    {

        Coins = 100;
    }
    else if (Score == 9)
    {
        Coins = 80;
    }
    else if (Score == 8)
    {
        Coins = 50;
    }
    else
    {
        Coins = 0;
    }
}

```

```

        }

        bonusCoinsText.text = Coins.ToString(); ;

        // Update the current user's points and coins in the UserManager
        UpdateUserProgress(Points, Coins);

        // Get the UIManager instance and update points and coins
        UIManager uiManager = FindAnyObjectByType<UIManager>();
        if (uiManager != null)
        {
            uiManager.UpdateUI();
        }
    }
}

```

Subordinating Conjunction Quiz

```

public class QuizManagerForSubordinating : MonoBehaviour
{
    public static QuizManagerForSubordinating instance;

    [SerializeField] private QuizDataScriptable questionDataScriptable;
    [SerializeField] private TMP_Text questionText1;

    [SerializeField] private TMP_Text questionText2;
    [SerializeField] private WordData[] answerWordList;
    [SerializeField] private WordData[] optionsWordList;

    [SerializeField] private TMP_Text timerText;
    private float timeRemaining = 300f003B

    [SerializeField] private Button hintButton;

    [SerializeField] private GameObject checkIcon; // GameObject to display check icon
    [SerializeField] private GameObject xIcon;

    [SerializeField] private AudioSource src;
    [SerializeField] private AudioClip correct, wrong, click_sound;

    private char[] wordsArray = new char[12];

    private List<int> selectedWordsIndex;
    private int currentAnswerIndex = 0, currentQuestionIndex = 0;
    private bool correctAnswer = true;
    private string answerWord;
}

```

```

private bool isPaused = false;

public Button buyHintButton;
public GameObject QuizPanel;
public GameObject ResultPanel;

public TMP_Text ScoreText;
public TMP_Text resultText;
public TMP_Text PointsText;
public TMP_Text bonusCoinsText;
public TMP_Text NumberText;
public Button pauseButton;
public Button resumeButton;

private List<QuestionData> selectedQuestions; // List to store selected questions for the
current game
private int totalQuestion = 10; // Number of questions per game
public int Score;
public int Points;
public int Coins;

UIManager uiManager;
User currentUser;

private void Awake()
{
    if (instance == null)
        instance = this;
    else
        Destroy(this.gameObject);
}

void Start()
{
    // Shuffle and select 10 questions at the start
    selectedQuestions = SelectRandomQuestions(questionDataScriptable.questions,
totalQuestion);
    ResultPanel.SetActive(false);
    selectedWordsIndex = new List<int>();
    checkIcon.SetActive(false); // Initially hide the check icon
    xIcon.SetActive(false);
    SetQuestion();
    StartCoroutine(TimerCoroutine()); // Start the timer
}

```

```

pauseButton.onClick.AddListener(PauseTimer);
resumeButton.onClick.AddListener(OnResumeButtonClick);

hintButton.onClick.AddListener>ShowHint); // Assign the ShowHint method to the button
click event
buyHintButton.onClick.AddListener(BuyHint);
uiManager = FindAnyObjectByType<UIManager>();

currentUser = UserManager.instance.GetCurrentUser();
}

void UpdateTimerDisplay()
{
    TimeSpan timeSpan = TimeSpan.FromSeconds(timeRemaining);
    timerText.text = timeSpan.ToString(@"mm\:ss"); // Format time as minutes and seconds
}

IEnumerator TimerCoroutine()
{
    while (timeRemaining > 0)
    {
        while (isPaused)
        {
            yield return null; // Wait here until isPaused is false
        }
        yield return new WaitForSeconds(1);
        timeRemaining--;
        UpdateTimerDisplay();
    }

    // Time's up!
    if (timeRemaining == 0)
    {
        GameOver();
    }
}

public void PauseTimer()
{
    isPaused = true;
}

public void OnResumeButtonClick()

```

```

    {

        isPaused = false;
    }

public void ShowHint()
{
    if (currentUser.hint > 0)
    {
        if (answerWord.Length > 0)
        {

answerWordList[currentAnswerIndex].SetWord(char.ToUpper(answerWord[currentAnswerIndex
]));
            hintButton.interactable = false; // Optionally disable the hint button after use

            AudioManager.instance.PlaySoundEffect(click_sound);
        }
        currentUser.hint -= 1;
        UserManager.instance.SaveUsers(); // Save the updated user data

        // Update UI to reflect the new coins and hint count
        if (uiManager != null)
        {
            uiManager.UpdateUI(); // Update hint count
        }
        hintButton.interactable = false;
    }
    else
    {
        Debug.Log("No hints available");
    }
}

public void BuyHint()
{
    if (currentUser != null)
    {

        if (currentUser.coin >= 100)
        {
            currentUser.coin -= 100; // Deduct 100 coins for purchasing a hint
            currentUser.hint += 1; // Add 1 hint to the user's hint count
    }
}

```

```

UserManager.instance.SaveUsers(); // Save the updated user data

// Update UI to reflect the new coins and hint count
if (uiManager != null)
{
    uiManager.UpdateUI(); // Update hint count
}

Debug.Log("Hint purchased. Current coins: " + currentUser.coin + " Hints: " +
currentUser.hint);
}

else
{
    Debug.Log("Not enough coins to purchase a hint.");
}
}

void GameOver()
{
    QuizPanel.SetActive(false);
    ResultPanel.SetActive(true);
    ScoreText.text = Score + "/" + totalQuestion;
    PointsText.text = Points.ToString();

    if (Score >= 8)
    {
        resultText.text = "Passed";
        resultText.color = new Color(0f, 0.4113207f, 0.01012429f); // dark green
    }

    else
    {
        resultText.text = "Failed";
        resultText.color = Color.red; // Change the color to red for "Failed"
    }
    if (Score == 10)
    {
        Coins = 100;
    }
    else if (Score == 9)
    {
        Coins = 80;
    }
}

```

```

        }
        else if (Score == 8)
        {
            Coins = 50;
        }
        else
        {
            Coins = 0;
        }
    bonusCoinsText.text = Coins.ToString();;

    // Update the current user's points and coins in the UserManager
    UpdateUserProgress(Points, Coins);

    // Get the UIManager instance and update points and coins
    UIManager uiManager = FindAnyObjectOfType<UIManager>();
    if (uiManager != null)
    {
        uiManager.UpdateUI();
    }
}

```

Adverb Quiz

```

public class QuestionManagerForManner : MonoBehaviour
{
    [SerializeField] private QuizDataForManner questionDataScriptable;
    [SerializeField] private TMP_Text questionText1;
    [SerializeField] private List<DraggableScriptForManner> answers; // List of draggable
answers
    [SerializeField] private AnswerBox answerBox; // Single answer box

    private int currentQuestionIndex = 0;
    private Question currentQuestion;

    private List<Question> selectedQuestions; // List to store selected questions for the current
game

    [SerializeField] private TMP_Text timerText;
    private float timeRemaining = 300f;
    private bool isPaused = false;

    [SerializeField] private GameObject checkIcon; // GameObject to display check icon
    [SerializeField] private GameObject xIcon;

```

```

[SerializeField] private AudioSource src;
[SerializeField] private AudioClip correct, wrong, click_sound;

public Button hintButton;
public Button buyHintButton;
public GameObject QuizPanel;
public GameObject ResultPanel;

public TMP_Text ScoreText;
public TMP_Text resultText;
public TMP_Text PointsText;
public TMP_Text bonusCoinsText;
public TMP_Text NumberText;
public Button pauseButton;

public Button resumeButton;

public int Score;
public int Points;
public int Coins;

UIManager uiManager;
User currentUser;

private void Start()
{
    selectedQuestions = SelectRandomQuestions(questionDataScriptable.questions, 10);
    SetQuestion();
    StartCoroutine(TimerCoroutine()); // Start the timer

    pauseButton.onClick.AddListener(PauseTimer);
    resumeButton.onClick.AddListener(OnResumeButtonClick);
    buyHintButton.onClick.AddListener(BuyHint);
    hintButton.onClick.AddListener>ShowHint);

    uiManager = FindAnyObjectByType<UIManager>();
    currentUser = UserManager.instance.GetCurrentUser();
}

void UpdateTimerDisplay()
{
    TimeSpan timeSpan = TimeSpan.FromSeconds(timeRemaining);
    timerText.text = timeSpan.ToString(@ "mm\:ss"); // Format time as minutes and seconds
}

```

```

IEnumerator TimerCoroutine()
{
    while (timeRemaining > 0)
    {
        while (isPaused)

        {
            yield return null; // Wait here until isPaused is false
        }
        yield return new WaitForSeconds(1);
        timeRemaining--;
        UpdateTimerDisplay();
    }

    // Time's up!
    if (timeRemaining == 0)
    {
        GameOver();
    }
}

public void PauseTimer()
{
    isPaused = true;
}

public void OnResumeButtonClick()
{
    isPaused = false;
}

private void ShowHint()
{

    if (currentUser.hint > 0)
    {
        // Find all incorrect answers
        List<DraggableScriptForManner> incorrectAnswers = answers.Where(a =>
!a.isCorrectAnswer).ToList();

        if (incorrectAnswers.Count > 0)
        {

```

```

        // Randomly select one incorrect answer to remove
        DraggableScriptForManner answerToRemove =
incorrectAnswers[UnityEngine.Random.Range(0, incorrectAnswers.Count)];
        answerToRemove.gameObject.SetActive(false); // Hide the answer

        hintButton.interactable = false; // Disable the hint button after use
    }

    AudioManager.instance.PlaySoundEffect(click_sound);

    currentUser.hint -= 1;
    UserManager.instance.SaveUsers(); // Save the updated user data

    // Update UI to reflect the new coins and hint count
    if (uiManager != null)
    {
        uiManager.UpdateUI(); // Update hint count
    }
}
else
{
    Debug.Log("No hints available");
}
}

public void BuyHint()
{
    if (currentUser != null)
    {
        if (currentUser.coin >= 100)
        {
            currentUser.coin -= 100; // Deduct 100 coins for purchasing a hint
            currentUser.hint += 1; // Add 1 hint to the user's hint count

            UserManager.instance.SaveUsers(); // Save the updated user data

            // Update UI to reflect the new coins and hint count
            if (uiManager != null)
            {
                uiManager.UpdateUI(); // Update hint count
            }

            Debug.Log("Hint purchased. Current coins: " + currentUser.coin + " Hints: " +
currentUser.hint);
        }
    }
}

```

```

        }
    else
    {
        Debug.Log("Not enough coins to purchase a hint.");
    }
}

void GameOver()
{
    QuizPanel.SetActive(false);
    ResultPanel.SetActive(true);
    ScoreText.text = Score + "/10";
    PointsText.text = Points.ToString();

    if (Score >= 8)
    {
        resultText.text = "Passed";
        resultText.color = new Color(0f, 0.4113207f, 0.01012429f); // dark green
    }
    else
    {
        resultText.text = "Failed";
        resultText.color = Color.red; // Change the color to red for "Failed"
    }
    if (Score == 10)
    {

        Coins = 100;
    }
    else if (Score == 9)
    {
        Coins = 80;
    }
    else if (Score == 8)
    {
        Coins = 50;
    }
    else
    {
        Coins = 0;
    }
    bonusCoinsText.text = Coins.ToString(); ;
}

```

```

// Update the current user's points and coins in the UserManager
UpdateUserProgress(Points, Coins);

// Get the UIManager instance and update points and coins
UIManager uiManager = FindAnyObjectByType<UIManager>();
if (uiManager != null)
{
    uiManager.UpdateUI();
}
}

```

Adverb Quiz

```

public class QuestionManagerForTime : MonoBehaviour
{
    [SerializeField] private QuizDataForTime questionDataScriptable;
    [SerializeField] private TMP_Text questionTexts; // List to hold the texts
    [SerializeField] private List<TMP_Text> optionTexts; // List to hold the 3 option texts
    [SerializeField] private GameObject questions; // List of answer options (GameObjects)

    [SerializeField] private List<GameObject> answerOptions; // List of answer options
    (GameObjects)

    private int currentQuestionIndex = 0;
    private QuestionForTime currentQuestion;

    private List<QuestionForTime> selectedQuestions; // List to store selected questions for the
    current game

    [SerializeField] private TMP_Text timerText;
    private float timeRemaining = 300f;
    private bool isPaused = false;

    [SerializeField] private GameObject checkIcon; // GameObject to display check icon
    [SerializeField] private GameObject xIcon;

    [SerializeField] private AudioSource src;
    [SerializeField] private AudioClip correct, wrong, click_sound;

    public Button hintButton;
    public Button buyHintButton;
    public GameObject QuizPanel;
    public GameObject ResultPanel;
}

```

```

public TMP_Text ScoreText;
public TMP_Text resultText;
public TMP_Text PointsText;
public TMP_Text bonusCoinsText;
public TMP_Text NumberText;
public Button pauseButton;
public Button resumeButton;

public int Score;
public int Points;
public int Coins;

UIManager uiManager;
User currentUser;

private void Start()
{
    selectedQuestions = SelectRandomQuestions(questionDataScriptable.questions, 10);
    SetQuestion();
    StartCoroutine(TimerCoroutine()); // Start the timer

    pauseButton.onClick.AddListener(PauseTimer);
    resumeButton.onClick.AddListener(OnResumeButtonClick);
    hintButton.onClick.AddListener>ShowHint);
    buyHintButton.onClick.AddListener(BuyHint);

    uiManager = FindAnyObjectByType<UIManager>();
    currentUser = UserManager.instance.GetCurrentUser();
}

void UpdateTimerDisplay()
{
    TimeSpan timeSpan = TimeSpan.FromSeconds(timeRemaining);
    timerText.text = timeSpan.ToString(@"mm\:ss"); // Format time as minutes and seconds
}

IEnumerator TimerCoroutine()
{
    while (timeRemaining > 0)
    {
        while (isPaused)
        {
            yield return null; // Wait here until isPaused is false
        }
    }
}

```

```

yield return new WaitForSeconds(1);
timeRemaining--;
UpdateTimerDisplay();
}
// Time's up!

if (timeRemaining <= 0)
{
    GameOver();
}
}

public void PauseTimer()
{
    isPaused = true;
}

public void OnResumeButtonClick()
{
    isPaused = false;
}

private void ShowHint()
{
    if (currentUser.hint > 0)
    {
        // Find the next unmatched question in Column 1
        for (int i = 0; i < optionTexts.Count; i++)
        {
            var questionItem = questions.GetComponent<MatchItem>();

            // Check if this question is active and has not been matched yet
            if (questionItem != null && questionItem.gameObject.activeSelf)
            {
                GameObject correctTarget = questionItem.GetCorrectTarget();
                if (correctTarget != null)
                {
                    // Highlight the question in Column 1
                    Image questionImage = questionItem.GetComponent<Image>();
                    if (questionImage != null)

{
                questionImage.color = Color.red; // Highlight question in Column 1

```

```

        }

        // Highlight the correct answer option in Column 2
        Image targetImage = correctTarget.GetComponent<Image>();
        if (targetImage != null)
        {
            targetImage.color = Color.red; // Highlight correct answer in Column 2
        }

        break; // Exit the loop after highlighting one pair
    }
}
}

AudioManager.instance.PlaySoundEffect(click_sound);
hintButton.interactable = false;

// Update UI to reflect the new coins and hint count
if (uiManager != null)
{
    uiManager.UpdateUI(); // Update hint count
}
else
{
    Debug.Log("No hints available");
}
}

public void BuyHint()
{
    if (currentUser != null)
    {
        if (currentUser.coin >= 100)

        {
            currentUser.coin -= 100; // Deduct 100 coins for purchasing a hint
            currentUser.hint += 1; // Add 1 hint to the user's hint count

            UserManager.instance.SaveUsers(); // Save the updated user data

            // Update UI to reflect the new coins and hint count
            if (uiManager != null)
            {

```

```

        uiManager.UpdateUI(); // Update hint count
    }

    Debug.Log("Hint purchased. Current coins: " + currentUser.coin + " Hints: " +
currentUser.hint);
}
else
{
    Debug.Log("Not enough coins to purchase a hint.");
}
}

}

void GameOver()
{
    QuizPanel.SetActive(false);
    ResultPanel.SetActive(true);
    ScoreText.text = Score + "/15";
    PointsText.text = Points.ToString();

    if (Score >= 11)
    {
        resultText.text = "Passed";
        resultText.color = new Color(0f, 0.4113207f, 0.01012429f); // dark green
    }

    else
    {
        resultText.text = "Failed";
        resultText.color = Color.red; // Change the color to red for "Failed"
    }
    if (Score >= 15)
    {
        Coins = 100;
    }
    else if (Score >= 13)
    {
        Coins = 80;
    }
    else if (Score >= 11)
    {
        Coins = 50;
    }
}

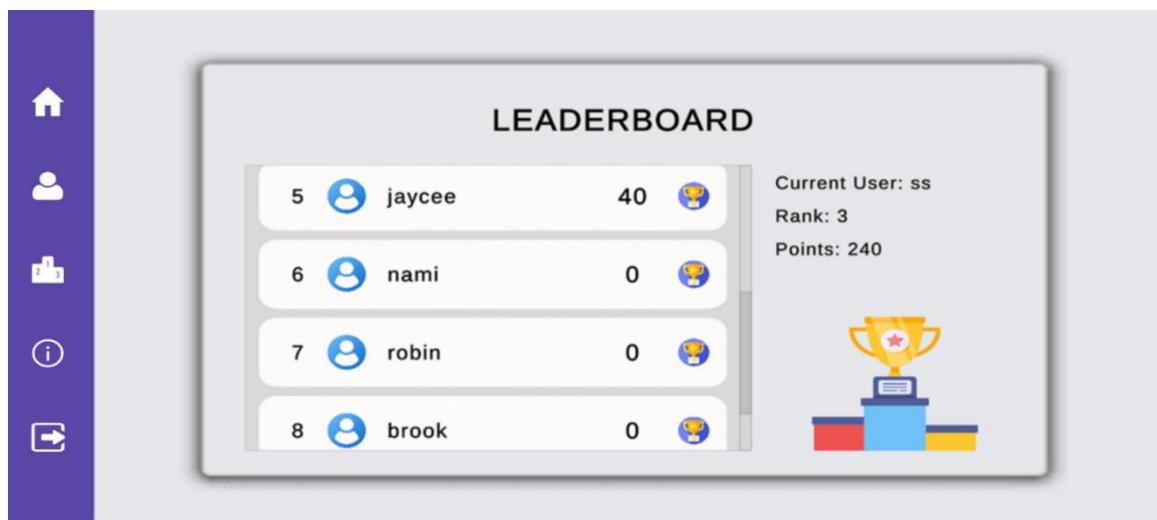
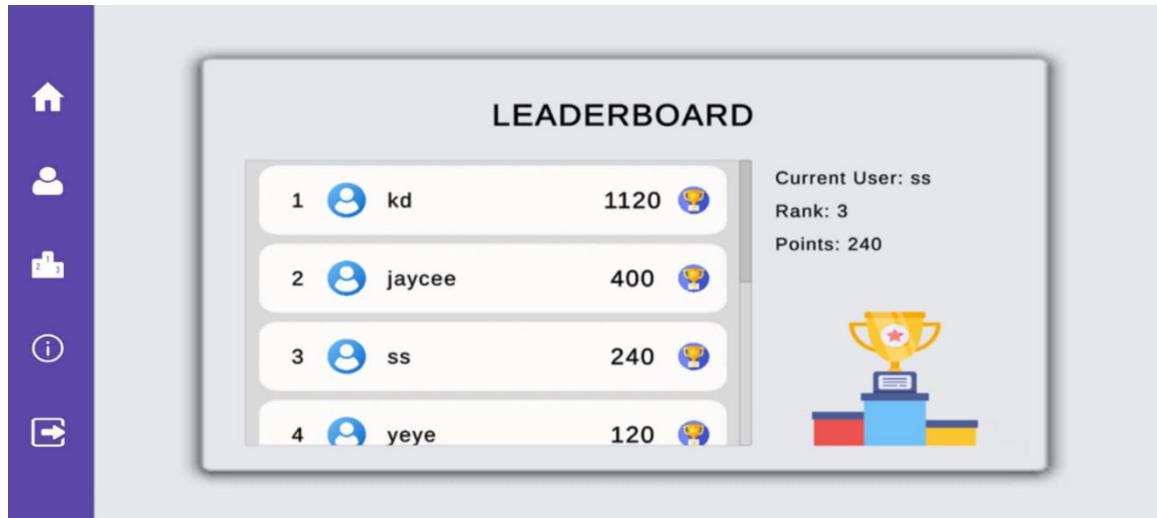
```

```
        }
    else
    {
        Coins = 0;
    }
bonusCoinsText.text = Coins.ToString();

// Update the current user's points and coins in the UserManager
UpdateUserProgress(Points, Coins);

// Get the UIManager instance and update points and coins
UIManager uiManager = FindAnyObjectByType<UIManager>();
if (uiManager != null)
{
    uiManager.UpdateUI();
}
}
```

APPENDIX I
Evaluation Tool or Test Documents

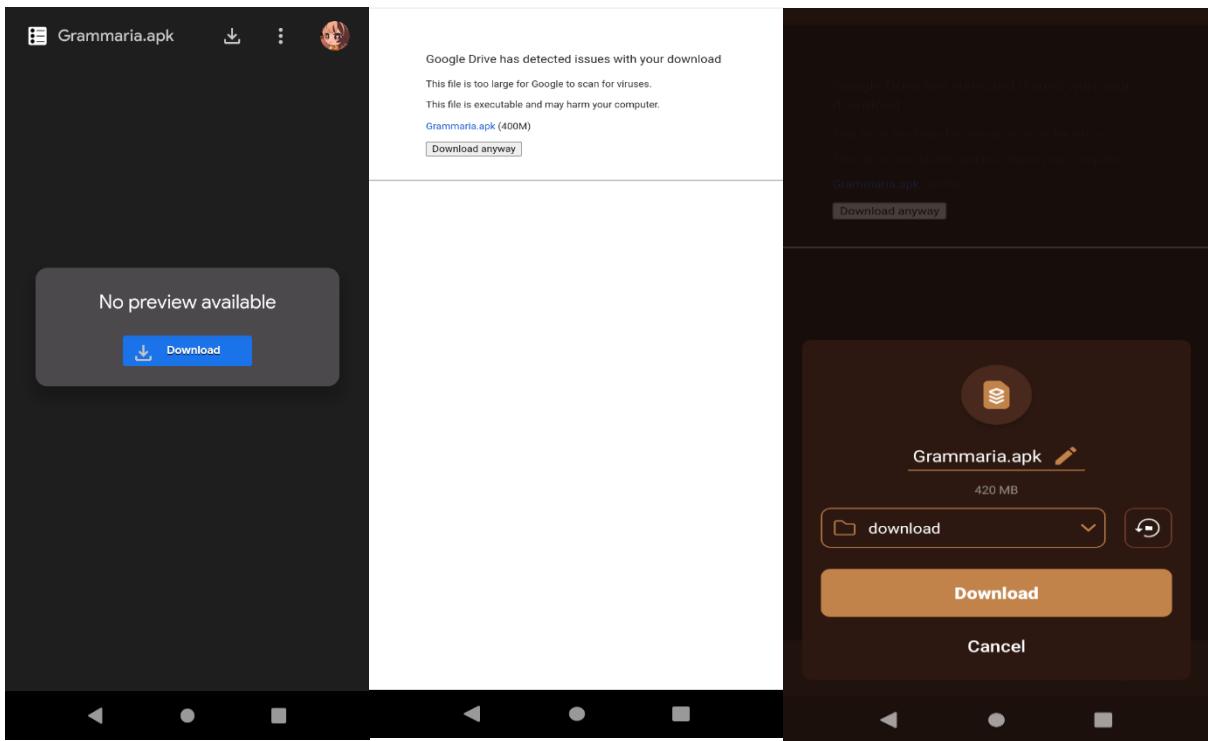


This shows the data used for testing the tutorial application's leaderboard that consist of Rank, Username and points.

APPENDIX J

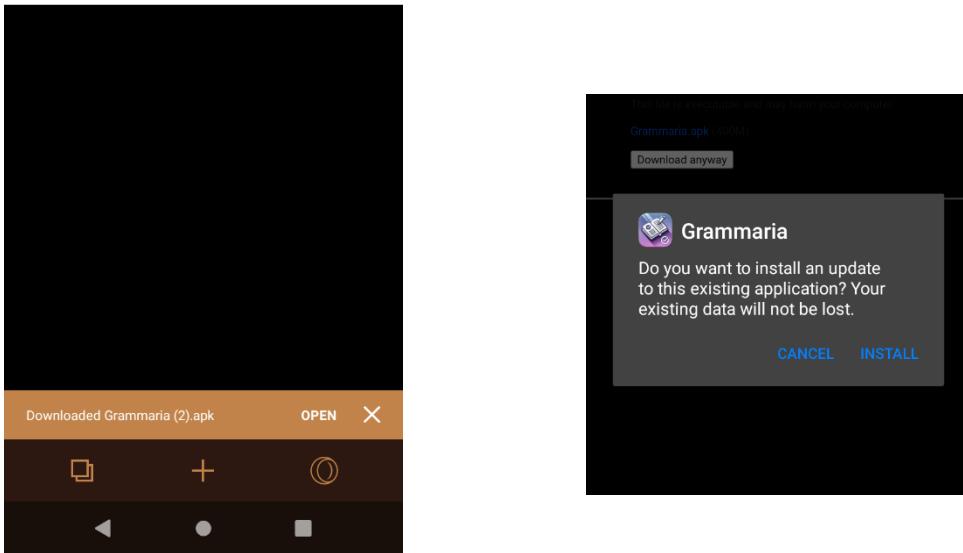
User's Manual

How to Download:



1. Click Download.
2. Click download anyway.
3. A window will appear and click download

How to Install:



1. Click the installed file
2. Click “Install” when a window popped out

How to Use:



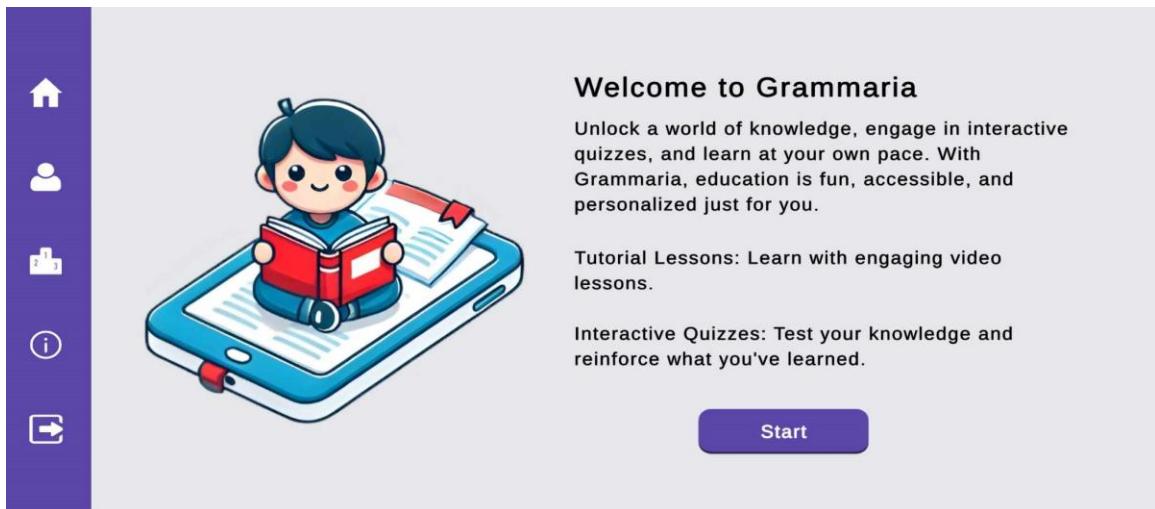
Login

Welcome, please fill username to sign in into your account.



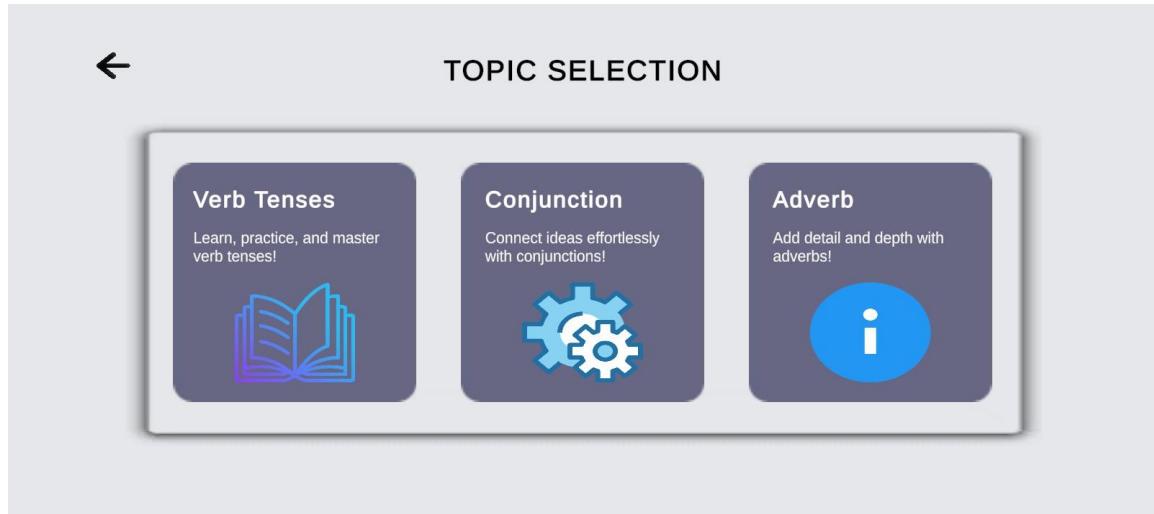
Login/Signup

1. Click “Sign Up” if you don’t have an account.
2. Click “Login” if you have an existing account.



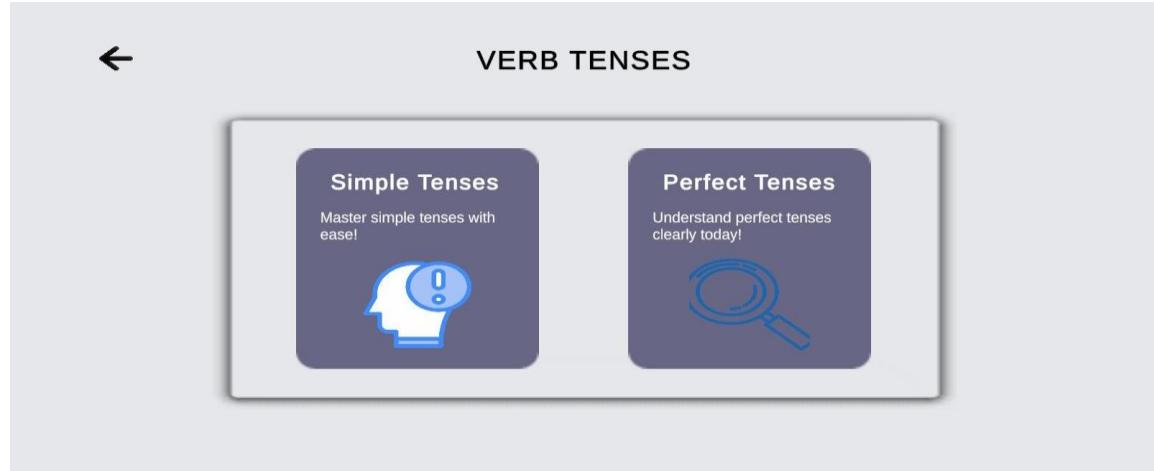
Home

1. Click “Start” to proceed to topic selection



Topic Selection

1. Click “Verb Tenses” to learn all about tenses of verb.
2. Click “Conjunction” to learn all about conjunctions.
3. Click “Adverb” to learn all about adverbs.



Verb Tenses Sub Topic Selection

1. After clicking on “Verb Tenses” topic you will have to choose a sub topic.
2. Click either “Simple Tense” or “Perfect Tense” to proceed.

← CONJUNCTION

Coordinating

Combine ideas smoothly with coordinating conjunctions!



Subordinating

Connect thoughts with subordinating conjunctions!



Conjunction Sub topic Selection

1. After clicking on “Conjunction” topic you will have to choose a sub topic.
2. Click either “Coordinating” or “Subordinating” to proceed.

← ADVERB

Manner

Describe actions vividly with adverbs of manner!



Time

Specify when actions happen with adverbs of time!



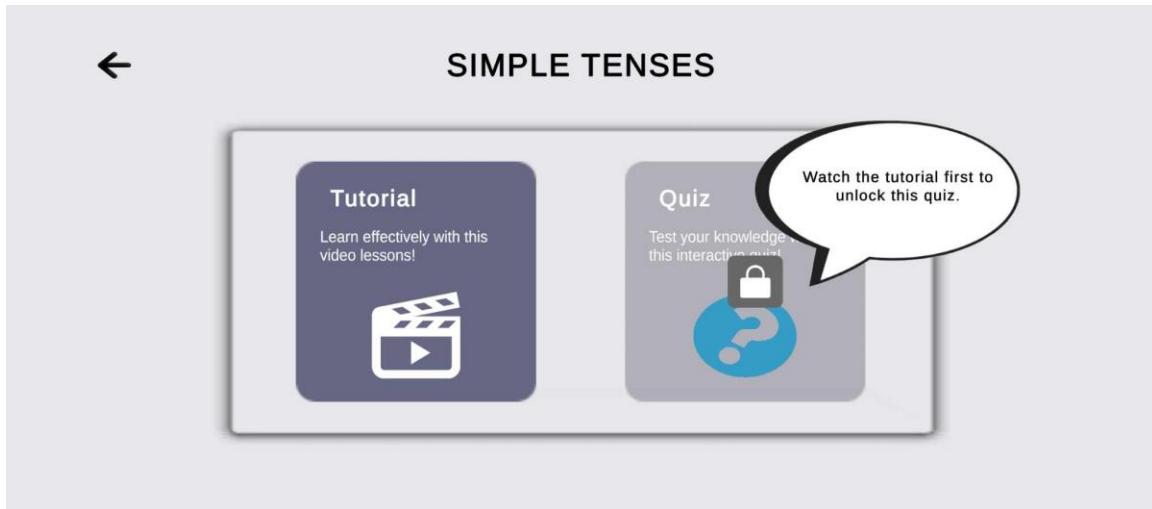
Place

Indicate where actions occur with adverbs of place!



Adverb Sub topic Selection

1. After clicking on “Adverb” topic you will have to choose a sub topic.
2. Click either “Manner”, “Time” or “Place” to proceed.



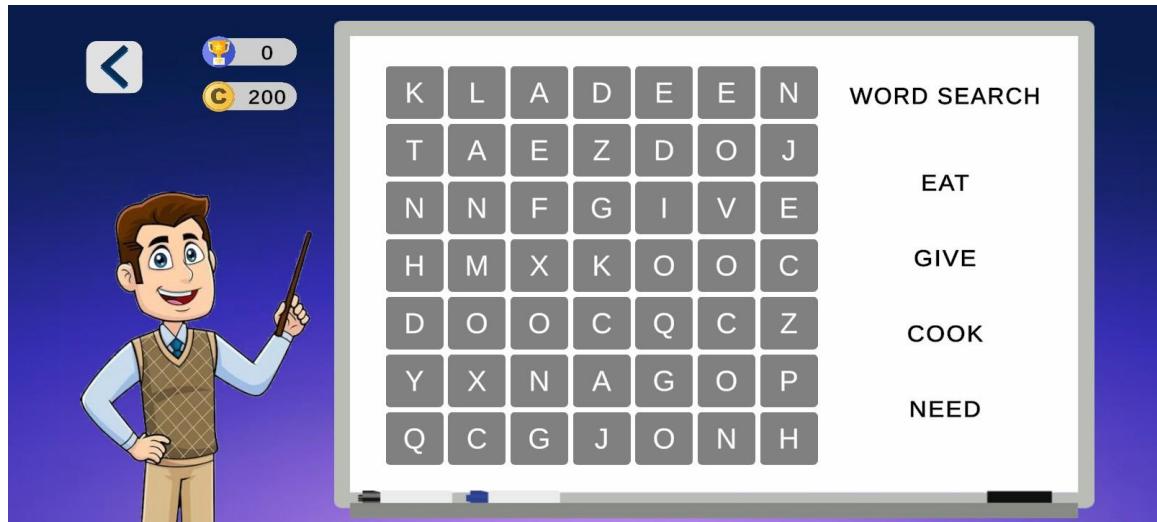
Sub topic Options

1. Each subtopics includes tutorial and quiz options. Initially, the quizzes are locked, indicated by lock icon. To unlock it, players must watch the tutorial first associated with that topic.



Tutorial Video

1. Watch all the tutorial video to learn and unlock the Quiz of each topic.
2. Click “Pause” Button to pause the video.
3. Click the “Sound” Button to mute or unmute the video.
4. Click the “Fullscreen” Button to make the video larger.
5. Click the “Mini Game” to access the word search.
6. Click the “Next” to proceed with the video tutorial.



Mini Game

1. Find the word listed on the right.
2. Tap the correct letters in a straight line to form the word.

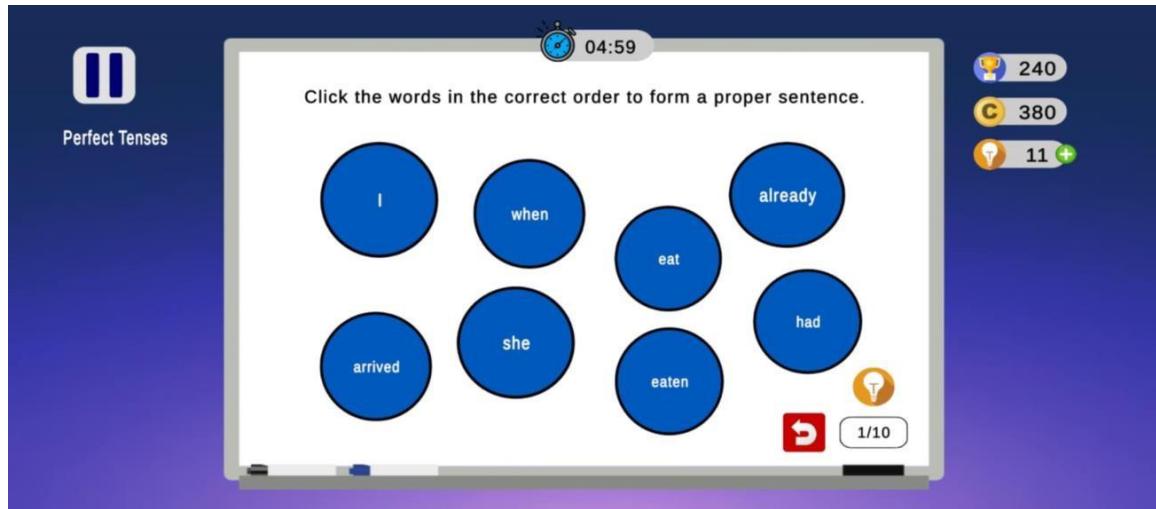
A screenshot of a simple tenses quiz. On the left, there's a pause button and the text 'Simple Tenses'. At the top right is a timer showing '04:58'. In the center, instructions say: 'Form a proper sentence by connecting the correct sequence of words.' Below are several words in blue boxes:

- We
- bills
- next week
- paying
- our
- pay
- paid
- will

At the bottom right are a red back arrow, a lightbulb icon, and '1/10'.

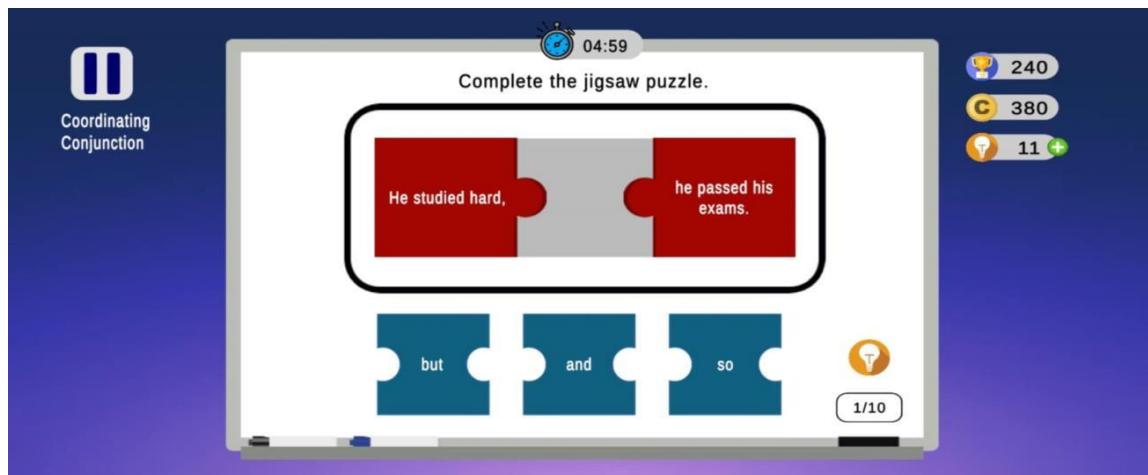
Simple Tense Quiz

1. Form a correct sentence by connecting the words in the correct order.
2. Achieve at least 8 correct answer to pass the quiz and earn coins.



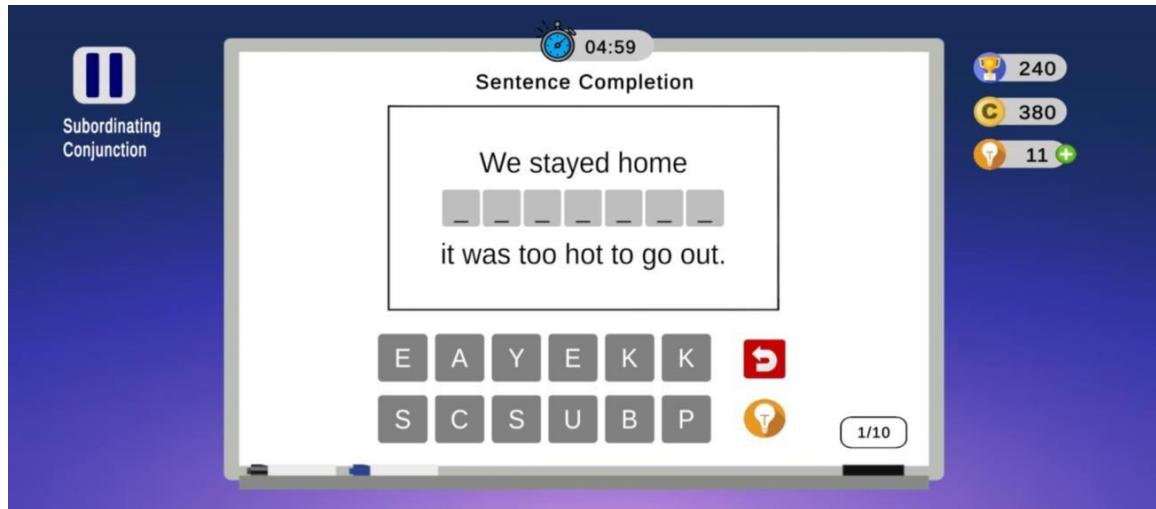
Perfect Tense Quiz

1. Tap the words in the correct sequence to form a correct sentence.
2. Achieve at least 8 correct answer to pass the quiz and earn coins.



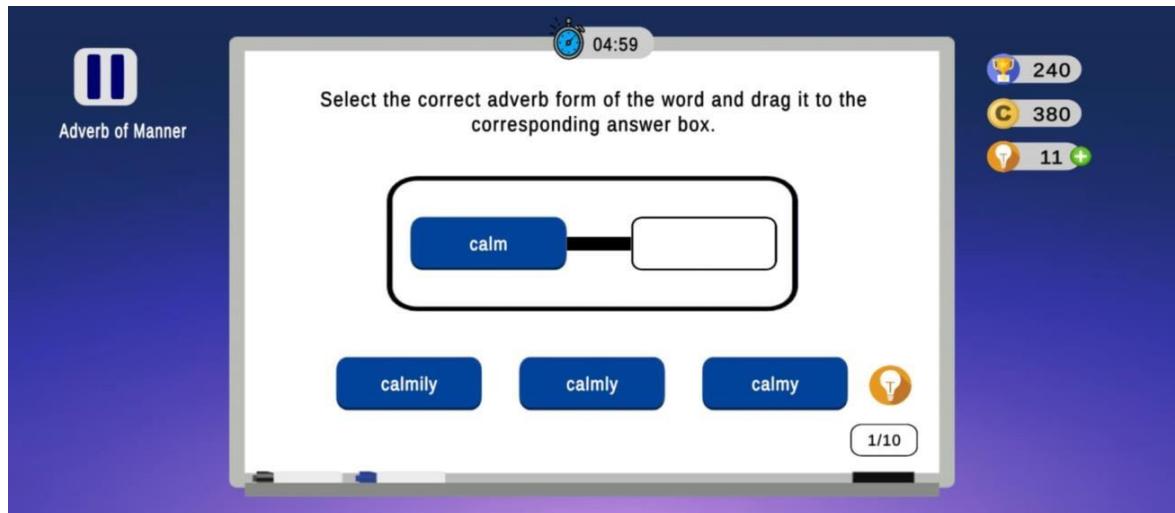
Coordinating Conjunction Quiz

1. Drag the right conjunction to complete the sentence.
2. Achieve at least 8 correct answer to pass the quiz and earn coins.



Subordinating Conjunction Quiz

1. Spell the correct conjunction to complete the sentence.
2. Achieve at least 8 correct answer to pass the quiz and earn coins.



Adverb of Manner Quiz

1. Choose and click the correct adverb form of the adjectives given.
2. Achieve at least 8 correct answer to pass the quiz and earn coins.

A screenshot of a mobile application interface for an 'Adverb of Time' quiz. The top left corner features a blue vertical bar with two white vertical bars inside. Below it, the text 'Adverb of Time' is displayed. In the top right corner, there are three icons: a trophy labeled '240', a coin labeled 'C 380', and a lightbulb labeled '11 +'. The center of the screen shows a whiteboard with a timer at 04:59. The task is to 'Match the sentence to the corresponding adverb of time.' A sentence fragment 'I visited the gallery _____ to see the new art.' is shown in a blue box. Three options are provided in blue boxes below: 'tomorrow', 'next week', and 'yesterday'. At the bottom right of the whiteboard is a progress indicator '1/10' next to a small orange icon.

Adverb of Time Quiz

1. Connect the correct adverb of time to complete the sentence
2. Achieve at least 8 correct answer to pass the quiz and earn coins.

A screenshot of a mobile application interface for an 'Adverb of Place' quiz. The top left corner features a blue vertical bar with two white vertical bars inside. Below it, the text 'Adverb of Place' is displayed. In the top right corner, there are three icons: a trophy labeled '240', a coin labeled 'C 380', and a lightbulb labeled '11 +'. The center of the screen shows a whiteboard with a timer at 04:59. The task is to 'Form a proper sentence by tapping the correct order of words based on the picture.' A landscape photograph of waves crashing against rocks at sunset is displayed. Below the image are five empty blue boxes for word placement. Underneath these boxes are five words: 'Waves', 'crash', 'the', 'rocks', and 'against'. At the bottom right of the whiteboard is a progress indicator '1/10' next to a small orange icon.

Adverb of Place

1. Form a sentence by clicking the words in the correct order based on the picture.
2. Achieve at least 8 correct answer to pass the quiz and earn coins.

USER PROFILE
Username: vivo

Verb Tenses		Conjunction		Adverb	
Subtopics	Highest Score	Subtopics	Highest Score	Subtopics	Highest Score
Simple Tenses	0/10	Coordinating	0/10	Manner	0/10
Perfect Tenses	0/10	Subordinating	0/10	Time	0/10
				Place	9/10

User Profile

1. Tap the “User Profile” icon to see your progress and high scores.

LEADERBOARD

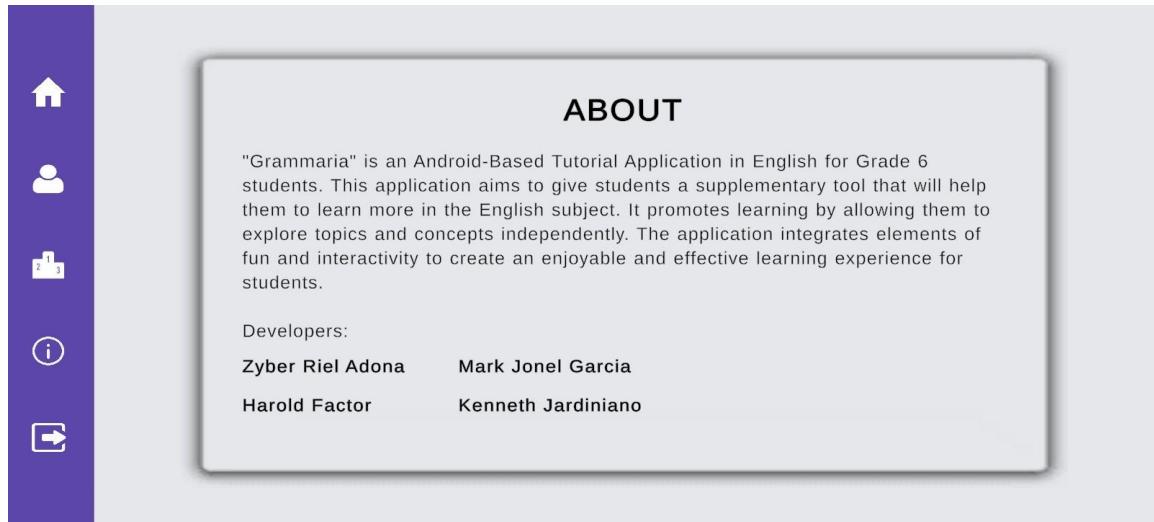
1		jaycee	3080	
2		sasuke	1440	
3		kd	1280	
4		faendal	800	

Username: zyber
Rank: 26
Points: 0



Leaderboard

1. Tap the “Leaderboard” icon to view your ranking based on your points.



About

1. Tap the “About” icon to learn about the game and developers.



Exit

1. Tap yes if you want to exit the application and no if you want to stay.

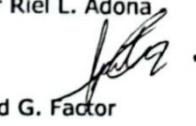
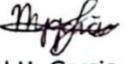
APPENDIX K
Sample Accomplishment and Consultation Form

ACCOMPLISHMENT AND CONSULTATION FORM

Capstone Project Title: Grammaria: Unraveling Language Mysteries
 Week Number: February 26 – March 8, 2024

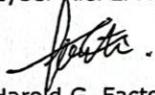
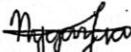
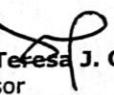
ACTIVITY/ ACCOMPLISHMENT	REMARKS/ COMMENTS/ SUGGESTIONS/ DELIVERABLES and DUE DATE
February 26, 2024 – 11:00am, STI Balayan We went to our beneficiaries to send the letters we made for permission to conduct interviews and surveys to their schools.	February 26, 2024 We have received approvals from all our beneficiaries and plans to conduct interview in the following days.
February 28, 2024 – 10:00am, Balayan, Batangas We, as a group, conducted interviews with the teachers of our beneficiaries to gather information to put in our survey.	February 28, 2024 – 10:00am, Balayan, Batangas Not all the teachers were available, and they told us to come back on another day.
February 29, 2024 – 1:00pm Balayan, Batangas We, as a group, conducted a survey with our beneficiaries and successfully gathered information.	February 29, 2024 – 1:00pm Brgy Pooc Balayan, Batangas Not all the beneficiaries were available, so we planned on going back another day. Expenses for the printed papers – ₱480 Zyber Riel L. Adona – Paid Harold G. Factor – Paid Mark Jonel H. Garcia – Paid Kenneth P. Jardiniano – Paid
March 1, 2024 – 9:00am Balayan, Batangas We, as a group, tried to conduct a survey with the remaining beneficiaries.	March 1, 2024 – 9:00am Balayan, Batangas Due to their schools still being busy, we were told to return again on another day.
March 5, 2024 – 11:00am Brgy. Santol Balayan, Batangas We, as a group, conducted the remaining survey and successfully gathered the information we needed.	March 5, 2024 – 11:00am Brgy. Santol Balayan, Batangas Expenses for the printed papers – ₱75 Zyber Riel L. Adona – Paid Harold G. Factor – Paid Mark Jonel H. Garcia – Paid Kenneth P. Jardiniano – Paid

 ACCOMPLISHMENT AND CONSULTATION FORM | PAGE 1 OF 2

<p>March 6, 2024 – 1:00pm STI Balayan, Batangas</p> <p>We as a group consulted our thesis advisor for our capstone title and what to do for our chapter one.</p>	<p>March 6, 2024 – 1:00pm STI Balayan, Batangas</p> <p>The title we presented doesn't align with our idea, so we thought of a new one.</p>
<p>Prepared by:</p> <p> Zyber Riel L. Adona</p> <p> Harold G. Factor</p>	<p> Mark Jonel H. Garcia</p> <p> Kenneth P. Jardiniano</p>
<p>Checked by:</p> <p> Ms. Maria Teresa J. Olea Thesis Advisor Date Signed: 0/8/2024</p>	<p>Noted by:</p> <p> Ms. Terranya M. Tiamson Capstone Project Coordinator Date Signed: 0/8/2024</p>

ACCOMPLISHMENT AND CONSULTATION FORM

Capstone Project Title: Grammaria: Unraveling Language Mysteries
 Week Number: March 17 - March 30, 2024

ACTIVITY/ ACCOMPLISHMENT	REMARKS/ COMMENTS/ SUGGESTIONS/ DELIVERABLES and DUE DATE
<p>March 25, 2024 – 11:00pm STI Balayan, Batangas We consulted our advisor about our chapter 1 revision and about the progress of our chapter 3. We also asked for advice on what can we change or add to our scope. Zyber Riel L. Adona – Present Harold G. Factor – Present Kenneth P. Jardiniano – Present Mark Jonel H. Garcia – Present</p>	<p>March 25, 2024 – 11:00pm STI Balayan, Batangas Our advisor said we can consult again on April 3 onwards after our revision.</p>
<p>Prepared by:  Zyber Riel L. Adona  Harold G. Factor</p>	 Mark Jonel H. Garcia  Kenneth P. Jardiniano
<p>Checked by:  Ms. Maria Teresa J. Olea Thesis Advisor Date Signed: 4/3/2024</p>	<p>Noted by: Ms. Terranya M. Tiamson Capstone Project Coordinator Date Signed: 4/3/2024</p>

 ACCOMPLISHMENT AND CONSULTATION FORM | PAGE 1 OF 1

APPENDIX L
Personal Technical Vitae

Curriculum Vitae of
Zyber Riel L. Adona
Brgy Lumbangan, Nasugbu, Batangas
zyberrieladona05@gmail.com
09476932276



EDUCATIONAL BACKGROUND

Level	Inclusive Dates	Name of school/ Institution
Tertiary	2021 - Present	STI College Balayan
Senior High School	2019 - 2021	Pantalan Senior High School
Junior High School	2015 - 2019	Lian Institute
Elementary	2009 - 2015	Nasugbu West Central School

AFFILIATIONS

Inclusive Dates	Name of Organization	Position
2021-Present	Young Computer Programmers Association	Member

SKILLS

- Proficient in programming languages such as Java, C# and SQL
- Basic knowledge in SAP Business One
- Basic knowledge in Blender
- Basic knowledge of graphic design tools like Canva
- Computer Literature (MS Office such as Word, Excel, PowerPoint)
- Excellent communication and teamwork skills

TRAININGS, SEMINARS, OR WORKSHOPS ATTENDED

Inclusive Dates	Title of Training, Seminar, or Workshop
2022	Java Foundation
2023	Completion of SAP Business One

Curriculum Vitae of
Harold G. Factor
Baclaran, Balayan, Batangas
Haroldfactor2003@gmail.com
0948-029-8778



EDUCATIONAL BACKGROUND

Level	Inclusive Dates	Name of school/ Institution
Tertiary	2021 - Present	STI College Balayan
Senior High School	2019 - 2021	STI College Balayan
Junior High School	2015 - 2019	La Concepcion College
Elementary	2009 - 2015	Baclaran Elementary School

AFFILIATIONS

Inclusive Dates	Name of Organization	Position
2021-Present	Young Computer Programmers Association	Member

SKILLS

- Computer Proficient (Microsoft Word, Excel, Access, Outlook, and PowerPoint)
- Ability to work individually or in a team
- Willing to work collaboratively

Curriculum Vitae of
Mark Jonel H. Garcia
017, Tagudtod, San Nicolas, Batangas
markjonelgarcia0@gmail.com
0906-715-9448



EDUCATIONAL BACKGROUND

Level	Inclusive Dates	Name of school/ Institution
Tertiary	2021 - Present	STI College Balayan
Senior High School	2019 - 2021	Rizal College of Taal
Junior High School	2015 - 2019	Maabud National High School
Elementary	2009 - 2015	San Nicolas Central School

AFFILIATIONS

Inclusive Dates	Name of Organization	Position
2021-Present	Young Computer Programmers Association	Member

SKILLS

- Knowledgeable in using MS Offices (Word, PowerPoint, Excel)
- Basic knowledge in Mobile Application and Web Development
- Basic Knowledge in SAP Business One
- Basic Knowledge in 2D and 3D digital graphic design using Synfig and Blender
- Good Communication Skills

TRAININGS, SEMINARS, OR WORKSHOPS ATTENDED

Inclusive Dates	Title of Training, Seminar, or Workshop
2023	Completion of SAP Business One

Curriculum Vitae of
Kenneth P. Jardiniano
Tuyun-tuyun, Tuy, Batangas
kenjardiniano@gmail.com
0969-283-0380



EDUCATIONAL BACKGROUND

Level	Inclusive Dates	Name of school/ Institution
Tertiary	2021 - Present	STI College Balayan
Senior High School	2019 - 2021	Dr. Francisco L. Calingasan Memorial Colleges Doundation Inc.
Junior High School	2015 - 2019	Dr. Francisco L. Calingasan Memorial Colleges Doundation Inc.
Elementary	2009 - 2015	Gregorio Agoncillo Elementary School

AFFILIATIONS

Inclusive Dates	Name of Organization	Position
2021-Present	Young Computer Programmers Association	Member

SKILLS

- Computer Proficient (Microsoft Word, Excel, Access, Outlook, and PowerPoint)
- Ability to cooperate
- Willing to work collaboratively

TRAININGS, SEMINARS, OR WORKSHOPS ATTENDED

Inclusive Dates	Title of Training, Seminar, or Workshop
2023	Completion of SAP Business One