

# **WEBCRAFT: Game-based Learning for Web Development**

**A Thesis  
Presented to the Faculty of  
Information and Communications Technology Program  
STI College – General Santos Inc.**

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

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**June 2023**

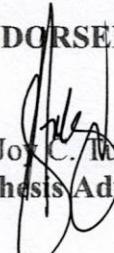
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**TITLE OF RESEARCH:** **WEBCRAFT: Game-based Learning for Web Development**

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for the degree Bachelor of Science in Computer Science  
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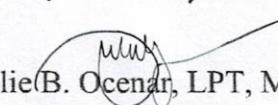
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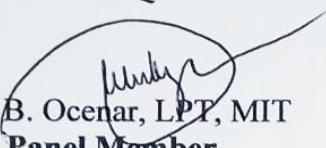
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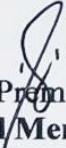
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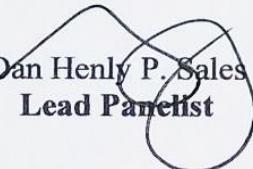
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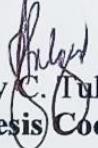
  
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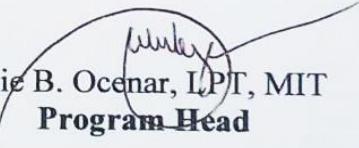
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## **ACKNOWLEDGEMENTS**

We would like to express our sincere appreciation to the Almighty for guiding us throughout this research journey and granting us the strength and perseverance to complete this thesis successfully. Our deepest gratitude goes to our thesis advisor, Kristel Joy C. Tulagan, LPT, MIT, for her invaluable guidance, unwavering support, and expert insights. Her dedication and commitment to our research have been instrumental in shaping its direction and quality.

We would also like to extend our thanks to the faculty and staff of the STI General Santos Inc. for providing us with an enriching academic environment and the necessary resources to conduct our research. Their assistance and encouragement were invaluable in our pursuit of knowledge. Additionally, we are grateful to our families, friends, and colleagues for their understanding, encouragement, and unconditional support throughout this endeavor. Their belief in our abilities motivated us to overcome challenges and strive for excellence. Furthermore, we would like to acknowledge the participants of our study for their willingness to contribute their time and insights, which greatly enriched our research. Without their cooperation and valuable input, this study would not have been possible.

Finally, we would like to express our appreciation to the members of the thesis panel for their time, expertise, and constructive feedback. Their valuable suggestions and comments significantly improved the quality of our work. We are humbled by the support and guidance we have received from all these individuals and institutions. Our gratitude extends to the Almighty and to all those who have contributed to our research journey.

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## **ABSTRACT**

Title of research: **WEBCRAFT: Game-based Learning for Web Development**

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Date of Completion: **June 2023**

Key words: **Educational game, Game-based learning, Web development,  
HTML, CSS, JavaScript, PHP, JQuery, Structured Query  
Language, SQL**

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This paper presents the design and development of an educational game system that utilizes gamification principles to enhance learning outcomes. The system, an online platform offering game-like activities such as quizzes and games, aims to create an interactive and enjoyable learning experience. Survey results indicate that the system effectively improves students' learning outcomes, as demonstrated by increased assessment scores and higher levels of engagement and motivation. An evaluation process involving diverse participants was conducted by the developers. Participants rated the system based on its user interface, user experience, and functionality using a questionnaire. System testing was also performed to identify any bugs or errors that could impact the user experience. The evaluation outcomes were overwhelmingly positive, affirming that the system's design effectively delivers a positive user experience and meets user expectations. This study provides valuable insights into the development and evaluation of web-based systems, particularly regarding user interface and user experience. It offers guidance for developers to create systems that cater to user needs and expectations, ultimately enhancing the overall user experience.

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## **INTRODUCTION**

Technology has grown in popularity throughout time as a result of its innovations and continuous growth. As the world's reliance on the technology grows, education is one of the most impacted changes in terms of rapid development of technology. With the different number of new technologies used to deliver high standard education to all learners such as using of devices like smartphones, netbooks, and other mobile technologies. In the 21st century, the mode of educational practices has shifted into ready-to-use learning where students now can discover digital literacy, problem-solving and creativity. In this development of technology becomes a challenge for the learning problems of the global era (Pratama and et. al, 2018). To deal with these challenges, all parties involved both directly and indirectly must have the ability to utilize technology as a leaning media involving teachers to deliver interesting mode of conveying the concepts of their subjects and/or lessons to students. One of the trends in technology in the learning process is game application or called game-based learning.

Game-Based Learning (GBL) is the application of games to learning using tailor-made content or third-party content, all within a gaming environment. The benefits of GBL are as follows: encourages strategic skills, provide opportunity for practice, enhance motivation among disengaged learners, promote healthy competition, improve self-directed learning and independent thinking, foster collaboration, create a safe environment for learning through experiments and trial and error and help develop a spirit of patience and persistence among learners (Pandey, 2020). It is an innovative way to educate people through various online platforms with the goal to engage and motivate learners to acquire new skills, enhancing existing ones or change behavior. In addition, GBL drives learners' engagement and motivations with such strategies and techniques that drives the learners to entice them to go a preferred journey with you instead of predetermined course. It also gives feedback that enables learners to self-check and take remedial action while in the game. Lastly, Team Gaming that gives the learners a better learning engagement, higher level of motivation, greater learning retention and stickiness and demonstrable behavioral change.

Web development is a job of creating websites and apps that work in browsers. This concerns construction, testing, and maintenance. Also, it includes the design and management of databases, which makes the concepts much broader. The number of software developers has been increasing over time due to high demands in the market. Web development's field of work determines the quality of layout, smoothness of navigation, visual appeals, and other elements to make the interface of the website better. The mission is to ensure that your website is responsive, functions properly, and loads quickly. These technical aspects are crucial for a smooth user experience (Sandomirskyi, 2021). Web development is important for it enhances connection and engages people by allowing them to perceive the website. Web development is advantageous, particularly in the business industry, because it enables organizations to improve their digital marketing strategies, as consumers do not readily trust badly designed websites. Furthermore, web development helps to keep ownership by preserving the brand identity.

The five most common popular languages in web development are as follows: Hypertext Markup Language (HTML) which is used to create website frameworks, Cascading Stylesheets (CSS) allows the developers to use a compact set of files to style website content; and JavaScript elements are responsible for interactive features such as animations, building unique elements, and create effects that changes the layout of icons and menus (Sandomirskyi, 2021). In web development, there are certain steps in web development lifecycle and are as follows: Discovery where the development team must form a clear understanding of the purpose of the project, its scope, goals, and target audience. This requires in-depth research of the industry, competition, preferences, and online habits of the target consumer. These insights must guide all subsequent efforts; Planning and Analysis where the team builds sitemaps. The team creates menus, buttons, color themes, graphics, and other components of the layout, it suggests that the best tools and technologies based on the client's requirements such as determining user interface (UI) and user experience (UX). First, they create a sketch of the design concept showing the structure of information. They may use HTML, CSS, PHP, jQuery, or JavaScript to build a user-friendly interface. Creators of web applications may prefer Bootstrap or Foundation.

Back-end developers work on the “server-side” elements. They code instructions that allow every element to function as planned.

There is available game-based learning software offered in the market today. One of those is CodeChum an online learning management system where the founder’s purpose is to deliver programming education in interesting, fun, and simple. This concept was made because of their love of programming, and they want to share this passion with other people who also want to know or learn about programming. The model of this system is communicating with text based on the preferred language of the student. They are given a set of problems where they need to supply a set of commands and make test runs to validate if the supplied syntax is correct. Moreover, it has a feature where the teacher is also capable of creating class code based on the selected web development languages available in the system. With such features, this also helps to determine which student needs to have further improve their logical and coding skills.

In the realm of education, finding innovative and engaging methods to facilitate effective learning experiences has always been a perpetual challenge. Traditional approaches often struggle to captivate the attention of learners, resulting in disengagement and limited knowledge retention. However, in recent years, an exciting phenomenon has emerged that holds immense potential to revolutionize the learning landscape: gamification. Gamification, the integration of game design elements and principles into non-game contexts, has gained significant attention as a promising educational tool. By leveraging the innate human inclination for play, gamification offers a captivating and immersive environment that motivates learners and fosters active participation in the learning process. This thesis explores the importance of gamification in learning, delving into its underlying principles, benefits, and its application across various educational settings.

The purpose of this research is to shed light on how gamification, when skillfully implemented, can enhance learning outcomes by tapping into intrinsic motivation, promoting engagement, and fostering deep comprehension of complex concepts. By leveraging game mechanics such as challenges, rewards, competition, and progression,

educators can create dynamic learning experiences that not only captivate learners but also facilitate knowledge acquisition and skill development in a meaningful and enjoyable way.

This research seeks to address potential challenges and limitations associated with gamification in education. While the positive impact of gamification on learning has been widely recognized, it is crucial to examine the potential pitfalls, such as over-reliance on extrinsic rewards or superficial game elements. By identifying these challenges, educators can adopt a nuanced approach to gamification that maximizes its benefits while mitigating potential drawbacks.

### **Definition of Terms**

**HTML.** It is the abbreviation for HyperText Markup Language. It is a markup language that is used to design the front end of web pages. This is used inside the game where user can see and read topics, also can take a quiz in designing front end of the web page.

**CSS.** It is an acronym for Cascading Style Sheets. It is a style sheet language that is used to specify the appearance and formatting of a markup document. It adds to the functionality of HTML. This can be found inside the game where the player can read topics and can take a quiz about designing the appearance of the webpage.

**JavaScript.** a client-side programming language. JavaScript is compatible with all operating systems and web browsers. JavaScript is mostly used to improve a user's engagement with a webpage. JavaScript are used in the game where you can read and take quiz about interactive effects within web browsers.

**PHP.** PHP (Hypertext Preprocessor) was one of the first server-side languages to be integrated in HTML, making it easy to add functionality to web sites without having to access data from separate files. This can be found in the system where you can read and learn more about PHP. This can be found inside the system where you can view and learn about the functionality to web, and you can also test your knowledge in the quiz.

**jQuery.** is a feature-rich, quick, and compact JavaScript library. With an easy-to-use API that works across a variety of browsers, it simplifies HTML page navigation and manipulation, event handling, animation. jQuery can also be found in the system where you can learn and read topics and you can take a quiz where you can test your knowledge.

**Database.** A database is an organized collection of structured information, or data, typically stored electronically in a computer system. A database is usually controlled by a database management system (DBMS). Player can view and read topics relating to Database and Database are added into the game where player can test the level of their knowledge in the field.

**Structured Query Language (SQL).** SQL is a programming language used by all relational databases to query, manipulate, and define data, and to provide access control. You can see the description of SQL in the game and they can take a quiz to measure your knowledge in this field.

**Game-based Learning.** Game-Based Learning (GBL) is the application of games to learning using tailor-made content or third-party content, all within a gaming environment.

**Web.** It refers to websites, web pages or anything that works over the internet.

**Development.** Building the application from scratch.

**Web Development.** This refers to the building, creating, and maintaining of websites. It includes aspects such as web design, web publishing, web programming, and database management.

**Frontend Development.** The part of a website where the user interacts directly is termed as front end. It is also referred to as the ‘client side’ of the application.

**Backend Development.** Backend is the server side of a website. It is the part of the website that users cannot see and interact with.

## Background of the problem

STI College – General Santos, Inc is an institution that extends educational services for both Senior High School and Tertiary. The school is located at Jose Catolico Avenue, Brgy. Lagao, General Santos City. The school has been operating for more than three decades. The school offers programs in tertiary fields such as bachelor's degree in information technology, computer science, multimedia, accountancy, hotel and restaurant, business management, education, and tourism. Also, they offer associate degrees such as hotel and restaurant service, and computer technology. In addition, the school does offer program tracks in senior high school such as mobile and web development, computer and communication technology, accountancy, business and management, culinary arts, humanitarian and social science, science, technology, engineering and mathematics, and tourism operations. The proponents used the data acquired from the STI students, notably the MAWD strand, as a foundation because it met the condition that was basically required for the proponents' study in a considerable extent.

Currently there are three hundred and thirty-seven (337) senior high school students currently enrolled in the institution as of academic year 2021-2022, second semester. From this total numbers of enrollees, the Mobile and Web Development (MAWD) track has fifty (50) total number of enrolled students, twenty-seven students in Grade 11 level while twenty-three (23) students in Grade 12 level. The MAWD track is one of the most difficult programs since it focuses on IT-related technologies such as software development. Before the pandemic crisis and until today, most of the students enrolled in this track are having difficulties coping with their major subjects, especially subjects that are related to programming. On their first and second semester of the academic year, students in Grade 11 level has web development subject wherein they will learn the basic structures in creating website as well as applying design and functions. By their Grade 12 level, the

previous learning will be improved by adding extra topics to enhance their previous outputs. However, many students do not have the first basic knowledge about the course because the only conclusion when they have enrolled in this course is simply manipulating computers. Another is the lack of resources, especially when the pandemic crisis started to hit two years ago. Some of the students do not have certain devices where they can use to test their activities. Moreover, some students only have mobile devices to utilize while addressing part of their lab exercises, which causes them difficulty. Furthermore, some students are having difficulty in which certain references to be used for web development because of the different book editions where some contents have different approach in delivering the topic.

One of the difficulties that students face is that they prefer gaming over completing their schoolwork. There are a variety of reasons for this, including the fact that learning web development is monotonous because they did not choose to enroll in this strand, or the instructors do not make it more interesting, or the students do not know how to do it, and they do not particularly enjoy learning web programming, but they enrolled because of the demand (*See Appendix B, p. B-1 – B-19 & Appendix C, p. C-1 – C-7*). All the causes might be the reason students began to lose interest in learning web development. In contrast to gaming, where players experience excitement, amusement, engagement, and satisfaction after completing a level, this is known as the rewarding system. The potential of receiving a prize keeps participants engaged throughout the game. It provides them with objectives to work toward in addition to crossing the finish line. A proper combination of reward motivation and game-entertainment may improve the whole player's experience.

The researchers devised a solution to the said problem; the researchers decided to synchronize the learning and gaming experiences in a game so that they could attempt a new learning approach. Despite their lack of resources, they are willing to learn, but they do not have any gadgets or computers that fulfill the requirements for programming. Even if they do not have access to high-end PCs or laptops, the researchers' solution will allow them to use only their smartphones and mobile data, allowing any learners to study web development more easily. The researchers will deliberately build an in-game

accomplishments and make the game more challenging to keep the player playing regularly. The researchers believe that a difficult game will enable people to gauge their competence and, beyond just evaluating, would encourage them to play it repeatedly until they have completed it. They are more driven to attain the objective the closer it is to completion.

Students are encouraged to take ownership of their learning by measuring their own academic progress, which helps them acquire the skills needed for learning experience of oneself as a learner. It is the ability of the learner to explain, create, or request the conditions necessary to suit his or her learning requirements. Self-assessment can assist reveal gaps in pupils' knowledge and offer insight into their genuine grasp. Encouraging students to reflect on their own learning and levels of comprehension may be a useful wake-up call for identifying areas where they need to improve.

Web technology refers to the different tools and tactics utilized in the process of interacting between several types of devices over the internet. Having a background in web development or web technology has various advantages, including the potential to find a job and operate as a freelance developer. Many businesses use websites to promote their products, thus some people desire to learn web development or web tech for this purpose. Each person has his own motives for wanting to learn web technology; it might be for business, educational objectives, credentials, or simply to satisfy his curiosity.

Learning Hypertext Markup Language (HTML5), JavaScript, and CSS3, PHP, and jQuery may seem difficult at first, but it is not hard to understand. All five languages serve distinct functions and merging them will be a challenge for the learner, and that is why knowing the fundamentals of each language, as well as their syntaxes, is essential. With patience and effort, most people can learn the basics in no time (Madison, 2022). Learning web development may be challenging for those who are studying or trying it for the first time; some of them may become bored if they do not focus on it, which is why patience is essential while learning web development.

The web app strategy or method is far more engaging than the other since it allows users to view their accomplishments and progress immediately. Additionally, they will be able to determine which particular languages users find challenging or in which they need to make improvements using this strategy. Depending on their disposition, users can also utilize the application at any moment. Though, the teachers have tons of experience and knowledge they still have a limit, they still cannot teach all the web development languages that there is. Teachers continue to be dependent on the curriculum provided by the school because as from the researchers experience, students learning web programming frequently forget the languages they previously learned because the time allotted for the subject is insufficient, and they are then repeatedly exposed to new languages, which can cause confusion due to information overload.

In this study, the researchers address the problems regarding the challenges when it comes to learning HTML5, CSS3, JavaScript, PHP, and jQuery. Some students and some are eager to learn, and some have enrolled in ICT (Information and Communications Technology) classes only to learn. Some of them have learned, but the other half have lost concentration since they are being encouraged to play rather than to study because gaming is far more enjoyable than learning web development. Another issue that they may face is the lack of resources; they lack the fundamental tools they require such as a laptop or computer for their learning. The game will start from level from 1 which is the basic part of the game teaching them the basic structure of HTML as the levels goes up there will be an additional language will merge to the game which are CSS for designing, JavaScript for functionalities, and PHP for connection. For every level that the student is at, the complexity of the topics will increase. From inculcating basic knowledge to implementing advanced understanding of topics.

The game will start in learning the basic HTML structure, aiming to teach the students the skeleton of the web. As the game progresses, additional languages will be integrated making it more complex by adding styles and animations, forming the website's appearance to appear more friendly to user, adding the functionalities and connection to the database with the use of JavaScript, jQuery as well as PHP. The students will be able

to learn the different web development languages through engaging to the game as well as reading the documentations or learning materials provided by the administrator and the registered teachers in the system. The learning resources will let the user know about the different web development languages available in the game and will aid the learning process of the user using the available documentations from trusted sources.

After playing and completing the game, the user will be able to learn web programming. The online application provides a variety of play and learning options for the users. The game offers the classic mode, time-limited mode, and playground mode with this creating a different challenge that a user can face. After completing the course, the user has the option to review the entire course and retake it to assess their skills. Lastly, the user will be given a certificate as proof that they have taken and completed the course. The game includes a variety of web development languages, and by the conclusion of each level's difficulty, players will have learned something new about web programming.

To achieve this goal, the researchers will make use of certain approaches such as project planning wherein to determine the scope, cost, and time of the project. Another is to identify the possible risk that might encounter during the project development. Furthermore, to ensure the quality of the project by performing certain test to several users. In addition, system evaluation is used to assess the overall project. Finally, conducting seminar/training about the project and the purpose of the project. Every students will earn scores or points that will serve as the researchers basis on how to measure the users knowledge in different fields, the researchers will develop features that will calculate the scores of the users and that can be seen using the graphs for understanding the results of the analytics, the student will be able to see their progress on where they are good at and on which part they are not which will help them on aiming the goals and achievements

The web application that will be created will not be a substitute to the learning method that the teachers were using, but rather an aide to their teaching style. Students may do all their homework prescribed by their teacher by using the aforementioned web application, which can be accessed using their mobile phones.

## **Overview of the current state of the technology**

The enrolled students under MAWD strand have a major subject focusing on the web development during their 2 years in senior high school. Every semester, instructors are given learning materials such as slide presentations and follows modules prepared by the STI College head office. Each of the modules have topics with assigned activities and laboratory exercises to be performed by the students. Students have individual accounts and are enrolled in the school's E-Learning Management System (eLMS) where for every subject handout, activities and laboratory exercises are available to be downloaded.

During the face-to-face class setup, students must perform several exercises including task performance to be accomplished inside the school premises particularly in the computer laboratory. The teacher will then assess the performed exercises and individual outputs of the students, evaluating if it produces the expected output of the exercise based on the defined criteria, and to see the progress of the students and give respective markings to the output. With the limited time given to the students to finish the task, some teachers would allow the exercises to be done as homework which would be passed and checked for the next class session. To some student that does not have the means to complete the activity at home, they are asking permission to the teacher if they could use a computer unit in laboratory. Having the students perform the task inside the school premises aids the teachers to see which students excel in the performance and which students are needed to be guided in a certain topic as an improvement.

As the pandemic strikes, new normal education has been adopted, as well as the existence of online classes. All the students are into online classes and synchronous sessions wherein the students have limited time meeting their teacher for class discussions. Since physical contact and interaction are prohibited due to the current situation, all the activities and assignments including laboratory exercises and task performance by the students are given and submitted online through the eLMS. Teachers prepare links and suggest applications provided by the STI head office to be used online and help the students complete their laboratory exercises since few of the students does not have the resources

to perform the task. A mobile application capable of building a web design is one of the suggested applications by the instructors. Students are instructed to submit either a screenshot of their output or submit an executable file to the teacher. Other than that, exercises can also be given as a group task however this arrangement is not efficient and effective as some students only rely on their groupmates who are capable of doing the task.

The proponents have observed that the teaching-learning process in programming, particularly web development, is monotonous and lacks enthusiasm. This observation was based on the data gathered from senior high school students who are currently enrolled in IT in Mobile App and Web Development at STI College – General Santos Inc. In inquisition of which they prefer, gaming or learning, the respondents stated that they prefer gaming over learning since it is more engaging and interesting. The proponents take this as an advantage since games may also be used to convey knowledge and improve student engagement and involvement. Games can be used as a tool to implement the traditionally teaching where we accustomed in learning programming by reading books and literature or attending school; now, with the advancement of technology, web development or programming in general may be learned through websites, viewing videos online, and games.

The technology employed in the study will be centered on game development. There are existing web design games, however, these games solely focus on one markup and scripting language. Some games primarily focus on the structure of the web using HTML, while others focus on the style of the structure using CSS. Luke Pacholski, popularly known as Flukeout, a GitHub game developer, developed CSS Diner, a CSS game centered on learning CSS selectors. In terms of the JavaScript-focused educational game, Grasshopper was created by a group of 120 Google Area engineers as a desktop and Android coding tool that teaches how to write JavaScript code through quick courses and fun challenges. The game teaches the principles of JavaScript, as well as animation and problem-solving strategies using codes.

## Objectives of the study

The purpose of this study is to develop a game-based learning website that provides learning experience about web development which enhances the learners' skills in terms of building their own website. Specifically aims to:

1. To develop a module as a game play mode where the students have selections such as classic mode, time-limited mode, playground mode, and join class.
  - *This webpage will address the issue of learning web programming becoming monotonous by ensuring that the learning experience is engaging. They will be able to gain some coins from the game, given that the coin is a part of the rewarding system. They can use that coin to buy an extra time for the time-limited mode. This module will also have a feature in the game where it has levels such as beginner, intermediate and advance in classic mode and time-limited mode where students will be able to test their skills from the beginner's level until reaching the advance mode.*
  - *In the beginners' level, this is the part where beginners will encounter the three languages HTML, CSS, and JavaScript. Before the beginner's level ends, the user must finish the challenge, which is a blend of the three languages. A new language will be presented to the user as the level develops from beginner to intermediate to advance, and at the end of each level, they will confront a blend of those languages.*
  - *This website feature will ensure that each learner learns the fundamentals of web development all the way up to the advanced level and ensuring that the students' skills are well honed.*
2. To develop a module that has a playground mode where the students will be able to practice building their own website based on the learnings acquired from the game.
  - *This feature will allow the students to create their own websites from scratch using the different web development languages that they have encounter in the game.*

3. To develop a module that handles the registrations and accounts of different users such as teachers, students, and guests to access the game.
  - *This feature will categorize each user identifying their roles in the system. The teacher will have the power to create a class and can invite and add students, manage the teacher made modules, and can give out activities through the created class, the teachers can also view the students' performance through the student analytics based on their outputs. The student can join and accept classes that were created by their instructors or teachers, access the teacher made modules, and view their own progress through the performance analytics. They also can access the game play mode, where they can find different types of coding challenges putting their skills at test. Lastly, the guest user can access the game play mode, and the learning materials that was provided by the admin.*
4. To develop a module as join class.
  - *This feature will let the students access a class using class code based on the created class from the teacher in the game. With the use of a class access code, a student can participate in an online class while still having access to the teacher's assigned work and other asynchronous activities. In addition to using the access code, the teacher can also add students to the class without it.*
5. To develop a module which is the task module for teachers.
  - *This feature will provide teachers with a default template for creating a game that can be assigned to students as a task. The teacher can also choose the type of mode to use for the exercise, which is either timed or untimed.*
6. To develop a module which is the performance analytics which displays the progress of the students based on their performance and achievements in the given task.
  - *This module will include a feature that will allow students to view their personal progress with each language, allowing them to see which language they excel*

*at and which language they need to work harder on through utilizing different graphs.*

- *It will also include the leader board feature, which will let the teacher monitor the progress of the student in the game class. It will also allow the students see their own progress with their classmates.*
- 7. To develop a module for teacher which is the class module where it contains the topics in web development to be learned by students.
  - *This feature will provide information specifically in web development such as syntax and functionalities.*
- 8. To develop a module which is the manage learner's materials module where it manages the learning materials to be given in the class module for teacher account and non-class module for administrator account.
  - *This feature will distribute the learners materials base on the web development course. This will allow the teacher to add or manage the learning module that will be learned by the students, which will be validated by the administrator before deploying the teacher made module to the students.*
  - *The learner's resources that will be utilized in the game come from two different sorts of sources. The modules that come from the game administrator and the teacher-made modules. The development of the learning materials to be distributed to system users will make use of the official documentations of the web development languages specified in the game, which are available online and in printed form. The resources created by the teachers will be provided by the users whose role is a teacher or an educator. These users have the ability to establish classes and upload or create learning modules for those classes. Before distributing the module to the users, the administrator will assess to validate and verify the teacher-created modules. The aforementioned modules will inform the user about the various web development languages offered in the game and assist the user in their learning process by making use of the accessible material from reliable sources.*

## **Scope and limitations of the study**

The goal of this research is to create a web-based game-based learning system that will assist anyone interested in learning web development in a more enjoyable and engaging manner while also giving them with convenient access. Since one of the game's aims is to serve as a training field for learners, anyone can use their mobile devices to access it and practice their abilities. Learners and individuals who struggle with their web development learning will have more opportunities to be more productive in their activities with this technique because the system will provide solutions to their challenges.

### **Scope of the Study**

This research aims to develop an application that allows individuals to play an educational game called WEBCRAFT: Game-based Learning for Web Development, which focuses on web development. This is educative and valuable to the students who wants to enjoy learning about web development.

- **Administrator**

The system's administrators will be the proponents. The researchers have the power to administer the system's content, as well as operate and maintain the system's key features.

- **Game play Mode Module**

This module will let the admin configures the game modes including the classic and time-limited mode. Each mode has levels such as beginner, intermediate and advance where students will be able to put their abilities to the test from basic to advanced mode. This module also includes a reward system for every passed level.

- **Playground Mode Module**

This module allows students to freely exercise their skills in creating their own website based on what they learned in the game.

- **Registration Module**

This module handles the categories of each user level in the game. This will identify the roles of the different users such as teachers, students, and guests.

- Manage Learner's Material Module

This module lets the admin handle the learner's material in game that are available for registered users that does not have join a class. Learning materials includes a brief description and code snippet of the elements in each language.

- Validate User Module

This module handles the validation and confirmation of accounts for users such as teachers and students. Upon registration the users will receive a one-time pin sent through the email indicated in the registration form.

- Performance Analytics Module

This module will assess the students' progress according to its performance in the game, displaying the results in the class leaderboard as well as in the student's individual progress outside the class they are in. This module lets the student evaluate their own progress. Different graphs will be utilized ensuring that it explains the user performance in a precise and accurate way. Data that are reflected in the graphs will be retrieved and based on the student's activities as well as its progress for every level in the game.

- Teachers

- Class Module

The teacher can create a class and approve and invite a student to join the created class. The teacher can also manage the list of students joined in the class. This module also contains topics in web development to be learned by the students.

- Manage Learner's Material

This feature is under the class module in which teacher can manage teacher-made learning materials in the class to be viewed by the enrolled students.

- Task Module

The teacher will be able to give the students activities in a game form and see or monitor their scores. It contains default templates that the teachers can use and give it as a task to be performed by the students.

- Class Leaderboard

In this feature the developers will be utilizing the Performance Analytics Module. A leaderboard is displayed to every class that the teacher has created.

- Students

- Access Game Play Mode Module

Students will have the opportunity to utilize the gameplay mode and commence answering the designated quest. If a student achieves a flawless consecutive point score, they will be rewarded with a win streak.

- Access Playground Mode Module

The learners can freely practice the four languages in the playground module, just as they can in the game modes with no restrictions. This is where they can now use the system's compiler to create a full stack web.

- Join Class Module

The students can join a class created by the teacher using an access code.

- Access Learning Materials Module

The students have access to view the learning materials added by their teacher. They can also view the learning materials added by the admin in the game.

- Access Task Module

The students will be able to access the given task by the teacher.

- Access Performance Analytics Module

The students will be able to view their progress in every language present in the game.

- Access Class Leaderboard

The students will be able to view their ranking per class that they have joined.

- **Guest**

- Access Game Play Mode Module

The guest can access the game play modes such as classic and time-limited mode.

- Access Playground Mode Module

This module will let the guest access the system's compiler to create a full stack web.

- Access learner's material Module

The guest can access the learning materials provided by the admin.

## **Limitation of the Study**

The researchers noted that each module has its own set of constraints or limitations when it comes to developing the system. The following statement will go over the system's limitations for each module.

In the game play module, the game will only focus on the following web development languages such as HTML5, CSS3, JavaScript, JQuery, PHP and SQL.

In the game mode module, the playground module excluded when accessing by using browser in mobile phones. In the game, the guest users can only fully access learner's material module when it is fully registered and received a class code from the teacher.

In the registration module, it goes without any third-party account to create an account for the game.

In the join class module, this module is only limited for the students.

In the task module for teachers, the teachers are the only one who can access this module.

In the performance analytics module, the performance analytics only displays the progress of the performance and achievements of the student excluding guest accounts.

The game will only cover some of the topics and subtopics in each web development languages that will give them knowledge to create their own website such as HTML will only covers Structures and Tags, Elements, Attributes, Tables, and Forms; in CSS are The syntax and forms of the language, Specificity, inheritance, and the Cascade, CSS units and values and functional notations, Box model and margin collapse, The containing block, Stacking and block-formatting contexts, Initial, computed, used, and actual values, CSS shorthand properties, CSS Flexible Box Layout, CSS Grid Layout, CSS selectors; in Javascript are Objects, Functions, Boolean, Symbol, Number, Math, Date, String, Array, Declarations, Classes, Loop, and Conditional; in Jquery are Selections, Syntax, Events, Effects, and Jquery HTML; in PHP are Syntax, Variables, Print, Data Types, Operators, Conditional, Switch, Loops, Functions, Array, and Forms; and lastly for SQL are Syntax, CRUD, Relational Operators, Logical Operators, Create and Alter.

The system also has its own limitations, and those are:

- The game is a web-based application.
- The game is online.
- The game should be in landscape mode on mobile devices.
- The game will only allow hand coding in which students input their codes statement rather than using a plugin for intelligent code autocompletion.

## **LITERATURE REVIEW**

### **Review of related literature, studies or systems**

This chapter contains a number of related literature and studies obtained from different sources that contributed to the development of the study. The study aims to develop a web-based educational game that will help the users to learn web-designing in a fun and exciting way. The game will not only be limited to the users who do not have any background when it comes to web-designing; even the intermediate level users can also practice their skills and enhance them by playing the game. Thus, this chapter will review studies about Game-based learning and the languages that will be used for this game.

#### **Game-based Learning**

Educators and parents alike have been exploring alternative forms of education for the past few decades. One such form, which has recently gained an unexpected amount of traction, is game-based learning. Game-based learning puts students in charge of their own education by presenting them with fun and engaging games that they can explore on their own or as part of a classroom environment. The idea behind game-based learning is that it is more motivating to learn when a student is enjoying himself or herself. Modern learners are dissatisfied with traditional education techniques, and as a result, they seek more intriguing, exciting, inspiring, and engaging learning experiences. The growing popularity of digital games has resulted in their widespread use and application (Anastasiadis, Lampropoulos, & Siakas, 2018).

In terms of information acquisition, game-based learning, employing teacher-authored games, was almost as effective as traditional teaching, but it was eminently successful in improving student motivation. Students who learned through instructional video games reported the experience to be more motivating and enjoyable than their counterparts, and the clear majority of them preferred game-based learning to traditional teaching (López-Fernández et al., 2021). Game components that inherently engage students, such as

graphical feedback and game-thinking, have more consistent long-term beneficial impacts, but they require a lot of effort to design (Paiva, Leal, & Queirós, 2020). Mathew, Malik, and Tawafak (2018) introduced a pseudo-code-based game called PROSOLVE that aims to help inexperienced programmers improve their problem-solving abilities in an introductory programming course. The study shows that the game aided the majority of the students in comprehending programming ideas, frameworks, and problem-solving methodologies. Furthermore, the game promotes students' cognitive, behavioral, and affective involvement in the introductory programming course. The game was well received by the instructors, who saw it as an extra supportive teaching element in the introductory programming course. They also saw the game as a viable alternative to the standard pen-and-paper learning method for getting the students' interest in programming.

According to Hallros and Pålsson (2021), there are four major design pillars a gaming system must adhere to in developing a game to promote self-directed learning through reflection on cause and effect relationships: “activate participation”, allowing them to try out new things, perspectives, and the state of the game; “avoid correlating rhetorical arguments” when playing in a casual situation, not to influence players because they establish their own goals; “provide observational clarity”, enabling players to understand how the actions they take affect the actors and events in the game system; and, lastly “enable trial and error” to allow players to experiment with various strategies in a safe environment where they may fail and try again without facing consequences.

## **Related Games**

Game-based learning refers to the use of games in educational settings to achieve educational goals. These games could be either fun or instructional. While engaging games are primarily intended for enjoyment, pleasure, and recreation, educational games are a subset of games that are intended to teach. Serious games are frequently combined with game-based learning (Stiller and Schworm, 2019). Kahoot, Edapp, Gametize and such are few examples of game base-learning platforms. Educators can employ digital game-based learning to assist students in acquiring abilities (Serrano, 2019).

EdApp is a game-based learning platform where Microlearning is one of core strategies which breaks down overwhelming training information into bite-sized modules. EdApp Mobile Learning Management System (LMS) enhances corporate & retail training to make eLearning more effective, efficient & fun (Winterford, 2015).

Kahoot is an Online quiz maker and also a game-based learning platform where user can access these interactive games and quizzes, which are uniquely called “Kahoots”, via a web browser or a mobile app (Brand, Brooker and Versvik, 2012).

Gametize is an enterprise-grade game-based learning platform where it enables organizations to enhance their employees’ training experiences, whether they are going through onboarding or upskilling programs. In addition, this tool includes results tracking and analytics, player moderation, and team collaboration (Ng, 2012).

Centrical is a training software that allows the user to design gamified microlearning content. The platform can also create custom learning challenges, prize-winning competitions, and quest-based game narratives to help your employees adopt the proper habits, practice skills in a risk-free virtual environment, and improve their overall knowledge and skills (Rimon, 2013).

Hoopla is a sales gamification software and engagement solution designed to motivate the sale teams to increase performance through contests, leaderboards, and real-time recognition and the tool's built-in leaderboards system allows team members to track their own performance (Eldred & Jankowski, 2010).

## **Learning Computer Programming**

Writing a computer code to construct a program and address a problem is referred to as programming, and programs are a collection of instructions that tell a computer what to do and how to do it. Over the last decade, computer programming has regained popularity, not

just as a result of rapid technological advancements, but also because it is said to cultivate other talents such as problem solving, logical thinking, and creativity (Scherer & Viveros, 2020). Everyone now requires computer programming skills. Programming skills provide numerous advantages in addition to providing a particular advantage in the job market. According to Ronny Scherer, Fazilat Siddiq, and Barbara Viveros, learning computer programming enhances cognitive abilities such as creativity, thinking, and numeracy (2018). Programming is enjoyable and, without a question, one of the most in-demand vocations in the twenty-first century. The first encounter with programming is exhilarating, and one may even like working and typing code all day at first. But wait, there is a catch, after a few weeks, one will be confronted with difficult algorithms to solve. When studying computer programming, the learner's creativity will be put to test since the student must organize all of the syntaxes and combine them with his or her concept, which is a great brain exercise. Even with critical thinking abilities, because the learner must absorb and analyze the problem before applying it, they will almost certainly make mistakes during their learning process, as is the case with numeracy. One of the most pressing challenges in programming education is the loss of motivation, which has a detrimental impact on time spent practicing, which is critical for new programmers (Paiva, Leal, & Queiro's, 2020).

## **Web Development**

With an increasing number of persons with disabilities and the elderly utilizing the internet, Web development is becoming a hot topic. Many laws are being implemented that mandate all people, regardless of their abilities or age, to have access to the internet. To investigate this further, we looked at the syllabi of web development classes at one university to see if the concept of accessibility was covered. An interesting finding, we uncovered was gender influences motivation to learn about accessibility. Females were motivated by personal motivations, which we attribute to women's (Ferati & Vogel, 2020).

For employed computer science graduates, web development is becoming an increasingly important skill and knowledge area. Web development, however, has shrunk or even

vanished entirely inside the ACM CS2013 curriculum guideline and computing education research in general. The results revealed a considerable mismatch between the type of web development taught in higher education and the type of web development used in industry. There are additional implications for web development pedagogy, computer science curriculum in general, and computing education research (Connolly, 2019).

According to Basu, et al (2021) For the success of a large-enrollment online CS course with successful tactics that can improve student learning and engagement. We established an online third-year web-development course and modified the previous F2F version with this goal in mind. This research looks at the course tactics used in the two versions of the course, as well as how students' learning and engagement differ between them. We found that the course tactics that were more beneficial to one group than the other, as well as both portions. We discovered that there was no substantial difference in student learning between these sections. We also discovered how levels of involvement in the online course varied depending on engagement criteria such as performance, emotions, skills, and participation. The findings of this study will be used to build online, face-to-face, and hybrid upper-level CS courses.

According to Hemendra Singh (2020) the demand for technology grows as the year progresses. People nowadays practically use technology in every part of their lives. The technology business is quickly expanding, and companies are constantly seeking new ways to suit people's needs. The development of website features, systems, and applications is known as web application development. Why is the greatest web app development firm expanding so quickly? People's desire for convenience drives them to constantly looking for something on the internet to make their lives easier or more entertaining. Web development is rapidly becoming one of the most in-demand professions. Thousands of websites are launched every day in the digital age, when everything requires an online presence. Various estimates put the figure at over 200,000 new sites per day. Furthermore, a web developer's work does not stop there. They'd be in charge of keeping the website up to date and dealing with any difficulties, corrections, or updates. In short, web development is easily one of the finest possibilities for someone searching for an evergreen employment

in the computer sector. Learning to code may take some time, but once you do, you will not be disappointed (Grothers, 2021).

Innovation in technology always makes an impact on how products and services are designed. After a series of tests with the built application, the majority of testers and target users of the system remarked on the project's usability and efficiency. As a result, guidance office managers proposed that the technology be fully deployed, citing the project's effectiveness. The first method, which is the native app, requires the user to first download the app and then use it according to their needs. To get around the limits listed above, Google has developed a Progressive Online App (PWA) that combines the greatest features of web and mobile apps. offering us the same rich experience as native apps It's a website that works like an app and is developed with web technologies. PWA stands for Progressive Web App, which is a website that operates like an app but does not require installation like a native app (Tandel & Jamadar, 2018).

Web design is one of the most important things a company can have; websites may help a firm get credibility. A company's professional value can also be enhanced through web design. Web design is important not only for e-commerce, but also for businesses that wish to express themselves. When a brand image does its job well, it can have a favorable impact on the organization. The role of web design to the advancement of a service company's business and brand image in light of present and future technological developments (Iskandar & Sholihat, 2018).

According to Kao, et al (2020) That there is a considerable body of research on primary school teachers' technology integration, as well as their self-efficacy and views toward web-based professional development. We explore how teachers' self-efficacy and attitudes toward web-based professional development affect their technology integration using a sample of 368 primary school teachers. The findings show that enhancing primary school teachers' learning attitudes and developing their self-efficacy are favorable to their desire to integrate technology into their teaching activities, which could improve teaching effectiveness using web-based technologies.

## **Learning through Visual, Reading, and Engagement**

Learning programming is difficult when it comes to reading without executing the codes. According to Swidan and Hermans (2019) in recent times, programming is increasingly taught to younger students in schools. While learning programming is known to be difficult, the researchers can lighten the learning experience of this age group by adopting pedagogies that are common to them. The programming course is not always available in schools for a variety of reasons, ranging from school budget restrictions, curriculum inflexibility, lack of teaching resources, and more. Not to mention that if coding was too difficult to learn, there would be no coding camps for kids, and if coding was too difficult to teach, there would be no online coding classes.

The pandemic gives students hard time learning things in school and even their habits every day have been changed. In early 2020, there was a COVID-19 outbreak throughout the world, including Malaysia. As a result of the epidemic, all educational activities were moved from face-to-face to online platforms. Online distance learning (ODL) is also used in the teaching and learning of programming disciplines. In a face-to-face setting, learning programming is difficult, and it becomes even more difficult in an ODL setting. To complete the programming task assigned by the speaker, this subject required problem-solving skills, strong motivation, and high self-directed learning. According to the statistics, 74.3 percent of students believe that it is more difficult to study programming subjects in ODL style than in face-to-face mode.

Other findings revealed that when learning programming subjects in ODL mode, 67 percent of students feel demotivated and 69 percent feel alienated (Ismail & Razak, 2021). During this pandemic, most of the schools shut the operation inside the school and continue using the internet or doing online classes. It is very difficult to learn during a pandemic especially if the course is in need of laboratories in order to learn the subjects like in programming courses. Many of the students decided to quit or change courses because of a lack of knowledge about programming. Experts are looking for a solution to solve the

said problem. High failure and dropout rates are reported in introductory programming (IP) courses in different studies despite extensive research attempting to address the issue. To increase learning and success rates, the researchers used an ADRI (Strategy, Deployment, Result, Improvement) approach in the teaching and learning process of an IP course, a visual programming language (VPL)-based solution to improve students' knowledge of basic programming principles. The VPL learning environment may help students who are not majoring in computer science overcome obstacles in learning programming languages.

Meanwhile, researchers investigated the differences in learning performance amongst students with various levels of self-efficacy. Sequence, condition, and loop were the three basic programming principles. This research used a quasi-experimental design (Chun-Yen, 2019). In addition, Visual Learning Programming is more reliable for those students who are not in computer-related courses, and it is easy to use and understand in making a program than performing the hard code. One of the systems that is very known for learning programming is called the Scratch. Scratch is a visual programming language created by the MIT Media Lab in 2007. Its drag-and-drop interface with colorful blocks makes it one of the most intuitive programming languages to learn. Unlike traditional programming languages like Python where the coder must write out the code, Scratch empowers young people and adults alike to easily build interactive games and programs by connecting code blocks together (Juni, 2020).

### **Parsing Algorithm for Code Editor**

The compilation process is divided into two stages: analysis and synthesis. The analysis stage decomposes the original program into smaller pieces and generates a language-independent intermediate representation. The synthesis stage then uses the intermediate representation to create the appropriate target program. Lexical analysis is the first step in reading and analyzing the program text (Myint, n.d.). According to Pai, Vaikunta, and Aithal (2020), it is a “pattern recognizer engine simulated by a mathematical computational model known as a Finite-State machine (FSM) or Finite-State Automaton (FSA) that reads a string of individual characters as input in the source program and clusters read characters

into meaningful sequences known as lexemes by matching with the token pattern and produces a stream of tokens.” Its major responsibility is to receive input characters and create a series of tokens for syntax examination by the parser. The parser is a component of the compiler that breaks down data from the lexical analysis section. The parser takes the input, which is essentially a stream of tokens, and uses various approaches to construct the parse tree from that stream of tokens. If there are any syntax errors, the parser will give an alert that an error has happened, and if there are no errors, it will create a parse tree (Baqai, Ilyas & Ejaz, n.d.)

## **Effectiveness of Performance Analytics**

Performance Analytics is a process for collecting data that embodies a valuable system of objective observation and details to boost performance. These assessments are helpful for identifying the course's strong points, pinpointing its weaknesses, and figuring out the elements that influence students' satisfaction. They are a crucial device for enhancing the processes of teaching and learning.

Well-crafted performance evaluations will assist teachers in gauging the levels of student knowledge, correcting any student misconceptions, and providing the teaching required to take thinking and learning forward. Furthermore, performance activities may be used to assess soft skills. Observing how students' approach and complete a performance task can provide information about students' flexibility, social skills, growth mindset, and capacity to persevere in the face of adversity. A study entitled Effectiveness of authentic performance tasks: The case of special education course was conducted with the same purpose. This study, designed as participatory action research, seeks to create authentic tasks for use as assessment and evaluation activities in an undergraduate special education course, as well as to investigate the impact of these tasks on students' experiences, perspectives, and feelings during the implementation processes. The research group included 205 student instructors who worked collaboratively in groups. The attendees created forty mini-research projects on special education and kids with exceptional needs. Collective research diaries, in which participants reflected, were used to collect research

data. Their feelings, ideas, and experiences in respect to the performance tasks in which they participated. To investigate the available data, a qualitative content analysis was performed, which was supplemented by continual comparative analysis techniques to assure the reliability of the analytical processes. The findings of the study show that authentic performance tasks improve student teachers' professional development by expanding their repertoire of research, methodology, and science process skills, as well as developing their self-confidence, self-efficacy, communication, interaction, and technology use skills. The findings show that the performance tasks are enjoyable, inventive, motivating, and educational for the participants. As a result, people have lived experiences that contribute to them in numerous ways (Uluçınar, U., & Dinç, E., 2021).

Another study discussed about using data analysis to students. The user footprint left in virtual learning environments (VLE) may be used to monitor learning progress, lower dropout rates by identifying high-risk students, guarantee and enhance quality, and possibly even serve as a forerunner to the so-called adaptive or personalized learning. Due to all of this, a brand-new area of educational study called Learning Analytics has emerged (LA). The purpose of this work is to use the LA approach to examine how students behave in relation to activities and resources with the ultimate goal of enhancing learning outcomes. Without using any particular technology, the data gathered from the Moodle platform is evaluated in spreadsheets and compared over the previous three academic years effects of general activity in particular (Peña, B., 2018, October 25).

A study was also conducted on China where Universities are focusing more and more on efficiency thanks to the "Double Top" initiative of the Chinese Ministry of Education. They are now working to assess the effectiveness of the inputs and outputs of their respective fields and schools. To assess input-output performance, Data Envelopment Analysis (DEA) is often utilized in a variety of industries, including education. However, few studies have utilized DEA to assess the performance of schools inside universities. In this study, we used a Data Envelopment Analysis (DEA) to assess how well several liberal arts colleges at a Double Top University in China produce research. Critical faculty and graduate student indicators were selected as inputs, while research outputs including

publications, projects, funds, and monographs were selected as indicators. To assess the efficiency performances from various angles, the CCR, BCC, and Super Efficiency DEA models were used. In this work, the assessment findings for each model are compared, and recommendations for decision assistance are made (Liu, D., Sun, H. & Huang, L., 2018).

The preservation of higher education's quality and standards has benefited greatly from student input. A sequence of questions or statements asking students to rate their level of pleasure or agreement may be the approach of gathering feedback that is most frequently employed. Focus groups provide a different method for gathering 'richer' qualitative information on students' opinions about course organization. In addition to student assessments, the effectiveness of curricular modifications at the program level has also been assessed using student test results. In order to pinpoint particular problems with the way that instruction is delivered, this data is less frequently used at the finer detail level. Also, student exam performance can also be used to gauge the success of a lesson plan. The effectiveness of curriculum has been evaluated at the program level by examining student performance in board examinations. The use of test data to assess instruction at the "micro" level, i.e. with regard to the teaching of incredibly narrow issues within the curriculum, is less common, though. Even while studies of test items or components are frequently conducted, the conclusions drawn from these analyses are frequently made at the level of the question or the examination. For instance, poor performance on a particular question may frequently be attributed to the question's difficulty, although a question's quality may be connected to its low discriminating power. However, rather than being a result of the question's difficulty, persistently low performance on questions related to the same subject may point to ineffective teaching strategies or a weakness in the curriculum (McAloon, C.G., Kelly, E., Rackard, S. et al., 2020, January 10).

## **Gamification in Learning**

Gamification can be defined as the strategic integration of game design principles, techniques, and mechanics into non-game environments to enhance user engagement, motivation, and participation. It leverages the intrinsic human desire for achievement,

recognition, and competition, transforming routine or mundane activities into exciting and immersive experiences. By applying game elements to real-world tasks, gamification seeks to create a sense of playfulness, challenge, and enjoyment, ultimately leading to increased user involvement and desired behavioral outcomes. The underlying philosophy of gamification is rooted in the understanding that games possess inherent qualities that foster engagement and motivation. Games have the ability to create compelling narratives, provide clear goals, and offer immediate feedback, which are key drivers of sustained engagement and learning. By incorporating these elements into non-gaming domains, gamification aims to tap into the psychological and emotional aspects of human motivation, influencing behavior and promoting long-term engagement.

Through an in-depth examination of gamification's multidisciplinary nature, we will explore its applications in education, health and wellness, business, and personal development. We will highlight real-world examples of gamification implementations and assess their impact on user engagement, motivation, and performance. By critically evaluating existing research, we aim to provide insights into the effectiveness, challenges, and future directions of gamification in different contexts.

In recent years, there has been a growing focus on incorporating game elements into non-gaming contexts, particularly in the field of education. The utilization of gamification in education has proven to be highly advantageous, enhancing motivation, user interaction, and social effects. Gamified elements such as points, badges, feedback, levels, rewards, and challenges have been effectively implemented in e-learning environments. However, a comprehensive systematic review specifically examining the use of gamification in online education has not been identified in the existing literature.

Therefore, the purpose of this study is to fill this gap by conducting a thorough examination of the current literature on the application of gamification in online education. The aim is to identify the reported benefits and challenges associated with gamification in this context. The research methodology employed in this study follows a literature review approach, collecting and analyzing existing scholarly works. The primary research keyword utilized throughout this study is "gamification." The findings of this research reveal that

gamification is increasingly recognized as a valuable learning tool that fosters more engaging educational environments. Moreover, gamification elements effectively support and motivate students to actively participate in gamified systems. The study identifies several common gamification elements used in e-learning, such as points, leaderboards, badges, and levels, which have a profound impact on student engagement.( Saleem, A. N., Noori, N. M., & Ozdamli, F. (2021))

This study contributes significantly to the existing body of knowledge on the application of gamification in online education. It reinforces previous studies while also highlighting new areas for exploration and advancement in the field. Based on the results, recommendations for further research on gamification applications in e-learning are provided, offering potential avenues for future investigation and development.

This meta-analysis investigated the effects of gamification on cognitive, motivational, and behavioral learning outcomes. The findings revealed statistically significant effects of gamification on these outcomes, although the effects were small in magnitude. The study also examined various moderators, including game fiction, social interaction, and learning arrangement, as well as situational and methodological factors. The inclusion of game fiction and social interaction emerged as significant moderators for behavioral learning outcomes. These results suggest that gamification is an effective instructional approach, but further research is needed to better understand the factors that contribute to its success, particularly in relation to cognitive outcomes.

Gamified learning and game-based learning are two distinct approaches, although they share similarities in using game elements for educational purposes. Gamified learning focuses on enhancing existing learning processes by incorporating game elements, while game-based learning involves designing complete games for learning. The theory of gamified learning proposes that effective instructional content influences learners' behaviors and attitudes, which, in turn, impact learning outcomes. Self-determination theory suggests that satisfying psychological needs, such as competence and autonomy,

plays a crucial role in intrinsic motivation and learning. Feedback is a powerful factor in the relationship between educational interventions and learning outcomes.

Previous research on gamification in education has mainly relied on systematic reviews, with limited meta-analytic evidence. These reviews have provided mixed findings, indicating the presence of confounding variables and potential publication bias. Methodological limitations, small sample sizes, and differences in gamified contexts and participant characteristics have contributed to the variability in results. While some studies have reported positive effects of gamification on motivational, behavioral, and cognitive variables, many experiments remain inconclusive due to methodological inadequacies and a lack of rigor in gamification research.

In the realm of gamified learning theory, gamification refers to the utilization of game attributes, as classified by the Bedwell taxonomy, in non-game contexts with the objective of influencing learning-related behaviors and attitudes. These behaviors and attitudes, in turn, impact the learning process through either one or two mechanisms: by enhancing the relationship between instructional design quality and learning outcomes (a moderating process), and/or by directly influencing learning itself (a mediating process). This stands in contrast to the serious games approach, where the manipulation of game attributes primarily aims to impact learning without the involvement of such behavioral mediators or moderators. To illustrate the application of each game attribute category within gamification, specific examples are provided. Additionally, this paper offers explicit recommendations for conducting rigorous and scientifically valid studies on gamification.  
(Hanus, M. D., & Fox, D. H. (2015))

## Synthesis

Educational games are games that are either deliberately created for educational reasons or offer secondary educational value. This game was made so that students might have fun while studying. Since learning a web development language is not that easy, one of the most serious issues in programming education is motivation, which has a negative

influence on the amount of time spent practicing, which is crucial for new programmers. The most successful technique of reawakening each learner's motivation is using a reward system, which is most prevalent in games. In addition, their drive may be reawakened through competition. Learners are motivated to work more and study longer to attain their goals because competition motivates them to do so; engagements allow them to put their talents to greater use and improve them; and incentives make them feel successful.

Gamification is the strategic integration of game design principles, techniques, and mechanics into non-game environments to enhance user engagement, motivation, and participation. It leverages human desires for achievement, recognition, and competition, transforming routine tasks into immersive experiences. By incorporating game elements, gamification aims to create playfulness, challenge, and enjoyment, leading to increased user involvement and desired behavioral outcomes. The philosophy behind gamification is rooted in the understanding that games possess qualities that foster engagement and motivation, such as compelling narratives, clear goals, and immediate feedback. Gamification is applied in various fields, including education, health and wellness, business, and personal development, with real-world examples demonstrating its impact on user engagement and performance. However, comprehensive research on the application of gamification in online education is limited, indicating the need for further investigation. A meta-analysis exploring the effects of gamification on cognitive, motivational, and behavioral learning outcomes found small but statistically significant effects. Factors such as game fiction and social interaction were identified as moderators for behavioral learning outcomes. Distinct from game-based learning, gamified learning utilizes game attributes to influence learning-related behaviors and attitudes, impacting the learning process through mediating and moderating mechanisms. Recommendations are provided for conducting rigorous studies on gamification. Overall, the existing body of knowledge highlights the potential of gamification in fostering engagement, motivation, and learning, while also pointing to the need for further research and methodological improvements.

Each one has a different way of learning, some learn through reading, some through visuals, and others through engagement. Engagement is the most effective way of learning

something, and that is present in this game. The user or learner will be the one who assembles all of the codes in order to make it work. This game features data analytics that will track the learners' progress and allow them to see their current level of proficiency in each language.

Here in the Philippines, contextualization and localization, spiral progression, and 21st-century skills are all included in the K-12 curriculum. In order to fulfill the demands of the times, future graduates and those who have graduated already must be technologically and informationally sophisticated. Programming skills provide numerous advantages in addition to providing a particular advantage in the job market. Even for some students, learning basic programming has now become a criterion. Many individuals desire to study programming, and some have registered in ICT courses linked to programming but still lack some resources, while others have wished to enroll but cannot find any organizations that provide such sorts of courses. With this game, they will be able to learn and even practice their skills without any more hurdles.

## **WEBCRAFT: GAME-BASED LEARNING FOR WEB DEVELOPMENT**

### **Overview of the project**

Learning web development can be a challenging and rewarding experience, but for many students, it can also be a daunting task. In this study, the researchers aim to address some of the challenges that students face when learning HTML5, CSS3, JavaScript, PHP, and jQuery. These challenges include a lack of motivation, limited resources, and difficulty in grasping complex programming concepts.

To overcome these challenges, the researchers propose a new approach to learning web development: a game-based learning system. The system is designed to help students learn web development in a fun and engaging way, by integrating programming concepts into a game-like environment. The game starts with the basic structure of HTML and progress to more advanced concepts, such as CSS for designing, JavaScript for functionality, and PHP for connection. As the levels progress, the complexity of the topics will increase, from inculcating basic knowledge to implementing advanced understanding of topics.

By incorporating game elements into the learning process, the system aims to make learning web development more enjoyable and motivating for students. In addition, the system will provide access to learning resources such as documentation and tutorials, which will aid in the learning process.

The proposed game-based learning system aims to address the challenges faced by students when learning web development, by providing an engaging and effective learning environment that is accessible to all.

The development process was carried out following the Agile Scrum Model Software Development Lifecycle. The researchers encountered challenges related to the flow of the system and the interconnection of various modules within the system. However, they adhered to the methodology stated in their paper, which allowed them to develop the system

using different solutions. To ensure the system's success and functionality, the researchers began by listing all the necessary requirements and goals that the system needed to satisfy potential users. They communicated with stakeholders, including instructors and MAWD students, to gather information and define the system's requirements, goals, modules, game mechanics, and gameplay.

The Agile Scrum Model was applied through iterative planning, coding and development, implementation, and testing. The iteration planning phase involved determining the objectives of each iteration, planning the game's interface, and discussing the development of different system modules for each user type. The planned actions were then executed during the coding and development sub-phase, following a step-by-step approach. Throughout the development process, the researchers conducted regular meetings to monitor progress, address issues, and ensure the system was being developed effectively. Testing was a crucial phase where various tests were performed to verify the system's proper functionality. Unit tests were conducted to ensure each module performed as intended without errors. Any identified errors, including logical errors, were addressed by reviewing and correcting the code.

The researchers evaluated the connectivity between modules, reviewing implemented logic and ensuring that the output met the requirements. They also tested the system's compatibility with different web browsers to ensure a seamless user experience. Once the system was thoroughly tested on the local machine, it was uploaded to a web host and subjected to further tests to ensure smooth operation when deployed online.

During the feedback phase, the researchers incorporated improvements, adjustments, and suggestions received, treating them as new requirements to be addressed in subsequent iterations. They focused on resolving issues and faults, making the necessary adjustments to enhance the system's speed and efficiency. By following the Agile Scrum Model Software Development Lifecycle, the researchers were able to effectively address the challenges they encountered, ensure stakeholder involvement, iterate on the development process, and deliver a functional system that met the specified requirements.

## System design specification

The study aimed to develop a game-based learning system that would be used to help the students in IT in Mobile App and Web Development to learn more about web development in a fun and engaging way. It was intended to help them nurture their knowledge for their future achievements. This part of the paper focused on the researchers' strategy and method for achieving this goal. The researchers executed iterations onto the project using the Agile Scrum Methodology, which was used as a guide until it met the study's goals and objectives. The program and its modules were developed repeatedly by the researchers; they refined it based on iterations from the reviews that were gathered while developing the system.

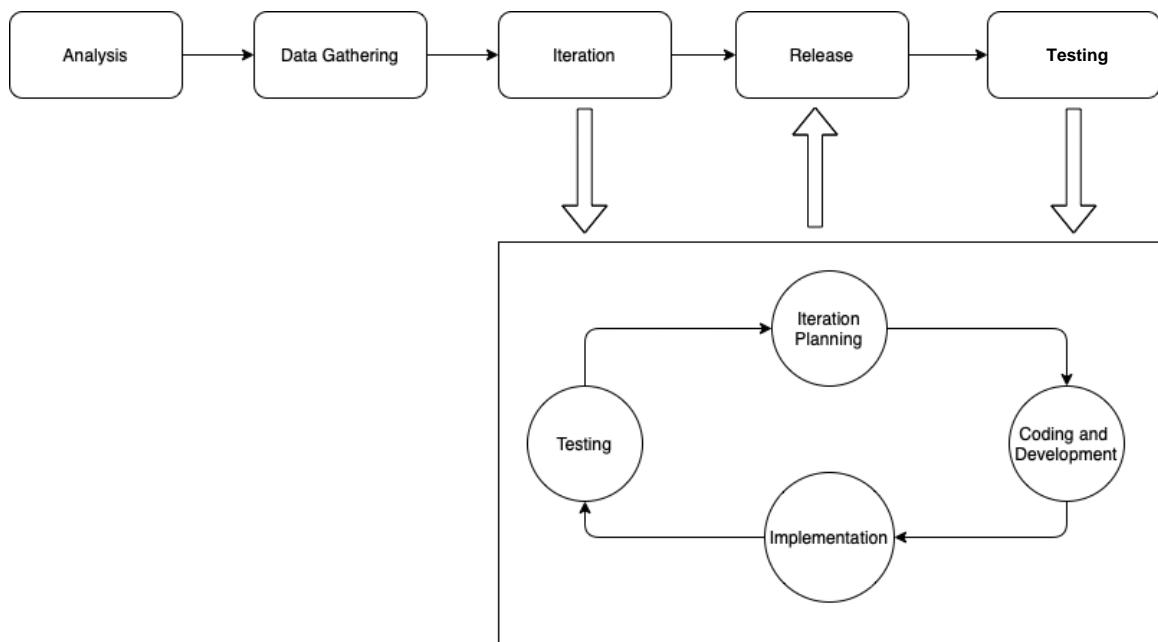


Figure 1. Agile Scrum Model Software Development Lifecycle

To create a successful and functional game, the researchers listed everything that the system needed to satisfy potential users. The researchers communicated to determine and define the system's requirements and goals, the modules to be developed as well as the game mechanics and gameplay. The functions were prioritized according to how vital they were to the overall functionality of the system.

The researchers asked information about the course syllabus as well as the population of the enrolled students under MAWD strand to the instructors in the institution. The proponents gathered the needed data from the MAWD students in the form of a survey questionnaire and interviewed some of the MAWD graduates that corresponded to the background of the study. (*See Appendix F*).

Iteration planning, coding and development, implementation and testing were the four sub-phases that made up the iteration phase. The iteration planning sub-phase was responsible for determining the needs and goals that the researchers aimed to achieve during the iteration, planning the game's interface as well as the functionalities that would be applied onto the system. The planning of the system's functionality was focused and composed of the different system modules for each user type in the system, discussing how it would be developed and what were the things needed to consider achieving the objectives of the iteration. After identification, the iteration planning was implemented in the coding and development subphase. The planned action was applied and executed during the development and coding of the actual system. Lastly, the proponents tested the system to check whether the program functioned in accordance with its requirements and functionalities. They assessed the program to detect and uncover potential faults in the system. During this phase, the proponents chose what module must be developed first depending on its complexity and functionality, using a step-by-step approach. The proponents had a daily meeting to observe the progress and address issues while developing the system.

Throughout the testing phase, the researchers conducted various tests to verify the proper functionality of the system. The researchers performed a unit test of each module's functionalities in the proposed system to ensure that it functioned properly and had no errors. The researchers developed each module in accordance with the specific tasks it was supposed to complete. They then conducted real tests on the modules and verified each result. While testing, the researchers detected errors such as logical errors, which caused the program to produce incorrect output. Once all the errors were identified, the researchers checked and corrected the code. The researchers evaluated the system's modules as a whole

to ensure that there was connectivity between each module by reviewing the implemented logic and determining if the output met the requirements. While testing, the researchers encountered errors, inaccurate outcomes, and other functions that needed to operate correctly. The researchers promptly reviewed the code and checked the data flow to address any issues that arose. Once the development of the system was completed and thoroughly tested on the local machine, the researchers proceeded to upload it to the web host. After uploading the system, they ran a series of tests to ensure that the system operated without any issues when deployed online. These tests included verifying the system's functionality and performance. The researchers also checked for compatibility with different web browsers to ensure that users could access the system without any problems.

During the feedback phase, the team of researchers diligently reviewed and addressed all mentioned improvements, adjustments, and suggestions. Their primary objective was to ensure that every comment and critique was carefully considered and incorporated into their study. Resolving issues and faults took precedence before moving forward to the next iteration phase. The researchers focused on identifying possible adjustments that would enhance the speed and efficiency of their work.

With a shared commitment to academic excellence, the researchers engaged in thorough discussions to analyze and evaluate the feedback received. They understood the significance of incorporating these valuable insights to refine their study. Each suggestion was examined with precision, recognizing its potential impact on the quality of their research. The team placed great importance on resolving any identified issues and faults before progressing further. Efficiency and speed became paramount considerations as the researchers evaluated the feedback. They dedicated themselves to streamlining their research processes and eliminating unnecessary complexities. With careful analysis, they identified opportunities to optimize methodologies, workflows, and experimental designs. The goal was to enhance overall efficiency without compromising the integrity and validity of their findings. Through thoughtful deliberation and consideration, the team pursued adjustments that would expedite their work and contribute to a more efficient research endeavor.

With the feedback duly addressed and adjustments made, the researchers emerged from the feedback phase with a sense of accomplishment. They recognized that the invaluable insights gained during this process had fortified their work, bringing it closer to the desired standards of excellence. By resolving the mentioned issues and faults, they had strengthened the robustness and efficiency of their study, paving the way for future progress.

## System's Flowchart

During operation, the system will go through a series of events and states. The flowchart below serves as a visual representation of the application's process sequence.

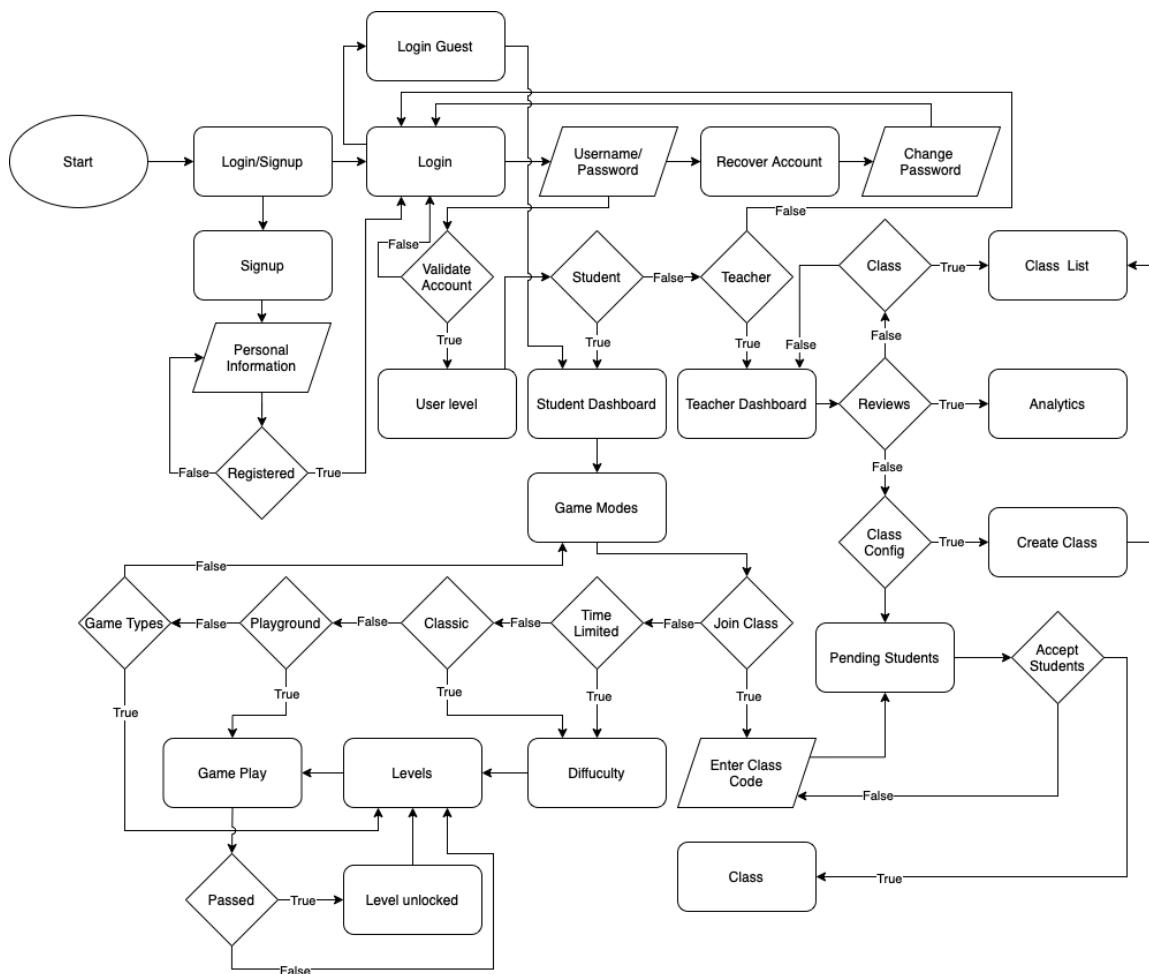


Figure 2. System Flowchart

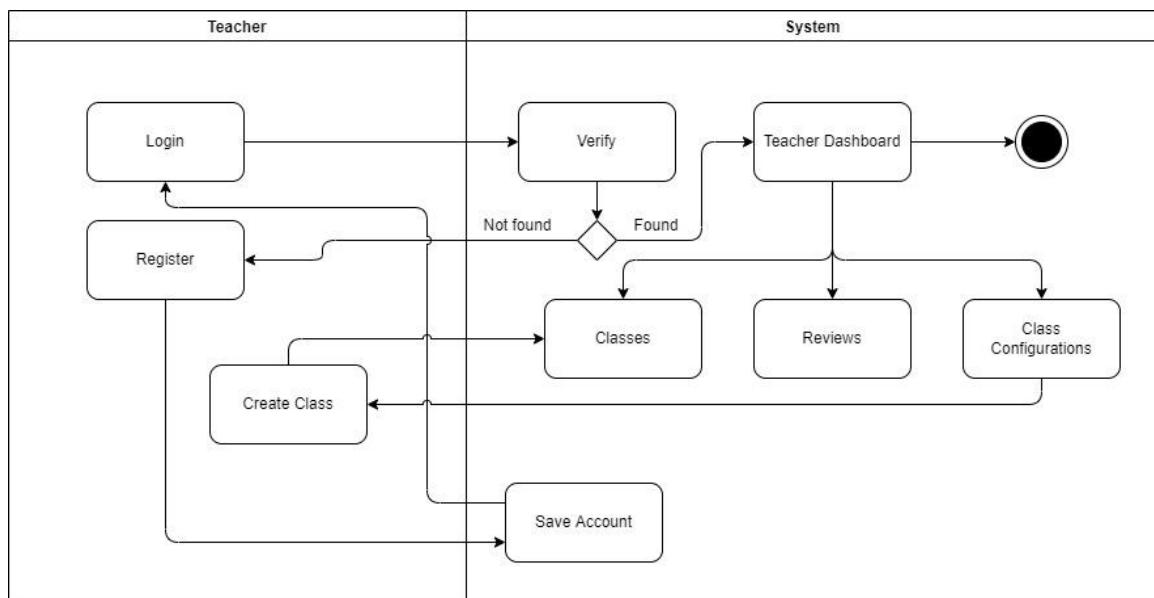


Figure 3. System Application Diagram (Teacher and System)

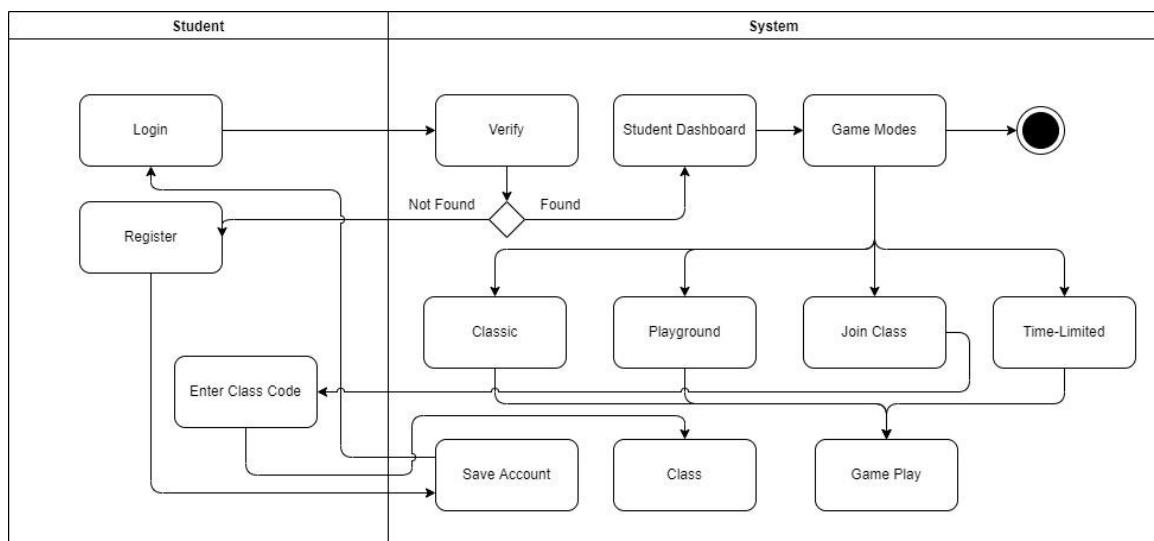


Figure 4. System Application Diagram (Student and System)

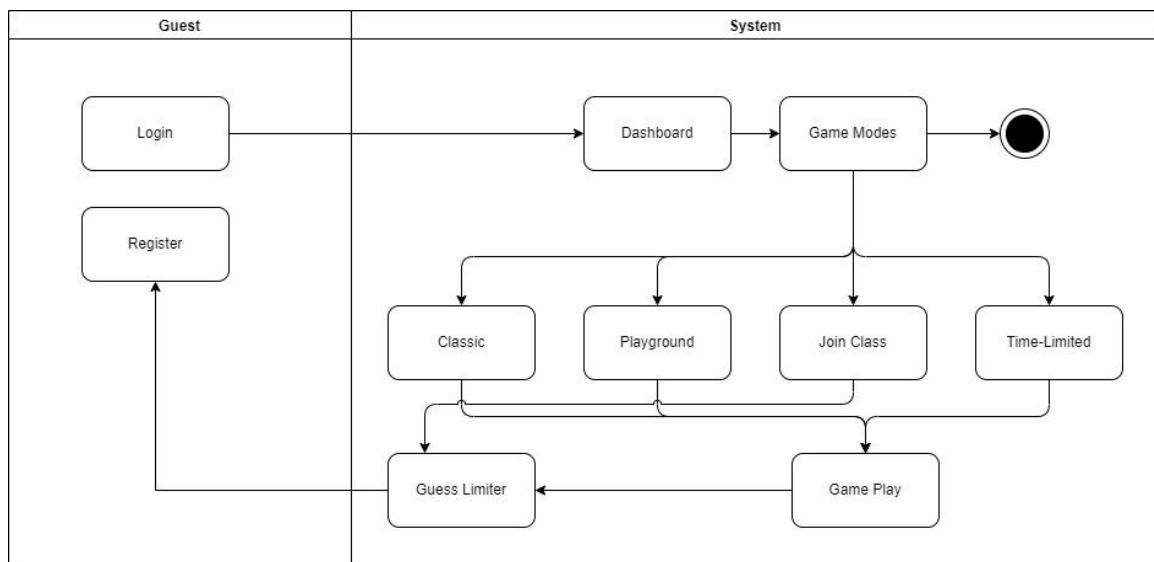


Figure 5. System Application Diagram (Guest and System)

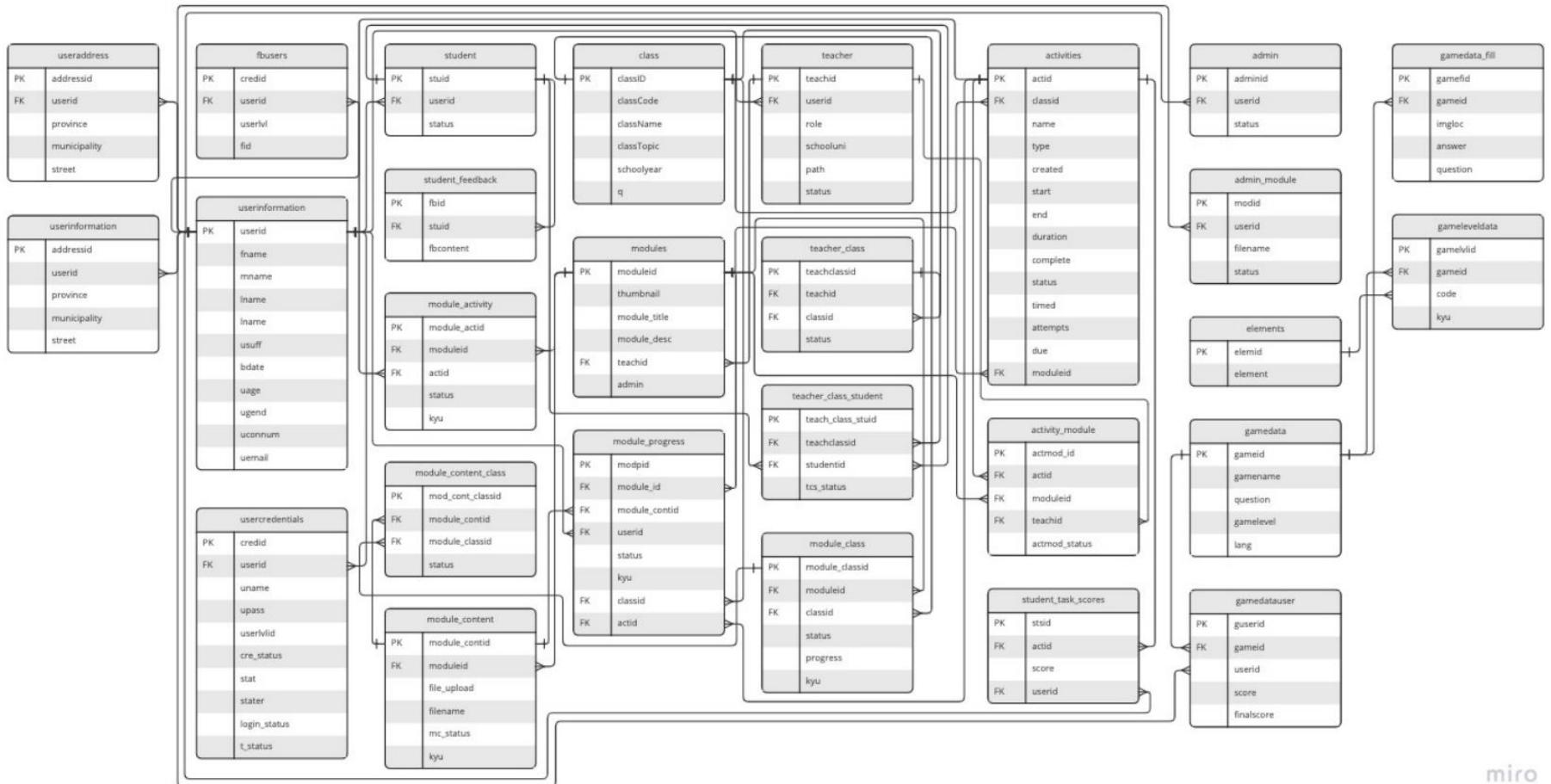


Figure 6: Entity Relationship Diagram

## **Hardware/Software**

This research utilized a variety of software and hardware to create a functional and accurate application. The following software and hardware will be used:

### **Software**

This section shows the list of software that the proponents use in the development of the system as well as the recommended software to use in order to achieve the highest system quality. Since the game is a web-based system it is accessible for both desktop and mobile device through a web browser of their choice, but proponents recommend using Google Chrome for best results.

<b>Software</b>	<b>Definition</b>
Firefox Developer Edition	a lightning-fast browser with cutting-edge developer tools and cutting-edge features such as CSS Grid support and framework debugging.  This browser is where the proponents run and execute the codes during the development phase.
Visual Studio Code	a lightweight but powerful source code editor which runs on one's desktop and is available for Windows, macOS, and Linux. It comes with built-in support for JavaScript, TypeScript, and Node.js, and has a rich ecosystem of extensions for other languages (such as C++, C#, Java, Python, PHP, Go) and runtimes (such as .NET and Unity).  The proponents will use the IDE as the primary code editor throughout the development of the system
XAMPP	a completely free, easy to install Apache distribution containing MariaDB, PHP, and Perl. The XAMPP open-source package has been set up to be incredibly easy to install and use.

	Using this application, the proponents will be able to connect the system during the development to the localhost database before implementing it online using a web hosting.
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Table 1: Software use during the development

Software	Requirements
Web Browser	Latest version of Google Chrome is recommended

Table 2: Minimum System Requirements

## Hardware

This section shows the hardware specification that the proponents use in the development and documentation of the system as well as the minimum hardware specifications to be used by the users of the system. It lists all the devices that the proponents possess to be used as a tool to make the system happen.

Hardware	Specifications
Desktop Computer	MSI B450 Motherboard Ryzen 5 3600 2pcs 8GB RAM DDR4 NVIDIA GeForce GTX 250GB SSD
Monitor	Acer Viewpaker
Keyboard	Inplay
Mouse	Logitech G102
Headset	Badwolf
Acer Aspire Series	Intel Core i5 1.60GHz 4GB RAM DDR4 1TB HDD 250GB SSD

Acer A315-41G-R5U3	AMD Ryzen 3 220U 2.50GHz 4GB RAM DDR4 1TB HDD
MacBook Air 11" Mid 2011	Intel Core i5 dual core 4GB RAM DDR3 Intel HD Graphics 384MB
Brother Printer	DCP – T710W Inkjet

Table 3: Hardware Specifications use during the development and documentation

Hardware	Specifications
Mobile Phone	Android 8.0 Oreo or iOS 10.0 4GB RAM
Computer (Desktop and Laptop)	Windows 7 or Mac OS X 10.9 4GB RAM

Table 4: Minimum System Requirements

## RESULTS AND DISCUSSIONS

The developers administered a survey and performed system testing on a diverse group of participants including students, teachers, professionals, and non-professionals to evaluate the user interface of their web-based system. The evaluation process involved the developers introducing the system to the users, who then rated the system based on a questionnaire.

### USER INTERFACE (STUDENT)

<b>Students Evaluation Results</b>								
<b>Indicator</b>		<b>Percentage (%)</b>					<b>WM</b>	<b>Description</b>
		<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>		
<b>USER INTERFACE</b>								
1. The web interface is very appealing	85	12.5	3.5	0	0	4.83	Strongly Agree	
2. The fonts used is readable and clear. Including the font style and size.	77.5	17.5	5	0	0	4.73	Strongly Agree	
3. The color theme that is being used complements are complementary to the other elements.	80	15	5	0	0	4.75	Strongly Agree	
4. The logo and icons are in proper size/proportion.	77.5	17.5	5	0	0	4.73	Strongly Agree	
5. The layout of the web is simple yet sophisticated.	72.5	22.5	5	0	0	4.68	Strongly Agree	
6. The content is appropriate.	82.5	15	2.5	0	0	4.80	Strongly Agree	
7. The organization of content is in proper section.	80	12.5	5	2.5	0	4.70	Strongly Agree	
<b>Overall Weighted Mean</b>						<b>4.74</b>	<b>Strongly Agree</b>	

Table 5: Student Evaluation User Interface

The results of the users' evaluation of the system's user interface are displayed in *Table 5*. As presented, the respondents strongly agree with all the indicators, with a total

accumulated mean of 4.74. Specifically, it is supported by the following indicators: the web interface is very appealing ( $\bar{x}=4.83$ ), the fonts used are readable and clear, including the font style and size ( $\bar{x}=4.73$ ). The color theme being used complements the other elements ( $\bar{x}=4.75$ ), and the logo and icons are in proper size/proportion ( $\bar{x}=4.73$ ). Additionally, the result was supported by the following indicators: the layout of the web is simple yet sophisticated ( $\bar{x}=4.68$ ), the content is appropriate ( $\bar{x}=4.80$ ), and the organization of content is in the proper sections ( $\bar{x}=4.70$ ).

### USER EXPERIENCE (STUDENT)

The questionnaire provided in this study is intended for the students who will participate in testing the system. By exploring the system and engaging with its features, these students can provide valuable insights into its user interface and functionality, allowing the developers to identify areas for improvement and optimize the system's design. Upon exploring the system, the students are encouraged to provide their honest feedback or rating, enabling the developers to understand how users interact with the system and what aspects of the user interface are effective and what aspects may need further improvement. This feedback allows the developers to improve the system's user interface and make it more user-friendly, intuitive, and efficient, ultimately enhancing the overall user experience. Through this process, the developers can create a system that meets the users' needs and expectations, providing a satisfying and engaging experience for all users.

<b>Students Evaluation Results</b>							
<b>Indicator</b>	<b>Percentage (%)</b>					<b>WM</b>	<b>Description</b>
	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>		
<b>USER EXPERIENCE</b>							
1. The instructions are very easy to understand.	77.5	22.5	0	0	0	4.78	Strongly Agree
2. Website is free of broken links and missing images.	35	47.5	12.5	5	0	4.13	Agree

3. The game did not exhibit any lagging or crashing issues.	35	40	22.5	2.5	0	4.08	Agree
4. I received prompt messages from the website such as indicating invalid entries and/or inputs.	42.5	30	15	10	2.5	4.00	Agree
5. The website content is relevant and useful.	75	22.5	2.5	0	0	4.73	Strongly Agree
6. The website is user-friendly.	77.5	20	2.5	0	0	4.75	Strongly Agree
<b>Overall Weighted Mean</b>						<b>4.45</b>	<b>Strongly Agree</b>

Table 6: Student Evaluation User Experience

*Table 6* presents the outcomes of the user's evaluation of their experience with the system. As shown, the respondents mostly answered Agree and Disagree in the indicators as an evaluation of their experience with the system, with a total accumulated mean of 4.45 (strongly agree).

Specifically, it is supported by the following indicators: Firstly, the instructions are very easy to understand, with a weighted mean of 4.78. The website is free of broken links and missing images ( $\bar{x}=4.13$ ). Additionally, the game did not exhibit any lagging or crashing issues ( $\bar{x}=4.08$ ), and the respondents received prompt messages from the website, such as indicating invalid entries and/or inputs, with a weighted mean of 4.00. Moreover, the remaining two indicators both received a weighted mean of 4.73 and 4.75, wherein most of the student-respondents strongly agreed that the website content is relevant and useful, and the website is user-friendly.

## FUNCTIONALITY (STUDENT)

This questionnaire is primarily intended to assess the functionality of the system, with a specific focus on the students' user experience. The primary objective is to evaluate the effectiveness of the system in delivering its intended functionality to the target user group.

Students Evaluation Results							
Indicator	Percentage (%)					WM	Description
	5	4	3	2	1		
<b>FUNCTIONALITY</b>							
1. It has an effective authentication to secure user's account	67.5	25	7.5	0	0	4.60	Strongly Agree
2. The information entered can be easily updated.	67.5	27.5	5	0	0	4.63	Strongly Agree
3. It is easy to access the learning materials	77.5	17.5	5	0	0	4.73	Strongly Agree
4. The class codes are functioning.	82.5	17.5	0	0	0	4.83	Strongly Agree
5. The playground is working proficiently.	67.5	25	7.5	0	0	4.60	Strongly Agree
6. The class code generated per class is unique	67.5	20	0	2.5	0	4.63	Strongly Agree
7. It is possible to download the files from the playground.	62.5	22.5	15	0	0	4.48	Strongly Agree
8. The games on the time-limited mode and in the classic mode are indeed challenging.	57.5	32.5	10	0	0	4.48	Strongly Agree
<b>Overall Weighted Mean</b>						<b>4.62</b>	<b>Strongly Agree</b>

Table 7: Student Evaluation Functionality

Based on Table 7, the respondents strongly agree with all the indicators, with a total accumulated mean of 4.62.

Specifically, it is supported by the following indicators: it has effective authentication to secure users' accounts ( $\bar{x}=4.60$ ), the information entered can be easily updated ( $\bar{x}=4.63$ ), it is easy to access the learning materials ( $\bar{x}=4.73$ ), the class codes are functioning ( $\bar{x}=4.83$ ), the playground is working proficiently ( $\bar{x}=4.60$ ), the class code generated per class is unique ( $\bar{x}=4.63$ ), it is possible to download files from the playground ( $\bar{x}=4.48$ ), and lastly, the games in the time-limited mode and the classic mode are indeed challenging ( $\bar{x}=4.48$ ).

### USER INTERFACE (TEACHER)

The purpose of this questionnaire is to gather feedback from the teachers who are going to utilize the system's teacher side. It aims to determine their satisfaction level and identify areas for improvement. The questionnaire includes questions that are specifically designed to evaluate the functionality and usability of the teacher side of the system. The teachers are encouraged to explore and check the system thoroughly before answering the questionnaire. This ensures that they have a complete understanding of the system's capabilities and limitations, which will enable them to provide honest and accurate feedback. Their ratings and feedback will be used to further enhance the system's features and improve its overall performance, making it more user-friendly and efficient for the teachers who will be using it. The results of the questionnaire will be analyzed and used to create an action plan to address any issues or concerns raised by the teachers. By soliciting feedback from the teachers, the system's developers can ensure that the teacher side of the system meets the requirements and expectations of the end-users, resulting in a more effective and reliable system.

Teachers Evaluation Results								
Indicator		Percentage (%)					WM	Description
		5	4	3	2	1		
<b>USER INTERFACE</b>								
1. The web interface is very appealing		75	25	0	0	0	4.75	Strongly Agree

2. The fonts used is readable and clear. Including the font style and size.	75	25	0	0	0	4.75	Strongly Agree
3. The color theme that is being used complements are complementary to the other elements.	100	0	0	0	0	5	Strongly Agree
4. The logo and icons are in proper size/proportion.	75	25	0	0	0	4.75	Strongly Agree
5. The layout of the web is simple yet sophisticated.	75	25	0	0	0	4.75	Strongly Agree
6. The content is appropriate.	100	0	0	0	0	5	Strongly Agree
7. The organization of content is in proper section.	100	0	0	0	0	5	Strongly Agree
<b>Overall Weighted Mean</b>						<b>4.86</b>	<b>Strongly Agree</b>

Table 8: Teacher Evaluation User Interface

The data shows that the teachers who evaluated the system strongly agree that the web interface is very appealing ( $\bar{x}=4.75$ ), the fonts used are readable and clear ( $\bar{x}=5$ ), the color theme being used complements the other elements ( $\bar{x}=4.75$ ), and the logo and icons are in the proper size and proportion ( $\bar{x}=4.75$ ). They also found the layout of the web to be simple yet sophisticated ( $\bar{x}=4.75$ ), with appropriate and well-organized content ( $\bar{x}=5$ ). The overall weighted mean for the user interface is 4.86, with a verbal description of "Strongly Agree."

### USER EXPERIENCE (TEACHER)

The questionnaire is designed to gather feedback from teachers who have explored and used the teacher's side of the system. The purpose is to evaluate their user experience, specifically in terms of the web interface, fonts, logo and icons, layout, content appropriateness, and organization. Teachers are encouraged to provide honest ratings and feedback to improve the system and make it more user-friendly. Overall, the questionnaire aims to ensure that the teacher's side of the system is effective, efficient, and enjoyable to use, thereby enhancing the teaching and learning experience.

Teachers Evaluation Results							
Indicator		Percentage (%)				WM	Description
		5	4	3	2	1	

<b>USER EXPERIENCE</b>								
1.	The instructions are very easy to understand.	75	25	0	0	0	4.75	Strongly Agree
2.	Website is free of broken links and missing images.	75	25	0	0	0	4.75	Strongly Agree
3.	The game did not exhibit any lagging or crashing issues during my experience.	75	25	0	0	0	4.75	Strongly Agree
4.	I received prompt messages from the website such as indicating invalid entries and/or inputs.	75	25	0	0	0	4.75	Strongly Agree
5.	The website content is relevant and useful	100	0	0	0	0	5.00	Strongly Agree
6.	The website is user-friendly	100	0	0	0	0	5.00	Strongly Agree
<b>Overall Weighted Mean</b>							<b>4.83</b>	<b>Strongly Agree</b>

Table 9: Teacher Evaluation User Experience

The table displays the results of the Teacher's Evaluation for the user experience of the system. As presented, the respondents strongly agree with all the indicators, with a total accumulated mean of 4.83.

In particular, the result is supported by the following indicators: The instructions are very easy to understand ( $\bar{x}=4.75$ ), the website is free of broken links and missing images ( $\bar{x}=4.75$ ), the game did not exhibit any lagging or crashing issues during their experience ( $\bar{x}=4.75$ ). Additionally, they received prompt messages from the website, such as indicating invalid entries and/or inputs ( $\bar{x}=4.75$ ). Moreover, the remaining two indicators, namely, the website content is relevant and useful, and the website is user-friendly, both achieved a weighted mean of 5.

## FUNCTIONALITY (TEACHER)

This questionnaire is designed to be used solely by the teachers to test and explore the functionality of the teacher's side of the web system. The primary purpose of this questionnaire is to evaluate the web's functionality and performance from the perspective of the teachers who will be using it. As such, the questions in this questionnaire are tailored to focus on the specific features and capabilities of the system that are essential for the

successful delivery of teaching materials and the management of classroom activities. The results of this evaluation will be used to identify areas where improvements are needed and to guide the development of future upgrades or modifications to the web system. Therefore, the feedback and ratings provided by the teachers who test the web system using this questionnaire are critical in ensuring that the system meets the needs and expectations of the end-users, in this case, the teachers.

<b>Teachers Evaluation Results</b>									
<b>Indicator</b>		<b>Percentage (%)</b>					<b>WM</b>	<b>Description</b>	
		<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>			
<b>FUNCTIONALITY</b>									
1. It has an effective authentication to secure user's account		100	0	0	0	0	5.00	Strongly Agree	
2. The information entered can be easily updated		75	25	0	0	0	4.75	Strongly Agree	
3. Managing entries in class such as adding, modifying, and archiving is fast		100	0	0	0	0	5.00	Strongly Agree	
4. Managing entries in activities such as adding, modifying, and archiving is fast		75	25	0	0	0	4.75	Strongly Agree	
5. The class code generated per class is unique		100	0	0	0	0	5.00	Strongly Agree	
6. Managing student's progress such as bulk adding and individual adding is easy and fast		100	0	0	0	0	5.00	Strongly Agree	
7. Uploading of learning materials and accessing materials is easy		25	50	25	0	0	4.00	Agree	
8. The generated rank in leadership board is accurate		75	25	0	0	0	4.75	Strongly Agree	
<b>Overall Weighted Mean</b>							<b>4.78</b>	Strongly Agree	

Table 10: Teacher Evaluation Functionality

The data represents the results of a questionnaire aimed at evaluating the functionality of the web for teachers. The questionnaire consists of eight indicators, and responses were measured on a scale of 1 to 5, with 5 being the highest score. The results indicate that the teachers strongly agreed with the majority of the indicators, as indicated by a weighted mean of 4.78. This is supported by the following indicators: effective authentication to

secure users' accounts, easy updating of entered information, fast management of entries in class (including adding, modifying, and archiving), unique class codes generated per class, and easy and fast management of student progress. These indicators achieved a total weighted mean of 5.

Furthermore, the indicators of easy updating of entered information, fast management of entries in activities (including adding, modifying, and archiving), and accurate generation of ranks in the leadership board obtained a weighted mean of 4.75. Finally, the respondents agreed that uploading and accessing learning materials is easy.

#### USER INTERFACE (GUEST)

This questionnaire is designed specifically for the guest users of the system, who will be accessing the platform from the guest side without creating an account. The purpose of this questionnaire is to gather feedback from these users about their experience with the guest side of the system, including their overall impression of the interface, ease of navigation, and the relevance and usefulness of the information provided. By collecting this data, the development team can gain valuable insights into the guest user experience, identify areas for improvement, and make necessary changes to enhance the user experience. Ultimately, the goal is to provide guest users with a seamless and satisfying experience that will encourage them to engage with the system and potentially convert them into registered users.

<b>Guest Evaluation Results</b>							
<b>Indicator</b>	<b>Percentage (%)</b>					<b>WM</b>	<b>Description</b>
	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>		
<b>USER INTERFACE</b>							
8. The web interface is very appealing	28.5	43	28.5	0	0	4.00	Agree
9. The fonts used is readable and clear. Including the font style and size.	43	57	0	0	0	4.43	Strongly Agree
10. The color theme that is being used complements are complementary to the other elements.	57	43	0	0	0	4.57	Strongly Agree
11. The logo and icons are in proper size/proportion.	0	71.4	14.3	14.3	0	3.57	Agree
12. The layout of the web is simple yet sophisticated.	57	43	0	0	0	4.57	Strongly Agree
13. The content is appropriate.	43	43	14	0	0	4.29	Strongly Agree
14. The organization of content is in proper section.	43	57	0	0	0	4.43	Strongly Agree
<b>Overall Weighted Mean</b>						<b>4.27</b>	<b>Strongly Agree</b>

Table 11: Guest Evaluation User Interface

As shown in table 12, majority of the indicators were “strongly agree”, wherein it accumulates with a total mean of 4.27.

Specifically, it is supported by the following indicators: the web interface is very appealing ( $\bar{x}=4.00$ ), the fonts used are readable and clear, including the font style and size ( $\bar{x}=4.43$ ), the color theme being used complements the other elements ( $\bar{x}=4.57$ ), and the logo and icons are in the proper size and proportion ( $\bar{x}=3.57$ ). Additionally, the result was also supported by the following indicators: the layout of the web is simple yet sophisticated ( $\bar{x}=4.47$ ), the content is appropriate ( $\bar{x}=4.29$ ), and the organization of content is in the proper sections ( $\bar{x}=4.43$ ).

## USER EXPERIENCE (GUEST)

This questionnaire aims to gather feedback from users who have explored the guest side of the system. After checking and navigating through the different features of the system, users will be asked to provide their feedback regarding their experience. The questions in the questionnaire will focus on different aspects of the user experience, such as the interface design, ease of use, and accessibility. The feedback provided by the users will be used to identify areas of improvement and to enhance the guest side of the system to provide a better user experience.

<b>Guest Evaluation Results</b>								
<b>Indicator</b>		<b>Percentage (%)</b>					<b>WM</b>	<b>Description</b>
		<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>		
<b>USER EXPERIENCE</b>								
7. The instructions are very easy to understand.		0	71	29	0	0	3.71	Agree
8. Website is free of broken links and missing images.		0	43	57	0	0	3.43	Agree
9. The game did not exhibit any lagging or crashing issues.		29	71	0	0	0	4.29	Strongly Agree
10. I received prompt messages from the website such as indicating invalid entries and/or inputs.		14	86	0	0	0	4.14	Agree
11. The website content is relevant and useful.		57	43	0	0	0	4.57	Strongly Agree
12. The website is user-friendly.		0	43	43	14	0	3.29	Neutral
<b>Overall Weighted Mean</b>							<b>3.90</b>	Agree

Table 12: Guest Evaluation User Experience

The data presents the results of a guest evaluation questionnaire that focused on the user experience of a website. The questionnaire was completed by users who had checked and explored the guest side of the system. The respondents agreed that the instructions were easy to understand, the website was free of broken links and missing images, the game did not exhibit any lagging or crashing issues, and users received prompt messages indicating invalid entries or inputs. Users found the website content to be relevant and useful, but opinions were mixed regarding the user-friendliness of the website. The overall weighted mean was 3.90.

## FUNCTIONALITY (GUEST)

This section of the questionnaire is dedicated to gathering the guest's feedback and honest rating about the functionality of the system. The questions are designed to elicit specific responses that will provide insight into how the system functions from the guest's perspective. The aim is to collect honest and constructive feedback that can be used to improve the system and enhance the guest's overall experience.

<b>Guest Evaluation Results</b>								
<b>Indicator</b>		<b>Percentage (%)</b>					<b>WM</b>	<b>Description</b>
		<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>		
<b>FUNCTIONALITY</b>								
9.	All of the handouts are available for use.	0	43	43	0	14	3.14	Neutral
10.	The compiler within the website's coding environment is working efficiently	0	43	57	0	0	3.43	Agree
11.	It is capable of selecting and engaging in different game play modes, including classic mode and a mode that has a time restriction.	43	43	14	0	0	4.29	Strongly Agree
<b>Overall Weighted Mean</b>							<b>3.62</b>	<b>Agree</b>

Table 13: Guest Evaluation Functionality

Table 13 shows the result of guests' evaluation regarding on functionality of the web. As presented, the total accumulated mean of the result was 3.62, with a verbal description of "Agree." In particular, it is supported by the following indicators: all of the handouts are available for use ( $\bar{x}=3.14$ ), the compiler within the website's coding environment is working efficiently ( $\bar{x}=3.43$ ), and it is capable of selecting and engaging in different game play modes, including classic mode and a mode with a time restriction ( $\bar{x}=4.29$ ).

## **CONCLUSIONS AND RECOMMENDATIONS**

The evaluation results for three different groups - students, guests, and teachers - were collected. For the functionality indicators, students, and guests gave high scores, with an overall weighted mean of 4.62 and 3.62, respectively. Both groups strongly agreed that the website is easy to use, has effective authentication, easy to access learning materials, and the class codes and playgrounds are working proficiently. Additionally, guests agreed that the compiler within the website's coding environment is working efficiently and that the website is capable of selecting and engaging in different game play modes. In terms of the user interface, teachers gave high scores with an overall weighted mean of 4.86. They strongly agreed that the web interface is very appealing, the fonts used are readable and clear, including the font style and size, the logo and icons are in proper size/proportion, the layout of the web is simple yet sophisticated, the content is appropriate, and the organization of content is in proper section. The results show that the website is well-received by students, guests, and teachers, indicating that the website has effective functionality and user-friendly design.

Based on the study's results, several recommendations can be made to enhance the user experience and functionality of the system. Firstly, it is suggested to focus on improving the user interface and design to make it more visually appealing, engaging, and intuitive. This can involve incorporating modern and aesthetically pleasing elements, optimizing layout and navigation, and utilizing attractive color schemes and fonts. Secondly, ensuring that all features within the system are fully functional and efficient is crucial. This includes optimizing performance, streamlining processes for updating information and downloading files, and minimizing any technical glitches or delays that users may encounter. Additionally, it is important to maintain the uniqueness of class codes generated per class. This helps to avoid confusion or conflicts in accessing specific class-related materials and ensures a smooth and organized learning experience for both teachers and students. Furthermore, the study suggests continuing to provide challenging games in both classic and time-limited modes. This can help to keep users engaged, motivated, and stimulated while using the system, fostering a sense of excitement and accomplishment as

they progress through different levels or tasks.

By implementing these recommendations, it is anticipated that the user experience of the system can be significantly enhanced, resulting in increased user satisfaction, improved usability, and a more enjoyable and effective learning environment.

Based on the Guest Evaluation Results, the following recommendations are suggested to enhance the user experience: Firstly, it is important to prioritize accessibility by ensuring that all handouts are easily accessible for users. Secondly, the efficient functioning of the coding environment's compiler should be maintained to facilitate smooth coding processes. Lastly, offering different game play modes, including both classic and time-limited options, can provide users with engaging and varied experiences. Implementing these recommendations will contribute to an improved user experience and overall satisfaction.

Based on the Teachers Evaluation Results, several recommendations can be made to enhance the user experience of the platform. Firstly, it is crucial to maintain the high quality of the user interface design, ensuring visually appealing elements such as attractive color schemes, well-chosen fonts, and captivating logo and icons.

Additionally, content appropriateness should be prioritized, ensuring that it aligns with the needs and preferences of teachers. Also, the web layout should strike a balance between simplicity and sophistication, offering a clean and intuitive interface that is easy to navigate. Proper organization of content in sections is also essential to enhance usability and facilitate quick access to relevant information. Lastly, continuous monitoring and improvement of the platform's functionality, user interface, and design are recommended. This involves gathering feedback from teachers, conducting regular usability testing, and implementing necessary updates and enhancements to address any identified issues or areas for improvement. By prioritizing ongoing evaluation and refinement, the platform can ensure it delivers the best possible user experience for teachers, fostering engagement and satisfaction. In conclusion, it is important to focus on maintaining a high-quality user interface, ensuring a well-organized web layout, and continuously monitoring and improving the platform's functionality, user interface, and design to provide an exceptional experience for teachers.

In summary, the findings of this research shed light on key recommendations to enhance the user experience and functionality of the system. The study underscores the importance of improving the user interface and design, ensuring the efficiency of features, maintaining unique class codes, and offering challenging game play modes. By incorporating these recommendations, the system can provide users with a visually appealing, intuitive, and engaging experience. These enhancements are anticipated to increase user satisfaction, improve usability, and foster a conducive learning environment. As technology continues to shape the field of education, it is crucial to prioritize these areas for ongoing research and development, aiming to continually enhance the user experience and effectiveness of educational systems.

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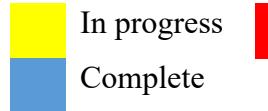
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## APPENDICES

## APPENDIX A. GANTT CHART



To be done

## APPENDIX B. ACTUAL THESIS EXPENSES

## THESIS EXPENSES

Quantity	Specifics	Approximate Cost	Actual Cost
3 reams	8.5" x 11" Letter Bond Paper 70 gsm	₱ 1,500.00 (₱ 300.00/ream)	₱ 460.00 (₱ 230.00/ream)
1 box	41mm Metal Binder Clip	₱ 150.00	₱ 150.00
2pcs	3pcs. pack plastic slide folder	₱ 130.00	₱ 130.00 (₱ 65.00 each)
1pcs	Brother Printer Black Ink	₱ 300.00	₱ 430.00
Worth 1 year	Internet Connection	₱ 17,988.00 (₱1,499.00/month)	₱ 15,588.00 (₱1,299.00/month)
Worth 1.5 years	Web Hosting	₱ 1,860.00 (₱155.00/month)	₱ 760.00
	Grammarians	₱ 3,600.00	₱ 900.00
Worth 1 year	Commuting Fee	₱ 5,000.00	₱ 5,000.00
Worth 1 year	Food Budget in making the system	₱ 8,000.00	₱ 5,000.00
<b>TOTAL</b>		<b>₱ 38,528.00</b>	<b>₱ 28,418.00</b>

**Prepared by:**

  
**Hannah Margaret P. Cuachon**

  
**Blaise Pascal A. Mercado**

  
**Mario B. Maratas Jr.**

  
**Charles K. C. Miguel**

**Noted by:**

  
**Rizaldy S. Cuachon**

  
**Jennifer A. Mercado**

  
**Arlene B. Maratas**

  
**Annalyn C. Miguel**

**Approved by:**

**Kristel Joy C. Tulagan, LPT, MIT**  
Thesis Adviser

**Kristel Joy C. Tulagan, LPT, MIT**  
Thesis Coordinator

**APPENDIX C. CURRICULUM VITAE OF RESEARCHERS**

Curriculum Vitae of  
**HANNAH MARGARET P. CUACHON**  
**Purok 06 Brgy. Katangawan, General Santos City**  
**cuachon.176612@gensan.sti.edu.ph**  
**09912969546**



**EDUCATIONAL BACKGROUND**

Level	Inclusive Dates	Name of school/ Institution
Tertiary	2019 – Present	STI College – General Santos Inc.
TechVoc	2017 – 2019	General Santos City SPED Integrated School
High School	2013 – 2017	General Santos City SPED Integrated School
Elementary	2011 – 2013	Dadiangas West Central Elementary School

**PROFESSIONAL OR VOLUNTEER EXPERIENCE**

Inclusive Dates	Nature of Experience/ Job Title	Name and Address of Company or Organization
February 2020	Codefest	STI College – General Santos Inc.
May 2021	Microsoft Cloud Skill Challenge	Microsoft

**Listed in reverse chronological order (most recent first).**

**AFFILIATIONS**

Inclusive Dates	Name of Organization	Position
March 2023	PSITS	Treasurer
January 2023	CSACT	Vice President
January 2022	CSACT	Vice President

**Listed in reverse chronological order (most recent first).**

**SKILLS**

SKILLS	Level of Competency	Date Acquired
N/A	N/A	N/A

**TRAININGS, SEMINARS OR WORKSHOP ATTENDED**

Inclusive Dates	Title of Training, Seminar or Workshop
N/A	N/A

**Listed in reverse chronological order (most recent first).**

Curriculum Vitae of  
**MARIO B. MARATAS JR.**  
**Purok Maunlad, Barangay Tambler, General Santos City**  
**maratas.094747@gensan.sti.edu.ph**  
**09382751589**



#### EDUCATIONAL BACKGROUND

Level	Inclusive Dates	Name of school/ Institution
Tertiary	2019 – Present	STI College – General Santos Inc.
Vocational/Technical	2017 – 2019	STI College – General Santos Inc.
High School	2013 – 2017	General Santos City National Highschool (GSCNHS)
Elementary	2011 – 2013	H.N Cahilso Central Elem. School/FVR Village General Santos City

#### PROFESSIONAL OR VOLUNTEER EXPERIENCE

Inclusive Dates	Nature of Experience/ Job Title	Name and Address of Company or Organization
December 2021	WorldSkills Competition 2021	TESDA Region XII – South Cotabato
February 2020	Codefest	STI College – General Santos Inc.
February 2019	Codefest	STI College – General Santos Inc.

**Listed in reverse chronological order (most recent first).**

#### AFFILIATIONS

Inclusive Dates	Name of Organization	Position
N/A	N/A	N/A

**Listed in reverse chronological order (most recent first).**

#### SKILLS

SKILLS	Level of Competency	Date Acquired
Computer System Servicing	4	December 2021

#### TRAININGS, SEMINARS OR WORKSHOP ATTENDED

Inclusive Dates	Title of Training, Seminar or Workshop
February 2019	National Youth Convention

**Listed in reverse chronological order (most recent first).**

Curriculum Vitae of  
**BLAISE PASCAL A. MERCADO**  
**Purok 5, Nlسا Road, Brgy. Lagao, General Santos City**  
**mercado.091089@gensan.sti.edu.ph**  
**09451106077**



#### EDUCATIONAL BACKGROUND

Level	Inclusive Dates	Name of school/ Institution
Tertiary	2019 – Present	STI College – General Santos Inc.
Vocational/Technical	2017 – 2019	STI College – General Santos Inc.
High School	2013 – 2017	General Santos City National Secondary School of Arts and Trades (GSCNSSAT)
Elementary	2011 – 2013	Jose C. Catolico Sr. Elementary School

#### PROFESSIONAL OR VOLUNTEER EXPERIENCE

Inclusive Dates	Nature of Experience/ Job Title	Name and Address of Company or Organization
N/A	N/A	N/A

**Listed in reverse chronological order (most recent first).**

#### AFFILIATIONS

Inclusive Dates	Name of Organization	Position
N/A	N/A	N/A

**Listed in reverse chronological order (most recent first).**

#### SKILLS

SKILLS	Level of Competency	Date Acquired
Computer System Servicing	4	December 2021

#### TRAININGS, SEMINARS OR WORKSHOP ATTENDED

Inclusive Dates	Title of Training, Seminar or Workshop
April 2019	National Youth Convention
February 2019	International Youth Fellowship

**Listed in reverse chronological order (most recent first).**

Curriculum Vitae of  
**CHARLYN KY C. MIGUEL**  
**Blk. 2 Lot 16, Sunshineville, Brgy. Lagao, General Santos City**  
**miguel.084687@gensan.sti.edu.ph**  
**09217384595**



#### EDUCATIONAL BACKGROUND

Level	Inclusive Dates	Name of school/ Institution
Tertiary	2019 – Present	STI College – General Santos Inc.
Vocational/Technical	2017 – 2019	STI College – General Santos Inc.
High School	2013 – 2017	General Santos City National Secondary School of Arts and Trades (GSCNSSAT)
Elementary	2011 – 2013	Maranatha Christian Academy

#### PROFESSIONAL OR VOLUNTEER EXPERIENCE

Inclusive Dates	Nature of Experience/ Job Title	Name and Address of Company or Organization
October 2021	Globe Hackathon 5G	Globe Telecom Inc.
February 2020	Codefest	STI College – General Santos Inc.
February 2019	Codefest	STI College – General Santos Inc.

**Listed in reverse chronological order (most recent first).**

#### AFFILIATIONS

Inclusive Dates	Name of Organization	Position
N/A	N/A	N/A

**Listed in reverse chronological order (most recent first).**

#### SKILLS

SKILLS	Level of Competency	Date Acquired
Computer Hardware Servicing	4	January 2016
Computer System Servicing	4	December 2021

#### TRAININGS, SEMINARS OR WORKSHOP ATTENDED

Inclusive Dates	Title of Training, Seminar or Workshop
October 2021	Startup 101 Workshop
February 2019	National Youth Convention

**Listed in reverse chronological order (most recent first).**

**APPENDIX D: ADVISER'S ACCEPTANCE FORM**

## ADVISER'S ACCEPTANCE FORM

**NAME OF PROPONENTS:**      **Hannah Margaret P. Cuachon**  
                                        **Mario B. Maratas Jr.**  
                                        **Blaise Pascal A. Mercado**  
                                        **Charlyn Ky C. Miguel**

**APPROVED RESEARCH TITLE:** **WEBCRAFT: Game-based Learning for Web Development**

**AREA OF STUDY:** **Applied Computer Science and Game Development**

**CONFORME:**

  
**KRISTEL JOY C. TULAGAN, MIT**  
**Thesis Adviser**

**APPROVED BY:**

  
**HANIFA UNDAC – MACADAYA, MAED**  
**Thesis Coordinator**

**Date: 24 March 2022**

**NOTED BY:**

  
**JULIE B. OCENAR, MIT**  
**Program Head**

## **APPENDIX E: FORMAL LETTERS**



**STI College – General Santos**  
Jose Catolico Sr. Avenue, General Santos City, 9500 South, Cotabato  
Tel No.(083) 554 3038  
[sti\\_gensan@email.com](mailto:sti_gensan@email.com)

---

To Whom It May Concern:

Greetings!

We, the students of STI College-General Santos are going to conduct our research entitled “WEB CRAFT: Game-based Learning for Web Development” as a course requirement for the degree of Bachelor of Science in Computer Science. The goal of this research is to create an interactive game-based website that educates learners in developing website templates in a fun and engaging way. Moreover, this will also help the students assist their studies in web-related courses due to the lack of resources and serves as a function for practice platform for advanced learners.

We are hoping for your full participation in our study, and we will wait for your positive responses. Thank you very much.

~~Respectfully yours,~~

The Researchers

HANNAH MARGARET P. CUACHON

BLAISE PASCAL A. MERCADO

MARIO B. MARATAS JR.

CHARLYN KY C. MIGUEL

KRISTEL JOY C. TULAGAN, MIT

Thesis Adviser

HANIFA UNDAC – MACADAYA, MAED

Thesis Coordinator

**April 27, 2023**

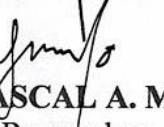
Magandang Gensan!

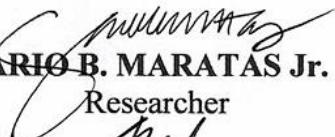
As a group of students pursuing our Bachelor of Science in Computer Science degree at STI College – General Santos, we are currently conducting a research project entitled "**"WEBCRAFT: Game-based Learning for Web Development"**" as a mandatory component of our CS Thesis 2 course during the academic year 2022-2023. In light of this academic undertaking, we respectfully request your kind permission to conduct a system testing as a partial requirement for our thesis. This testing will allow us to gather valuable data and feedback regarding our approach to using game-based learning to facilitate web development education.

We want to assure you that all data collected during the testing will be treated with the utmost confidentiality and privacy. We deeply appreciate your consideration of our request. Thank you very much for your time and attention.

Very truly yours,

  
**HANNAH MARGARET P. CUACHON**  
Researcher

  
**BLAISE PASCAL A. MERCADO**  
Researcher

  
**MARIO B. MARATAS Jr.**  
Researcher

  
**CHARLYN JOY C. MIGUEL**  
Researcher

Noted:

  
**KRISTEL JOY C. TULAGAN, MIT, LPT**  
Thesis Adviser

May 2, 2023

Ethel L. Oczon  
Program Director/College Dean  
Ramon Magsaysay Memorial Colleges  
Pioneer Avenue, General Santos City:

Magandang Gensan!

As a group of students pursuing our Bachelor of Science in Computer Science degree at STI College – General Santos, we are currently conducting a research project entitled "**WEBCRAFT: Game-based Learning for Web Development**" as a mandatory component of our CS Thesis 2 course during the academic year 2022-2023. In light of this academic undertaking, we respectfully request your kind permission to conduct a system testing as a partial requirement for our thesis. This testing will allow us to gather valuable data and feedback regarding our approach to using game-based learning to facilitate web development education.

We want to assure you that all data collected during the testing will be treated with the utmost confidentiality and privacy. We deeply appreciate your consideration of our request. Thank you very much for your time and attention.

Very truly yours,

HANNAH MARGARET P. CUACHON  
Researcher

BLAISE PASCAL A. MERCADO  
Researcher

MARIO B. MARATAS Jr.  
Researcher

CHARLANTHY C. MIGUEL  
Researcher

Noted:

KRISTEL JOY C. TULAGAN, MIT, LPT  
Thesis Adviser

ETHEL L. OCZON, MS  
Program Director/College Dean

## APPENDIX F: INTERVIEW TRANSCRIPTS

## **Transcript of Interview with Meka Ella Pesorio**

Interviewer: Hannah Margaret P. Cuachon

Interviewee: Meka Ella Pesorio

Time: 8:25 PM

Hannah Cuachon: Hello Ma'am so, we would like to have an interview with you, we will only ask some few questions about your life as a MAWD student, will that be, ok?

Meka Ella Pesorio: Sure.

Hannah Cuachon: Thank you, so for our first question. Why did you enroll to MAWD?

Meka Ella Pesorio: Mmm--- thank you, and can I be honest with my answer? (chuckles)

Hannah Cuachon: Yes, you can be honest with your answer.

Meka Ella Pesorio: Actually, I chose the MAWD strand because my family members are continuously changing the wifi password (chuckles), so I told myself that I wanted to be a hacker so that I would know what the password was even if my family members changed it.

Hannah Cuachon: I see, so that was your reason why you decided to enroll o the MAWD strand? (chuckles).

Meka Ella Pesorio: Yes ate.

Hannah Cuachon: So just plainly that?

Meka Ella Pesorio: Yes, that was my first motivation for enrolling in MAWD, but as time passed, I realized that we are now living in a technologically driven world, and that revelation pushed me the most to pursue this strand.

Hannah Cuachon: Mmmm—I see I see. So, thank you for your answer, now to the next question. Did you have any prior knowledge about programming before entering or enrolling on this strand?

Meka Ella Pesorio: No, I honestly do not have any idea about programming before I enrolled to MAWD.

Hannah Cuachon: Ok, so for our next question. Is learning programming boring?

Meka Ella Pesorio: Honestly at first—yes it is boring, but because of my friends and classmates it became more interesting for me.

Hannah Cuachon: I see, next is between learning (academically) and gaming what will you choose?

Meka Ella Pesorio: Between learning or gaming? I will pick studying over gaming because I easily got bored, so I do not enjoy gaming all of the time, and I am a bit proud of my academics, so I would choose learning over gaming.

Hannah Cuachon: I see, I see. So, that would be all and thank you for giving us a chance to have an interview with figureyou.

Meka Ella Pesorio: You're welcome po, thank you po.



MEKA ELLA PESORIO,  
**Former MAWD Student**

## **Transcript of Interview with Ghray Visitacion**

Interviewer: Mario Maratas Jr., Charly Ky C. Miguel, Hannah Margaret Cuachon

Interviewee: Ghray M. Visitacion

Time: 8:36 PM

Mario Maratas Jr.: Can we interview you about your experiences as a previous MAWD student?

Ghray Visitacion: Sure.

Mario Maratas Jr.: So why did you enroll to MAWD?

Ghray Visitacion: The major reason is due to the influence of my sister, who completed the Bachelor of Science in Computer Science (BSCS) program, and then I chose MAWD since it is one of the options in the tecvoc track which in lines with computers.

Mario Maratas Jr.: I understand. So next question is, did you have any prior knowledge about programming before enrolling in MAWD?

Ghray Visitacion: None, I honestly do not have an idea about programming before enrolling in MAWD.

Mario Maratas Jr.: I see, so was learning computer programming boring?

Ghray Visitacion: No, it was actually enjoyable, especially the “Hello World” (chuckles) System.out.println.

Mario Maratas Jr.: (chuckles) Alright, so for the next question. Between learning (academically) and gaming which will you choose?

Ghray Visitacion: Pardon? Can you repeat that question again please?

Mario Maratas Jr.: Between learning (academically) and gaming which will you choose?  
Which will you prefer?

Ghray Visitacion: Gaming, definitely.

Mario Maratas Jr.: Can you state your reason?

Ghray Visitacion: I honestly preferred gaming over learning because gaming is more pleasant, however learning is equally enjoyable. Both are entertaining, but I will continue to pick gaming because it has only one goal: to win. Unlike learning, where there are numerous tasks to complete, gaming is a lot chevalier.

Mario Maratas Jr.: I see, so one of our coresearchers would like to ask you a question, will that be fine?

Ghray Visitacion: Sure.

Charlyn Ky C. Miguel: So, Mr. Visitacion you were able to experience the face-to-face classes, right? During your senior high days?

Ghray Visitacion: Yes.

Charlyn Ky C. Miguel: Can you tell us about your experiences with the lab activities that were held at the school? Was it enjoyable? Was it tedious?

Ghray Visitacion: What happened to me during our laboratory exercises? It really depends on the topic and lesson; it's fun and delightful if you know and grasp the lesson; however, most of the time you'll simply wind-up chatting with your friends since you didn't get the lecture—still it's enjoyable. My pals and I both don't understand the lesson, which added to the amusement. But as the time progressed, we all learnt programming from scratch at the same time. MAWD is enjoyable even if it is hard.

Hannah Margaret Cuachon: I also have a question.

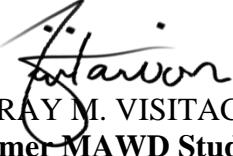
Ghray Visitacion: Sure.

Hannah Margaret Cuachon: Do you believe that resources such as a laptop or personal computer is important when it comes to studying programming? Especially in web development, as you studied web development in MAWD grades 11 and 12, correct?

Ghray Visitacion: Yes, having those items will be important because it is a software-focused strand (MAWD), so you will require them. You may also use your phone, albeit it will be more difficult. When it comes to programming activities, a computer and laptop are very necessary.

Mario Maratas Jr.: I guess that would be all, so thank you so much for your time.

Ghray Visitacion: Thank you also and welcome.



GHRAY M. VISITACION,  
Former MAWD Student

## **Transcript of Interview with John Dell Aristales**

Interviewer: Hannah Margaret P. Cuachon, Chralyn Ky C. Miguel, Mario D. Maratas Jr.

Interviewee: John Dell Aristales

Time: 8:46 PM

Mario Maratas Jr: Can we interview you about your experience as a MAWD student before?

John Dell Aristales: Sure.

Mario Maratas Jr: Alright, so for our first question, why did you enroll on the MAWD strand?

John Dell Aristales: I went to a public school and had no idea what MAWD was about. Also, while I was in junior high, my TLE teacher told us about CSS, so I wanted to continue it in senior high and into college. As a result, when the registrar asked me to select between MAWD and CCT, I chose MAWD.

Mario Maratas Jr: Thank you for your answer, next is did you have any prior knowledge about programming before enrolling in MAWD?

John Dell Aristales: None (chuckles).

Mario Maratas Jr: Next is—was learning computer programming boring?

John Dell Aristales: Nope, not at all. When it comes to exploring, it's genuinely enjoyable, but when it comes to watching tutorials, it's a little tedious.

Mario Maratas Jr: True (chuckles). Next, between learning and gaming which will you choose?

John Dell Aristales: Mmmmm—both.

Mario Maratas Jr: Why? Can you elaborate your answer?

John Dell Aristales: Because studying on its own is tedious, you can at least utilize gaming to pass the time and have some fun for a while.

Mario Maratas Jr: I understand.

Charly Ky. C. Miguel: Correct me if I am wrong but your batch is the last one that was able to conduct a face-to-face class on the MAWD strand correct?

John Dell Aristales: Ahh—yes.

Charly Ky. C. Miguel: So, may I inquire about your laboratory experience? Can you tell us more about it? Specifically, when you are inside the lab where you may put your involvement in the course to the test?

John Dell Aristales: The best! Face-to-face lab activities are very useful unlike online classes. Because in face-to-face you can make all your codes in an actual time and that you have a time limit to beat, which is exciting and stressful at the same time. And since it is face-to-face you can really learn a lot of things and you can also ask your instructors for clarifications on how to do things.

Charly Ky. C. Miguel: Agree, that would be all from me. Marg? Do you have any questions?

Hannah Margaret Cuachon: Ah—yes! So, my question is when it comes to resources specifically laptop and computer, do you think it matters when it comes to learning programming specifically web development?

John Dell Aristales: Yes, since if you don't have your own devices for such activities and only have your phone, you'll have a difficult time learning, because not everything you learn in programming courses will apply to your phone. You can learn and even code on your phone, but the results will not be the same as coding on a computer or laptop, and there are certain limitations if you code on your phone. Having a computer and a laptop is therefore essential for this strand.

Mario Maratas Jr.: So, did you encounter any challenges while you were studying (MAWD?)

John Dell Aristales: Yes, since I only use my mobile data for my schoolwork, which is actually rather difficult. It's also tough because I don't always have access to mobile data. When it comes to programming, I'd want to accomplish some things but I honestly don't know what syntax to use or what key phrases to use on Google to locate the information I'm looking for (laughs). That's also one of the obstacles I'm facing.

Mario Maratas Jr.: (chuckles) I can also relate.

Hannah Margaret Cuachon: I still have a final question.

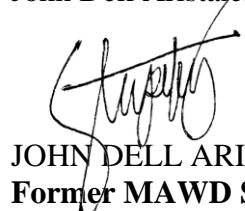
John Dell Aristales: Alright.

Hannah Margaret Cuachon: What if there is a web that mix the gaming and learning, basically it is a web-base game learning system. And on that web, you will be able to

practice your skills and you can also learn specifically web development from scratch by using that web. Modules will also be provided in that game. Do you think it can also help? John Dell Aristales: Ah—yes, because gaming is currently working, you'll know how to accomplish it throughout development, but you must still understand and analyze the problem thoroughly before moving on to code. For example, if you're in web development and you're given the responsibility of creating a galaxian, you already know how things should move (chuckles), in other words, you already have a notion. Sorry for the length of my response.

Hannah Margaret Cuachon: Thank you so much for answering our questions.

John Dell Aristales: Thank you as well.



JOHN DELL ARISTALES,  
Former MAWD Student

## **Transcript of Interview with Wilson Jay Pericano**

Interviewer: Hannah Margaret Cuachon

Interviewee: Wilson Jay Pericano

Time: 8:56 PM

Hannah Margaret Cuachon: Hello Mr. Pericano, can we interview you about your experiences as a MAWD student?

Wilson Jay Pericano: Hello as well, sure.

Hannah Margaret Cuachon: So, for our first question. Why did you enroll in MAWD?

Wilson Jay Pericano: So, I originally registered at MAWD since I've wanted to be a game developer ever since I was in elementary school. So, after doing some research on ICT strands, I began asking my instructors in junior high, around 8th grade, whether there is a strand that focuses just on ICT, and my teacher answered absolutely. After that, when I graduated from junior high, someone from STI recommended that I take the MAWD strand since I wanted to be a game developer, so—yeah, that was basically the reason why I took the MAWD strand.

Hannah Margaret Cuachon: I see, next question is, did you have any knowledge about programming before entering MAWD?

Wilson Jay Pericano: Honestly, I do not have any prior knowledge in programming since I only focus of hardware back then in our computer shop (chuckles). So, no I do not have any prior knowledge.

Hannah Margaret Cuachon: Okay, next. Was learning computer programming tedious?

Wilson Jay Pericano: Can you repeat the last word of the questions?

Hannah Margaret Cuachon: Tedious or boring.

Wilson Jay Pericano: Oh—ahh for me learning computer programming is not really tedious since we can have other factors that can affect our learning. There are actually some computer programming courses that they integrate it into fun activities. And since I am the one who chose this course, I do not have a choice but to enjoy it (chuckles).

Hannah Margaret Cuachon: Alright, so between learning (academically) and gaming what will you choose?

Wilson Jay Pericano: For me I will choose gaming, because for me it is more efficient if you try to be engaged full to the other students since now a days, we tend to learn more on innovative things. We are not anymore applicable to the traditional way of leavenings, although it is more efficient when you integrate learning with gaming ahh—since there times where our brains are more active in gaming making it much easier to understand the topic, like in a fun and engaging way. That is why I choose gaming.

Hannah Margaret Cuachon: Alright, thank you. So, one of our members still wanted to ask you a question.

Wilson Jay Pericano: Alright.

Charlyn Ky Miguel: You are currently enrolled in MAWD right?

Wilson Jay Pericano: Yes.

Charlyn Ky Miguel: Just pure online class? You guys never experience a face-to-face class ever since?

Wilson Jay Pericano: AH—yes, we never experienced it. The initial plan was—it was supposed to be on January but the cases of Covid spiked up again. So, it was cancelled.

Charlyn Ky Miguel: So, what are your thoughts on your lab exercise, especially since you're just in an online class?

Wilson Jay Pericano: It is honestly difficult at the moment since it depends if your internet connection is strong. Given that sometimes we really need to up online to search for references to some codes. As well as when it comes to submitting your activities in ELMS, unlike back then where you can just give your flash drive to your instructor and submit your task. So online classes is definitely difficult.

Charlyn Ky Miguel: In terms of engagement in your activities, how do you usually dela with it? Are you guys just doing a self-learning method?

Wilson Jay Pericano: Yes online classes are actually just self-learning. Even though some of our instructors are teaching through online, there are still some questions that still can not be explained due to the short amount of time. So, we ended up searching on our own.

Hannah Margaret Cuachon: We still have a follow up question.

Wilson Jay Pericano: (chuckles) It's fine, go on.

Hannah Margaret Cuachon: When it comes to resources like computer or laptop, do you think it will matter when it comes to learning programming or specifically web development?

Wilson Jay Pericano: AH—if you wanted to build a website from scratch ah—it is much better if you have your own hardware even if it just a minimum specs so you can have a good experience. But if you wanted a templated we can utilize still even with the bare minimum where we can use our phone since we have wix.com or square space. But the downside of it is you do not have any flexibility given that it is templated. So, for me it really depends on what kind of website are you capable of, or what type of website are you working.

Hannah Margaret Cuachon: Alright, so what if there is a website where you can build a web from scratch, and it also provide modules to what are the things that you guys should do first. Do you think it can help with your learnings?

Wilson Jay Pericano: Yes, it can help a lot even though it is more fun if you use the discovery method. But since now a lot of people wanted an easy way of learning so I guess it is okay to adopt into certain things so that we can be innovative when it comes to learning. That would be all (chuckles).

Hannah Margaret Cuachon: Well, I guess that would be all? Thank you, Mr. Pericano.

Wilson Jay Pericano: Thank you as well and welcome.



WILSON JAY PERICANO,  
Grade 12 MAWD Student

## **Transcript of Interview with Daniel Alburoto**

Interviewer: Hannah Margaret P. Cuachon, Charlyn Ky C. Miguel, Mario B. Maratas Jr.

Interviewee: Daniel Alburoto

Time: 9:09 PM

Hannah Margaret Cuachon: Good evening, Mr. Alburoto, can we interview you about your experiences as a MAWD student?

Daniel Alburoto: Yes, sure.

Hannah Margaret Cuachon: During your time as a MAWD student, what was your setup before in terms of learning? It is purely face-to-face classes, or you are a product of online class?

Daniel Alburoto: I actually tried both setups. I have tried face-to-face classes, during the 1<sup>st</sup> semester of 11<sup>th</sup> grade and unfortunately switch to online class by the 2<sup>nd</sup> semester until I graduated senior high school due to the COVID outbreak.

Hannah Margaret Cuachon: I see. So, for the next question, why did you enroll in MAWD?

Daniel Alburoto: Before I enrolled, I was really interested in the field of computer, excluding the software programming since I was a music major back in junior high school. It was unexpected, I ask my friend and decide where we should enrolled whether in the CCT strand or MAWD, and he decided to go for MAWD because of the course name itself which has Android in it. I was told that the course has music in it, so I was encouraged to enroll, to my surprise MAWD is more focused on developing an app and a system, but I still managed to pass the course (chuckles).

Hannah Margaret Cuachon: Okay so, do you have any prior knowledge about programming before enrolling to MAWD?

Daniel Alburoto: Nope, I don't have any knowledge (chuckles), I only know music notes that time.

Hannah Margaret Cuachon: So, you just carelessly enroll? (laughs)

Daniel Alburoto: Yeah, without knowing the basics like HTML (laughs)

Hannah Margaret Cuachon: But its good that even you don't have prior knowledge at first you are one of the competitors in web technology.

Daniel Alburoto: Yes, I still can't believe it.

Hannah Margaret Cuachon: Okay moving on, was learning computer programming boring?

Daniel Alburoto: The idea of learning programming I find it not boring, but in terms of the way how programming is taught, it depends on the instructor as there are some teachers only give the lesson without explaining. In my perspective in learning programming, it is actually fulfilling because once you achieved the expected output as well as your desired output, there's the sense of fulfillment and accomplishment despite of the stress and errors you feel during the coding part.

Hannah Margaret Cuachon: Okay, Cha you have a question?

Charlyn Ky Miguel: So you have experience both set up right? Face-to-face and online class?

Daniel Alburoto: Yes, I have.

Charlyn Ky Miguel: Okay so, what and how was your experience in both setup? In terms of the given activities and laboratory exercises.

Daniel Alburoto: I can say that face-to-face is really effective in inculcating knowledge especially programming since you can immediately ask your instructor about a code you don't understand. Learning was really hands-on as you are being practice after the teacher finished discussing the lesson compared to online class, teachers give out the laboratory exercises and activities anytime of the week. Also, some teachers just rely their activities to the ones given by the head office, that some instructions are confusing because of the missing parts unlike before teachers makes their own activities in challenging and engaging way in accordance with the current lesson. I can say that online class is very tiring.

Mario Maratas Jr.: Additional question for you Dan, do you have a problem with the resources in terms of learning programming? This is for both setups.

Daniel Alburoto: During face-to-face, I don't really have problems, there just that for how many weeks we don't have a discussion, which was hard since we have to skip some lessons in order to fit the schedule. For me, I can say that in terms of the resources, online class is better because you have the choice to join bootcamps and watch tutorials on YouTube where you can study on your own and cope with the missed lessons. I can gather

more resources like handouts and modules online compared to face-to-face since we only used what is available and what is provided.

Charlyn Ky Miguel: But in terms of the resources like computers during face-to-face classes did you encounter some problems?

Daniel Alburoto: As far as I can recall, I really don't have a problem since computer units are provided in the school's computer laboratory same goes with the software. It is actually nice because there is some software that cannot be run on your own devices at least the units in the laboratory can handle it since the computer units are new and has high specs, especially when developing an Android application.

Charlyn Ky Miguel: I see, I can relate to that (chuckles)

Hannah Margaret Cuachon: Okay next question, between gaming and learning what would you prefer and why?

Daniel Alburoto: Both? You can use gaming as a form of learning. But I will choose gaming as for me it is my escape from the stress at school. You can't just do all the schoolwork without rewarding yourself to relax for a bit. You are not a machine, learn to loosen up sometimes.

Hannah Margaret Cuachon: Alright, for the last question, what if there is a website where you can build a web from scratch, and it also provide modules to what are the things that you guys should do first. Do you think it can help with your learnings?

Daniel Alburoto: Yes, it is a great idea, especially for the beginners, it will help them have an idea what is like in web development. Also to those who are not fond of reading documentations about coding, I can say it is somehow a convenient way of learning, they are enjoying the game at the same time they are learning compared to reading huge books that are sometimes outdated.

Hannah Margaret Cuachon: So that concludes our interview. Thank you for your time, Mr. Alburoto.

Daniel Alburoto: You're welcome. Thank you as well.



DANIEL ALBUROTO,  
**Former MAWD Student**

## **Transcript of Interview with Liam Jessie Taculod**

Interviewer: Hannah Margaret P. Cuachon, Charlyn Ky C. Miguel, Mario B. Maratas Jr.

Interviewee: Liam Jessie Taculod

Time: 9:35 PM

Mario Maratas Jr.: Good evening, Mr. Taculod, you are a MAWD student before, right?

What year are you now and your course?

Liam Jessie Taculod: Yes, I am 2<sup>nd</sup> year BSIT.

Mario Maratas Jr.: Uhmm, can we interview you about your experiences as a MAWD student?

Liam Jessie Taculod: Yes, sure.

Hannah Margaret Cuachon: Alright, during your senior high school, what was your setup before in terms of learning? It is purely face-to-face classes, or you have tried online classes?

Liam Jessie Taculod: Uhmm purely face-to-face classes.

Hannah Margaret Cuachon: I see. So, for the next question, why did you enroll in MAWD?

Liam Jessie Taculod: I am undecided on what strand I would take in senior high, I also don't have a plan in mind, so my mother suggested that I should enroll in MAWD strand since it is technology related.

Hannah Margaret Cuachon: Alright, do you have any prior knowledge about programming before enrolling to MAWD?

Liam Jessie Taculod: I don't have prior knowledge, since when I was in junior high school, most of the topics are related to agriculture and some subjects teaches general knowledge.

Hannah Margaret Cuachon: Okay so next question is, was learning computer programming boring?

Liam Jessie Taculod: Learning programming is not boring, I can say that it is interesting and at the same time difficult because learning programming is really hard, but so far, I find it interesting.

Hannah Margaret Cuachon: Okay, between gaming and learning what would you prefer and why?

Liam Jessie Taculod: Perhaps 50:50 (chuckles) but I still prefer gaming because I find fun and engaging.

Charlyn Ky Miguel: Okay since you are purely face-to-face during your time as a MAWD student, what and how was your experience that time? In terms of the given activities and laboratory exercises.

Liam Jessie Taculod: I find it fun at the same time stressful because I am hesitant to ask for help to my classmates since my seatmates are also struggling, but I still find it fun.

Charlyn Ky Miguel: I believed you don't have any problems in terms of the resources like computers and software during face-to-face class, right?

Liam Jessie Taculod: Yes, since laboratory exercises and activities are done and accomplished inside the school's computer laboratory.

Hannah Margaret Cuachon: Alright, for the last question, what if there is a game-based website where you can build a web from scratch, and it also provide modules to what are the things that you guys should do first, which is mostly focused on programming especially web development. Do you think it can help with your learnings, especially to those who does not have proper resources?

Liam Jessie Taculod: I think yes, since the game is a web-based, it is not necessarily to have and used a computer unit as it can also be access through mobile phones I assumed. So yeah, I think it can help us learn especially if it is entertaining at the same time to provide engagement to the player or user.

Hannah Margaret Cuachon: So that concludes our interview. Thank you for your time, Mr. Taculod.

Liam Jessie Taculod: Thank you.



LIAM JESSIE TACULOD,

**Former MAWD Student**

## **Transcript of Interview with Albert Banais Jr.**

Interviewer: Cuachon, Hannah Margaret, Miguel, Charlyn Ky, and Maratas Jr., Mario

Interviewee: Banais Jr., Albert

Time: 9:44 PM

Cuachon, Hannah Margaret: Why did you enroll in MAWD?

Banais Jr., Albert: I enrolled in Mobile App and Web Development because at first, I am in favor of computer stuff more than other fields since my majors back then are computer and plumbing so, between the two, I am in favor of computers that was the reason why I take it when I enrolled in STI Gensan and the second reason was I am into computer games I foresaw that I can use it for being computer literate in this Mobile App and Web Development (MAWD) which was very helpful in some other way of some of my stock knowledge way back when I was junior high school to senior high school.

Cuachon, Hannah Margaret: Did you have any prior knowledge about programming before enrolling in MAWD?

Banais Jr., Albert: No, I do not have any knowledge about programming languages all I do know was about hardware things like configuring inside the system unit but in terms of programming languages like Java, Php, and C# I do not have any knowledge about it.

Cuachon, Hannah Margaret: At least HTML or CSS?

Banais Jr., Albert: No, I do not have, like zero-knowledge.

Cuachon, Hannah Margaret: Is learning computer programming boring?

Banais Jr., Albert: I admit the process was boring like coding and debugging sometimes it was irritating but the exciting part is you never expect the correct output is in your output. The logical part makes you challenge but in my experienced in MAWD was boring it made me pressured.

Miguel, Charlyn Ky: We were classmates way back in senior high we do a lot of face-to-face classes. The question is what are your experiences during laboratory exercise when we do activities?

Banais Jr., Albert: At First, learning programming was not applicable to my laboratory exercise because I was having trouble learning about it in their way of teaching It did not

get my attention or focus to learn because they are lousy at doing it they are just teaching the codes then suddenly they will let us do the laboratory exercise, sometimes the at least 1 to 2 resources in computer lab back then was not functional you will just need to wait from my other classmates to use their computer just to make my laboratory exercise.

Maratas Jr., Mario: When you learn to program back then did you have any problem with any resources?

Banais Jr., Albert: Yes, I do have, my laptop back then was not updated it cannot support any of the software to use for learning, and my cellphone is outdated but in terms of learning materials like handouts I was no problem with it but it so hard to understand I just need someone to guide me when learning about it.

Cuachon Jr., Hannah Margaret: Between learning and gaming which will you prefer?

Banais Jr., Albert: I choose to learn because it can be used in my career but in terms of entertainment, I choose gaming but if combine learning and gaming I think it will not boring anymore to learn because they are engaging.

Cuachon, Hannah Margaret: What if there is a web-based game where gaming and learning are combined and the content inside there is ranking and level-up all achievements are visible it will give you the latest modules for learning programming it looks like a training ground. Do you think it is helpful?

Banais Jr., Albert: Actually, if there is a system like that it will hit them consider that all the enrolled students in MAWD are gamers in terms of learning. Learning will make effective if this system will be implemented because they are just not enjoying but also learning.



ALBERT BANAIS JR.,  
**Former MAWD Student**

## **Transcript of Interview with Gwyneth Maera Santiago**

Interviewer: Cuachon, Hannah Margaret, Miguel, Charlyn Ky, and Maratas Jr., Mario

Interviewee: Santiago, Gwyneth

Time: 10:38 PM

Cuachon, Hannah Margaret,: Why did you enroll in MAWD?

Santiago, Gwyneth: Actually what I like to choose back then was all about the graphics strand but it is not available in the enrollment that is why I choose MAWD because it was my second option, since when I was in elementary I was already into computer stuff like it feels good when I use it and it is very interesting for me so that is why I decided to choose MAWD to learn basic knowledge on how to create an app or software that I am using.

Cuachon, Hannah Margaret,: Did you have a piece of prior knowledge before enrolling in MAWD?

Santiago, Gwyneth: I have, but not too much knowledge about it and it is not actually called a programming language because HTML is a markup language. During high school, we do have subjects about HTML and CSS, and it is the only knowledge that I have before enrolling MAWD.

Cuachon, Hannah Margaret,: Was learning computer programming boring, or not?

Santiago, Gwyneth: For my part is quite boring but sometimes it was challenging, at first you are curious, but it is still boring.

Miguel, Charlyn Ky: What are your challenges when we are at face to face and doing laboratory in a computer lab back then?

Santiago, Gwyneth: I am having a struggle doing it on my own because I do not have basic knowledge of coding because the teacher at that time just taught us the structuring of the codes but not the actual coding that is why it is hard for me to cope up.

Maratas Jr., Mario: When we are in face-to-face did you have ever experienced a problem with resources on learning computer programming?

Santiago, Gwyneth: Yes because my laptop back then is not high end it cannot install heavy files or software IDEs like NetBeans, Visual Studio, and Android Studio it has its own limit

to install apps. As the learning goes by the apps are getting heavy because the system will be using the database.

Cuachon, Hannah Margaret,, Hannah Margaret: Between learning and gaming which will you prefer?

Santiago, Gwyneth: Gaming with learning because it is so nice to do not just you learn but you also do gaming.

Cuachon, Hannah Margaret: What if there is a web-based game where gaming and learning are combined and the content inside there is ranking and level-up all achievements are visible it will give you the latest modules for learning programming it looks like a training ground. Do you think it is helpful?

Santiago, Gwyneth: Yea, especially those individuals who are willing to learn and the leaderboard will be seen, there is an interaction will happen from other students and the progress will be seen. So I think it is very helpful and there will be an engagement will happen for those individuals who are not interested to learn computer programming.



GWYNETH MAERA SANTIAGO,  
**Former MAWD Student**

**APPENDIX G: USER ACCEPTANCE FORM**

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Age: \_\_\_\_\_

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (STUDENT)	1	2	3	4	5
<b>USER INTERFACE</b>					
8. The web interface is very appealing.					
9. The fonts used is readable and clear. Including the font style and size.					
10. The color theme that is being used complements are complementary to the other elements.					
11. The logo and icons are in proper size/proportion.					
12. The layout of the web is simple yet sophisticated.					
13. The content is appropriate.					
14. The organization of content is in proper section.					
<b>USER EXPERIENCE</b>					
7. The instructions are very easy to understand.					
8. Website is free of broken links and missing images.					
9. The game did not exhibit any lagging or crashing issues					
10. I received prompt messages from the website such as indicating invalid entries and/or inputs					
11. The website content is relevant and useful					
12. The website is user-friendly					
<b>FUNCTIONALITY</b>					
1. It has an effective authentication to secure user's account					
2. The information entered can be easily updated.					
3. It is easy to access the learning materials.					

Questions (STUDENT)	1	2	3	4	5
3. It is easy to access the learning materials.					
4. The class codes are functioning.					
5. The playground is working proficiently.					
6. The class code generated per class is unique					
7. It is possible to download the files from the playground.					
8. The games on the time-limited mode and in the classic mode are indeed challenging.					

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Age: \_\_\_\_\_

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (TEACHER)	1	2	3	4	5		1	2	3	4	5
<b>USER INTERFACE</b>											
1. The web interface is very appealing.											
2. The fonts used is readable and clear. Including the font style and size.											
3. The color theme that is being used complements are complementary to the other elements.											
4. The logo and icons are in proper size/proportion.											
5. The layout of the web is simple yet sophisticated.											
6. The content is appropriate.											
7. The organization of content is in proper section.											
<b>USER EXPERIENCE</b>											
1. The instructions are very easy to understand.											
2. Website is free of broken links and missing images.											
3. The game did not exhibit any lagging or crashing issues during my experience.											
4. I received prompt messages from the website such as indicating invalid entries and/or inputs.											
5. The website content is relevant and useful											
6. The website is user-friendly											
<b>FUNCTIONALITY</b>											
1. It has an effective authentication to secure user's account											
2. The information entered can be easily updated											

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Age: \_\_\_\_\_

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (GUEST)	1	2	3	4	5
USER INTERFACE					
1. The web interface is very appealing.					
2. The fonts used is readable and clear. Including the font style and size.					
3. The color theme that is being used complements are complementary to the other elements.					
4. The logo and icons are in proper size/proportion.					
5. The layout of the web is simple yet sophisticated.					
6. The content is appropriate.					
7. The organization of content is in proper section.					
USER EXPERIENCE					
1. Website is free of broken links and missing images.					
2. I received a prompt message from the website such as indicating invalid entries and/or inputs.					
3. The website is user-friendly.					
4. The game did not exhibit any lagging or crashing issues during my experience.					
5. The website content is relevant and useful					
6. The website is easily navigable and intuitive for users.					
FUNCTIONALITY					
1. All of the handouts are available for use.					
2. The compiler within the website's coding environment is working efficiently					
3. It is capable of selecting and engaging in different game play modes, including classic mode and a mode that has a time restriction.					

## **APPENDIX H: DOCUMENTATION**



Figure 7: System Demonstration on TESDA Scholars (Part 1)



Figure 8: System Demonstration on TESDA Scholars (Part 2)



Figure 9 System Demonstration on TESDA Scholars (Part 3)



Figure 10: System Demonstration with Mr. Aguilon (Part 1)



Figure 11: System Demonstration with Mr. Aguilon (Part 2)



Figure 12: System Demonstration with Mr. Aguilon (Part 3)

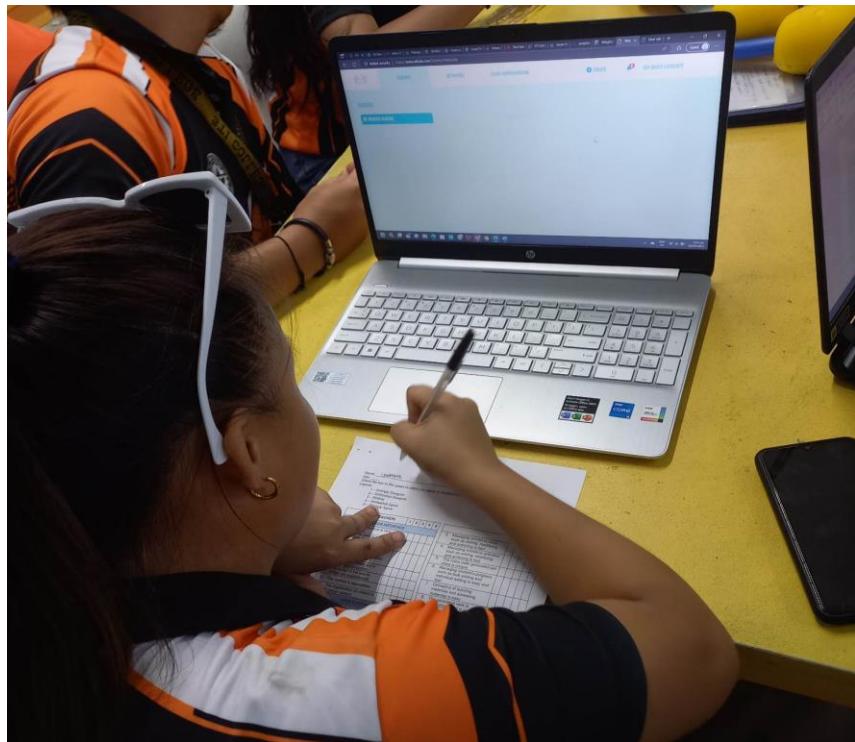


Figure 13: System Demonstration with Ms. Laurente



Figure 14: System Demonstration with Ms. Britos



Figure 15: System Demonstration with Mr. Palma (Part 1)

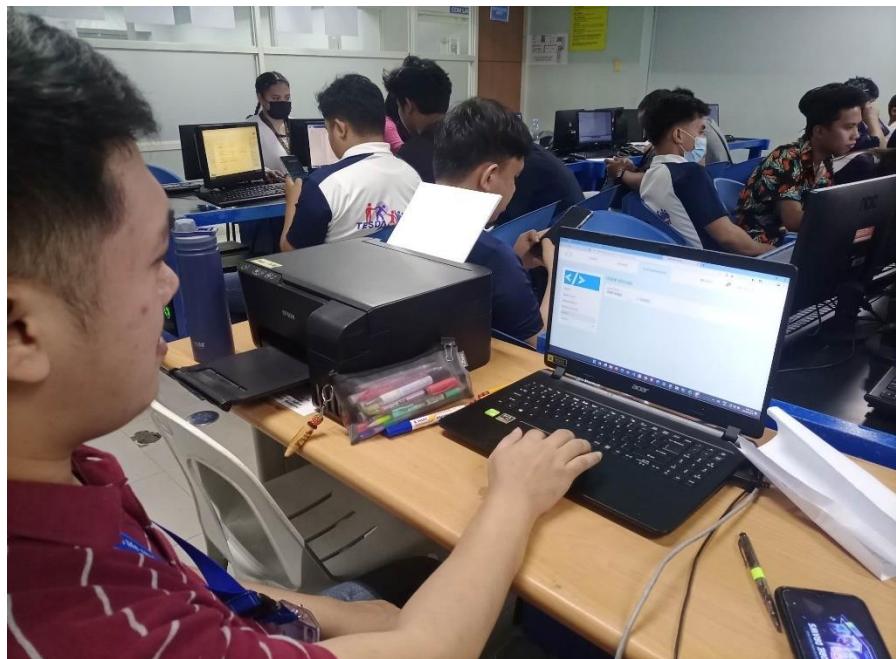


Figure 16: System Demonstration with Mr. Palma (Part 2)

## **APPENDIX I: DATA INTERPRETATION OF THE SURVEY**

## DATA INTERPRETATION OF THE SURVEY

In statistical analysis, sampling is the act of selecting a specific number of observations from a larger population. Depending on the sort of study being conducted, the methods utilized to sample from a broader population may include simple random sampling or systematic sampling.

A simple random sample is a subset of a population chosen at random. Each member of the population has an exact equal probability of being chosen in this sampling approach. This approach is the simplest of all the probability sampling methods since it just takes a single random selection and little prior knowledge of the population.

The students who are presently enrolled in the MAWD strand of STI College – General Santos Inc, completed a survey form. From a total of 50 pupils, 23 have responded. In addition, the proponents conducted an interview with previous MAWD students and one individual who is presently enrolled in the MAWD strand.

### Gender:

37.5% are females and 62.5% of them are male. With that being said, most of the researchers' respondents are men.

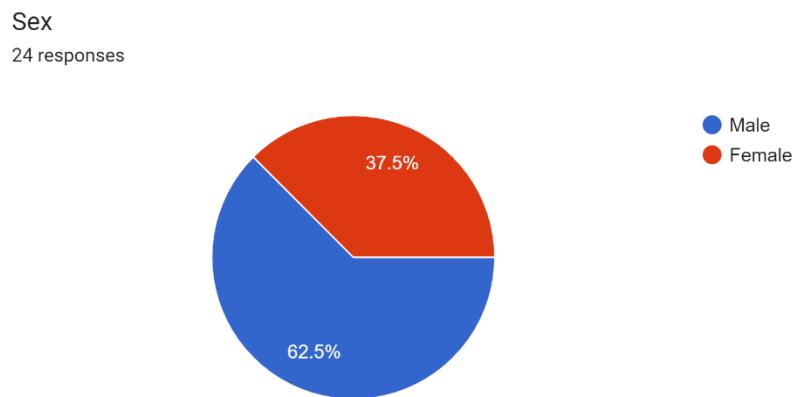


Figure 17. Pie Chart Gender population

### **Age:**

From the survey form the researchers found out that 20.8% of the respondent are 16 years old, 37.5% are 17, 29.2% are 18, 8.3% are 19, 4.2% are 20 years old.

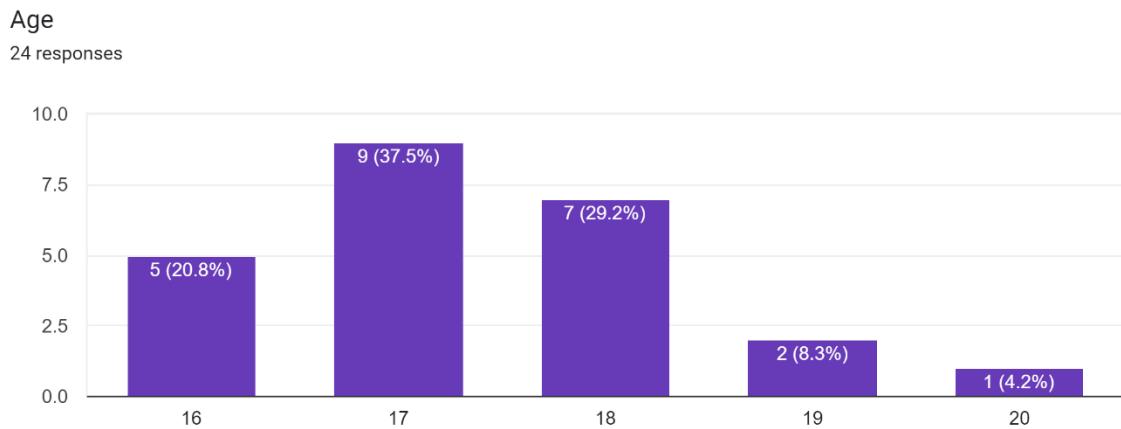


Figure 18. Bar Chart for Age

### **Grade level:**

65.2% answered as a Grade 11 student and 34.8% answered as a grade 12 student.

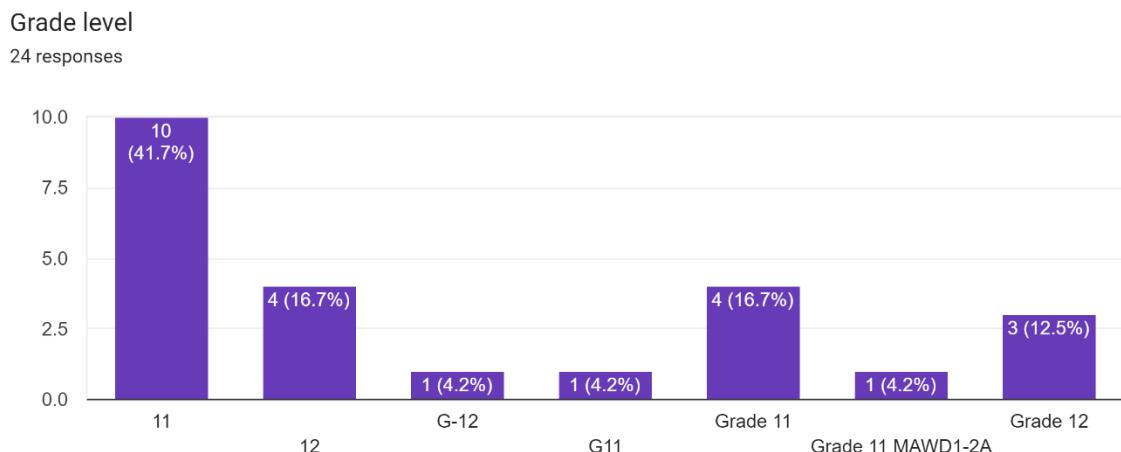


Figure 19. Bar Chart for Grade Level

**Do you have a prior knowledge about programming or web development before enrolling to the MAWD strand?**

58.3% answered no and 41.7% answered yes.

Do you have a prior knowledge about programming or web development before enrolling to the MAWD strand?

24 responses

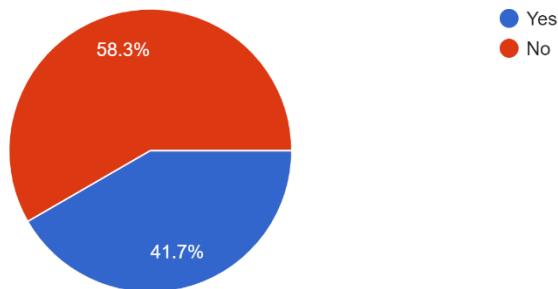


Figure 20. Pie Chart for Knowledge about Programming

**When it comes to resources, which of the following devices you possess?**

58.3% answered laptop, 45.8% answered desktop computer, and 75% answered mobile phone.

When it comes to resources, which of the following devices you possesses?

24 responses

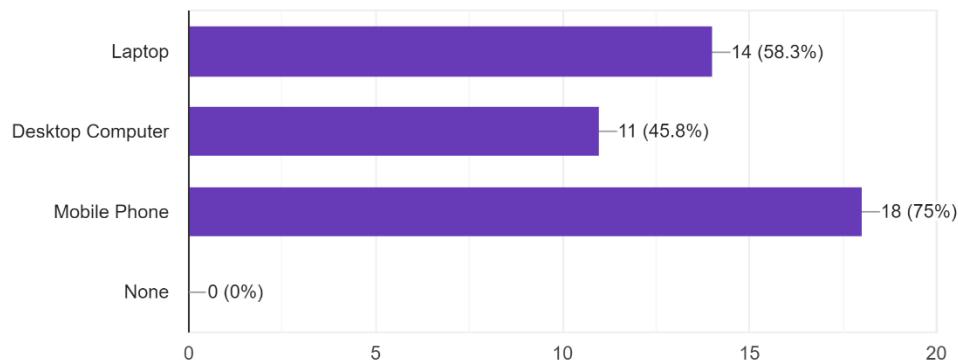


Figure 21. Bar Chart for resources

**Have you ever had your own website?**

54.2% answered no and 45.8% answered yes.

Have you ever had your own website?

24 responses

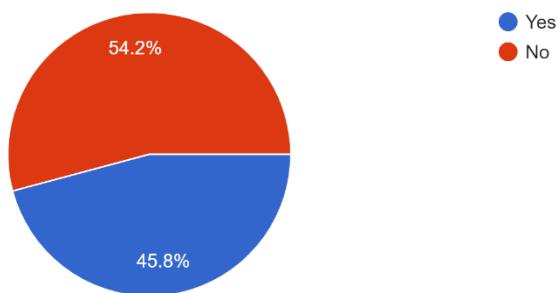


Figure 22. Pie Chart for Owning a website

**Have you ever developed a website?**

66.7% answered yes and 33.3% answered no.

Have you ever developed a website?

24 responses

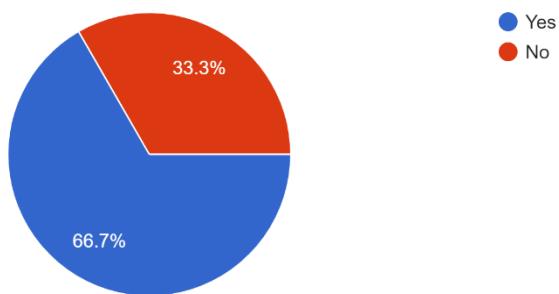


Figure 23. Pie Chart for developing a website

**What online website builder and web template platforms are you familiar with?**

50% answered wix, and 50% answered WordPress, 8.3% answered squarespace, 25% answered weebly, 8.3% answered none, 4.2% answered github, 4.2% answered tumblr, and 4.2% again answered they are not familiar with any website builders.

What online website builder and web template platforms are you familiar with?

24 responses

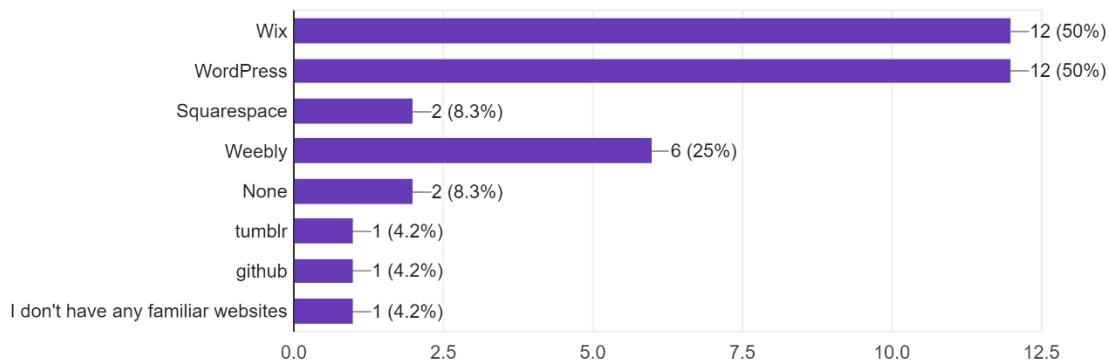


Figure 24. Bar Chart for online website builders

**What offline website builder and web template platforms are you familiar with?**

50% answered bootstrap, 37.5% answered ASP.NET, 16.7% answered Adobe dreamweaver, and 4.2% answered for VS Code, Notepad++, none, and not familiar.

What offline website builder and web template platforms are you familiar with?

24 responses

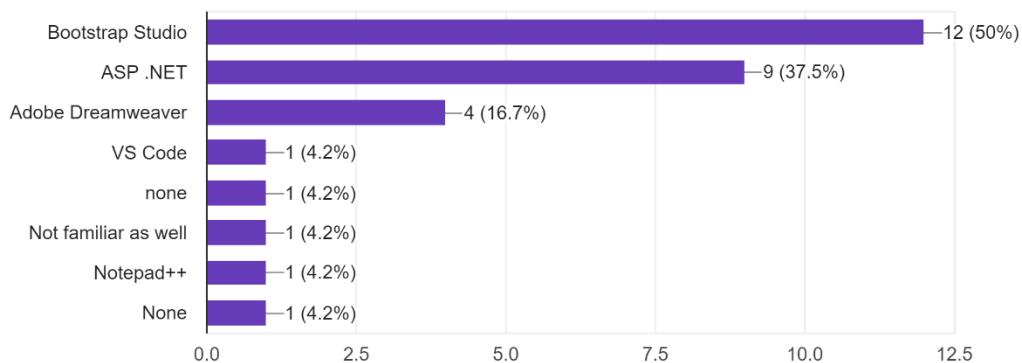


Figure 25. Bar Chart for offline website builders

**In building a website, scale your knowledge from 1 to 5. 1 as the lowest and 5 as the highest.**

13% answered 1, 17.4% answered 2, 43.5% answered 3, 21.7% answered 4, and 4.3% answered 5.

In building a website, scale your knowledge from 1 to 5.

24 responses

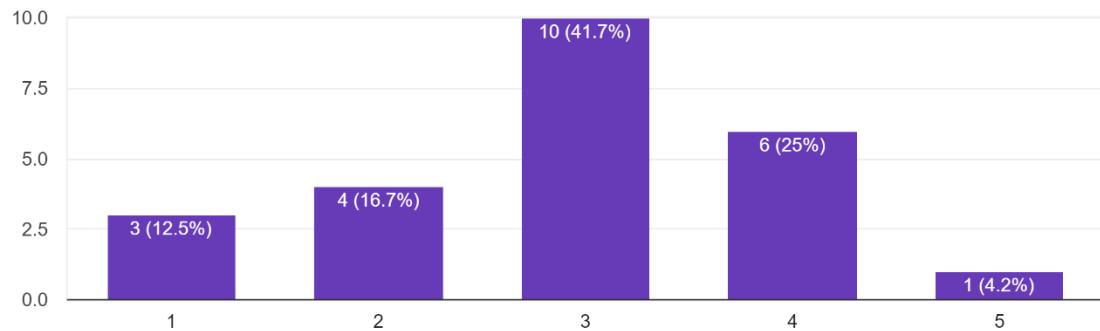


Figure 26. Bar Chart for user's knowledge in creating a website.

**HTML (Hypertext Markup Language) on this one the respondents are asked to scale their knowledge on HTML (1-5) 1 as the lowest and as the highest:**

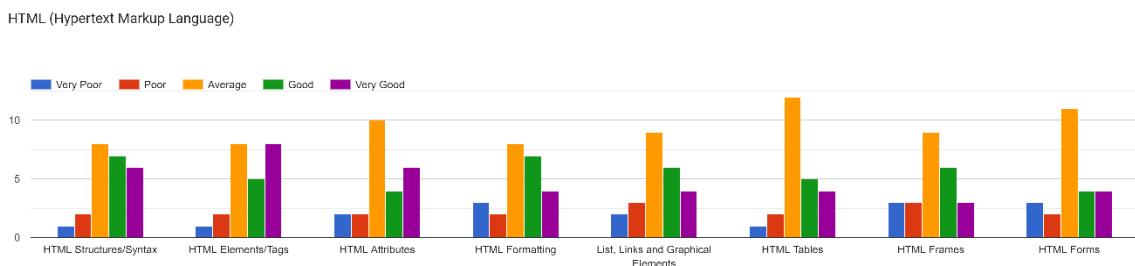


Figure 27. Bar Chart for user's knowledge in HTML.

### HTML Structures/Syntax

- Out of 23 responses, 4.3% answered Very Poor, 8.69% answered Poor, 34.78% answered Average, 26.08% answered Good, 26.08% answered Very Good

### HTML Elements/Tags

- Out of 23 responses, 4.3% answered Very Poor, 8.69% answered Poor, 34.78% answered Average, 17.39% answered Good, 34.78% answered Very Good

### HTML Attributes

- Out of 23 responses, 8.69% answered Very Poor, 8.69% answered Poor, 43.47% answered Average, 13.04% answered Good, 26.08% answered Very Good.

### HTML Formatting

- Out of 23 responses, 13.04% answered Very Poor, 8.69% answered Poor, 34.78% answered Average, 26.08% answered Good, 17.39% answered Very Good.

## List, Links and Graphical Elements

- Out of 23 responses, 8.69% answered Very Poor, 13.04% answered Poor, 39.13% answered Average, 21.73% answered Good, 17.39% answered Very Good

## HTML Tables

- Out of 23 responses, 4.34% answered Very Poor, 8.69% answered Poor, 52.17% answered Average, 17.39% answered Good, 17.39% answered Very Good

## HTML Frames

- Out of 23 responses, 13.04% answered Very Poor, 13.04% answered Poor, 39.13% answered Average, 21.73% answered Good, 13.04% answered Very Good

## HTML Forms

- Out of 23 responses, 13.04% answered Very Poor, 8.69% answered Poor, 47.82% answered Average, 13.04% answered Good, 17.39% answered Very Good

## CSS Structures/Syntax

CSS (Cascading Style Sheet)

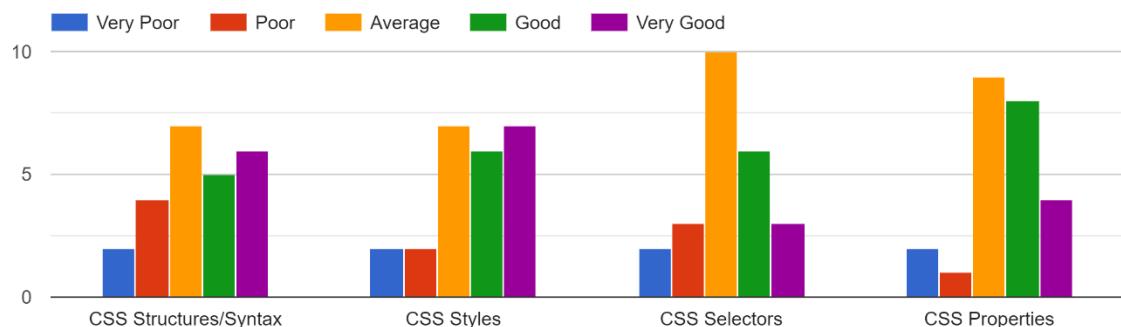


Figure 28. Bar Chart for user's knowledge in CSS.

- Out of 23 responses, 8.69% answered Very Poor, 17.39% answered Poor, 30.43% answered Average, 17.39% answered Good, 26.08% answered Very Good

## CSS Styles

- Out of 23 responses, 8.69% answered Very Poor, 8.69% answered Poor, 30.43% answered Average, 21.73% answered Good, 30.43% answered Very Good

## CSS Selectors

- Out of 23 responses, 8.69% answered Very Poor, 13.04% answered Poor, 13.04% answered Average, 43.47% answered Good, 13.04% answered Very Good

## CSS Properties

- Out of 23 responses, 8.69% answered Very Poor, 4.34% answered Poor, 39.13% answered Average, 30.4% answered Good, 17.39% answered Very Good

## JavaScript:

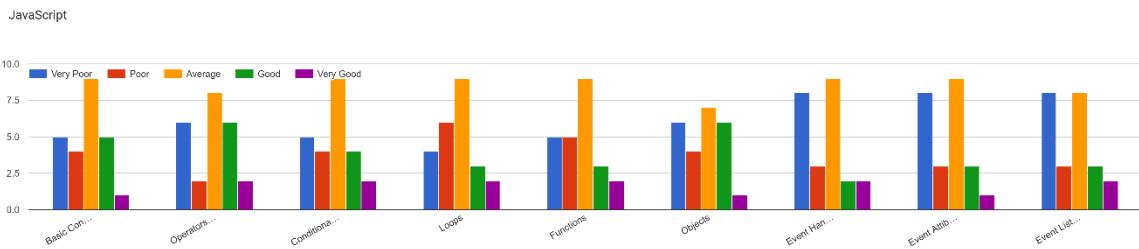


Figure 29. Bar Chart for user's knowledge in JavaScript.

## Basic Concepts (Variable and Data Types)

- Out of 23 responses, 21.73% answered Very Poor, 17.39% answered Poor, 39.13% answered Average, 17.39% answered Good, 4.34% answered Very Good

## Operators (Math Operators, Assignment Operators, Comparison Operators, Logical Operators and String Operators)

- Out of 23 responses 26.08% answered Very Poor, 8.692% answered Poor, 34.78% answered Average, 21.73% answered Good, 8.69% answered Very Good

## Conditional Statements

- Out of 23 responses, 21.73% answered Very Poor, 17.39% answered Poor, 39.13% answered Average, 13.04% answered Good, 8.69% answered Very Good

## Loops

- Out of 23 responses, 17.39% answered Very Poor, 26.08% answered Poor, 39.13% answered Average, 8.69% answered Good, 8.69% answered Very Good

## Functions

- Out of 23 responses, 21.73% answered Very Poor, 21.73% answered Poor, 39.13% answered Average, 8.69% answered Good, 8.69% answered Very Good

## Objects

- Out of 23 responses, 26.08% answered Very Poor, 17.39% answered Poor, 30.43% answered Average, 21.73% answered Good, 4.34% answered Very Good

## Event Handling

- Out of 23 responses, 34.78% answered Very Poor, 13.04% answered Poor, 39.13% answered Average, 4.34% answered Good, 8.69% answered Very Good

## Event Attributes

- Out of 23 responses, 34.78% answered Very Poor, 13.04% answered Poor, 39.13% answered Average, 8.69% answered Good, 4.34% answered Very Good

## Event Listeners

- Out of 23 responses, 34.78% answered Very Poor, 13.04% answered Poor, 34.78% answered Average, 8.69% answered Good, 8.69% answered Very Good

## SQL (Structured Query Language)



Figure 30. Bar Chart for user's knowledge in SQL.

## SQL Database Manipulation

- Out of 23 responses, 39.13% answered Very Poor, 13.04% answered Poor, 26.08% answered Average, 13.04% answered Good, 8.69% answered Very Good.

## SQL Database Table Manipulation

- Out of 23 responses, 39.13% answered Very Poor, 13.04% answered Poor, 30.43% answered Average, 8.69% answered Good, 8.69% answered Very Good.

## SQL Basic Expression Clauses

- Out of 23 responses, 39.13% answered Very Poor, 13.04% answered Poor, 43.47% answered Average, 4.34% answered Good, none answered Very Good.

## SQL Basic Data Operation

- Out of 23 responses, 39.13% answered Very Poor, 13.04% answered Poor, 34.78% answered Average, 13.04% answered Good, none answered Very Good.

## SQL Aggregate Functions

- Out of 23 responses, 43.47% answered Very Poor, 13.04% answered Poor, 43.47% answered Average, 4.34% answered Good, none answered Very Good.

### **SQL Join Clauses**

- Out of 23 responses, 43.47% answered Very Poor, 8.69% answered Poor, 30.43% answered Average, 4.34% answered Good, 13.04% answered Very Good.

### **SQL Views**

- Out of 23 responses, 43.47% answered Very Poor, 8.69% answered Poor, 34.78% answered Average, 4.34% answered Good, 8.69% answered Very Good.

### **SQL Database Normalization**

- Out of 23 responses, 43.47% answered Very Poor, 13.04% answered Poor, 34.78% answered Average, 8.69% answered Good, none answered Very Good.

### **What is your purpose to learn in creating a website?**

62.5% answered for educational purposes, 37.5% answered for business, and 83.3% answered for personal development skills.

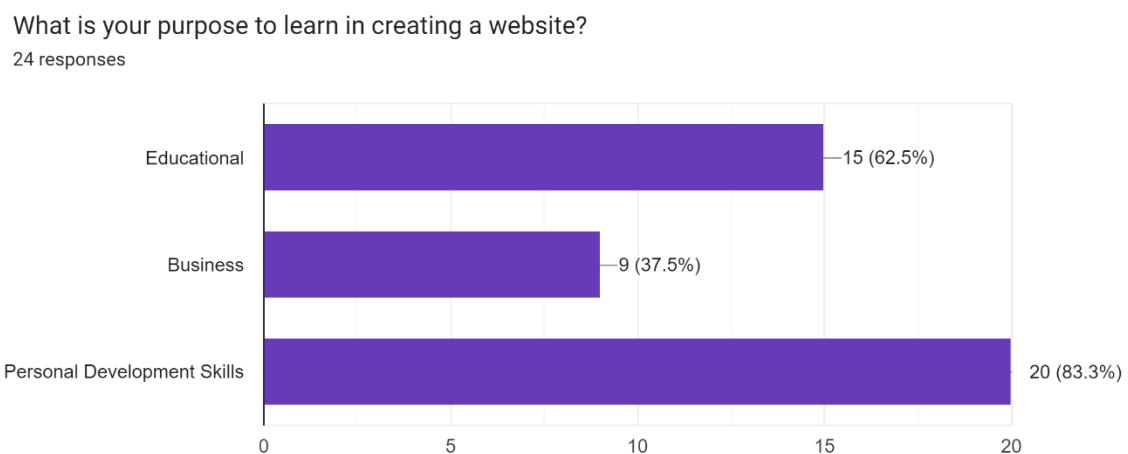


Figure 31. Bar Chart for user's purpose learning web programming.  
**Which do you prefer? gaming or learning (studying/academic)?**

45.8% answered learning and 54.2% answered gaming.

Which do you prefer? gaming or learning (studying/academic)?

24 responses

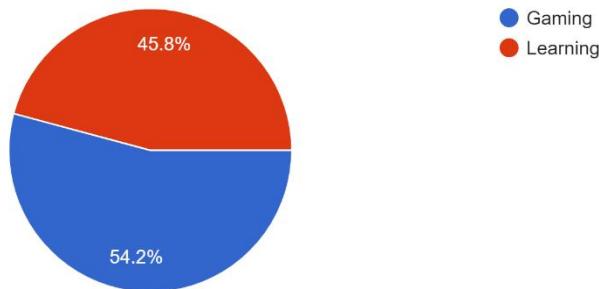


Figure 32. Pie Chart between gaming and learning.

**Based on your answer on the previous question, If you choose gaming why? if learning why? This are all of their reasons to why did they answer gaming or to why did they answer learning.**

"I chose gaming because in today's time, we can actually learn more if we mix it with the things that we love. In my case I learn much faster when the lesson is somehow similar to a video game"

"because I like playing online games."

"it's more engaging and interesting. it also helps you hone some of your senses/skills that are outside the learning category."

"Gaming.. because u can earn money while playing and while playing earning money u enjoy yourself."

"Secret"

"Gusto ko lang ;)"

"I have always loved gaming. I have been playing games for years and I am passionate about it."

"I prefer learning because I am not the type of person who really have a talent in gaming, I play sometimes but mostly scrolling through phone I am not also good at learning but still prefer learning."

“Gaming, Because its my passion as a Gamer.”

“Gaming because it cures my boredom.”

“Because gaming is my happiness.”

“I want to make sandbox games”

“I choose learning because I can't play games.”

“I like learning but at the same time gaming. Though I'm making myself learn things so I can do random things I want and understand how things work easily”

“I chose gaming because it can also make us learn not only in gaming but also in other things.”

“Because if u learned how to use the knowledge then it can help to develop the learnings that u have.”

“I choose learning because it can help others too”

“learning is very important to me because I am currently taking IT in MAWD and it help me to learn and explore than gaming.”

“It's better”

“I choose learning because i can easily understand my course when learning or reading it. I can also gather or know new information about a certain topic.”

“It makes me happy, and i like challenges from difficult and interesting games.”

“I choose gaming because that was more interesting and enjoying for me.”

“Gaming makes me interact with other people who I can have fun with. Through gaming, I've met people online and understand them far better than I do with my classmates.

Gaming also is fun, and while learning is too, it can be tedious and headache-inducing, especially when you encounter a lot of bugs in your code or you know nothing.”

#### **APPENDIX J: GRAMMARIAN'S CERTIFICATE**

## GRAMMARIAN'S CERTIFICATE

This is to certify that the undersigned has reviewed and went through all the pages of the proposal manuscript entitled "**WEBCRAFT: Game-based Learning for Web Development**" by **Hannah Margaret P. Cuachon, Mario B. Maratas Jr., Blaise Pascal A. Mercado** and **Charlyn Ky C. Miguel**, aligned with the set of structural rules that govern the composition of sentences, phrases and words in the English Language.

Signed this 2<sup>nd</sup> day of May in the year 2023, at STI College General Santos Inc, General Santos City.

Signed By:



**ARVIN BENEDICT P. CUACHON, LPT**  
Grammarian

## APPENDIX K: STATISTICIAN'S CERTIFICATE

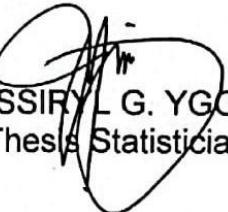
## STATISTICIAN'S CERTIFICATE

To whom it may concern

This is to certify that the undersigned has reviewed the undergraduate thesis of **Hannah Margaret P. Cuachon, Mario B. Maratas Jr., Blaise Pascal A. Mercado and Charlyn Ky C. Miguel** entitled: "**WEBCRAFT: Game-based Learning for Web Development**" in terms of statistical analysis.

This certification is issued upon the request of **Hannah Margaret P. Cuachon, Mario B. Maratas Jr., Blaise Pascal A. Mercado and Charlyn Ky C. Miguel** for whatever purpose this may serve them best.

Given this 11<sup>th</sup> day of May 2023.



JESSIRYL G. YGOÑA  
Thesis Statistician

**APPENDIX L: REVISION LIST FORM**

THESIS ADVISER	STI SCHOOL	SCHOOL YEAR/TERM
Kristel Joy C. Tulagan, MIT	STI College - General Santos Inc.	
THESSIS TITLE		
WEBCRAFT: Game-based Learning for Web Development		
NAME OF GROUP MEMBERS		
Hannah Margaret P. Cuachon		Mario B. Maratas Jr.
Blaise Pascal A. Mercado		Charlyn Ky C. Miguel

### INSTRUCTIONS:

Fill-out the form by checking the appropriate box that needs to be revised by the thesis group. Write your comments/suggestions/recommendations if necessary.

### RECOMMENDATION:

- Thesis proposal is ***approved with no revisions***.
- Thesis proposal is **approved with revisions**\*. (Ensure that all revisions are met to be accepted asthesis)

### \*CORRECTIONS/REVISIONS:

- Inappropriate thesis title.
- The study was already conducted.
- Incompleteness or incorrectness of written research problems and objectives in any of the following (*Indicate reasons*):
  - Inappropriate statement of the research problems (form).
  - Problems incorrectly state what has to be solved by the study.
  - Objectives state the incorrect solutions to the problem(s).
- Objectives of the study do not conform to S-M-A-R-T (Specific, Measurable, Attainable, Realistic, and Time-bounded) criteria.
  - The specific objectives do not state precise and definite details about the project.
    - The criteria cannot be quantified for measuring the accomplishment(s).
    - The goals set by the proponents are not achievable through available means.
    - The proposed solution is not complex enough to justify a thesis.
    - It is not possible to time-bound the objectives.
  - Other (Please specify):
- Scope discusses all important modules or features of the study which were essential in the development of the

Specify the level of knowledge in web development the project aim to achieve and what are the different ways on how to achieve it.

Specify the different approaches you are planning to employ to achieve your goal.

How would you measure the knowledge gain by the user after finishing the game?

What method will you use to keep the user focused in playing the game. Not all games played are still being used by gamers and still playing it consistently?

To what extent the user needs to play the game to be able to learn Web Programming?

How does the web app method differ from the method applied by teachers who has tons of experience and knowledge?

Will the Web Application an alternative to the Learning process employs by teacher or is this just a supplementary method?

Who will develop the modules that will be used in the game?

Are the module developed enough to facilitate learning?

### **Objective of the study**

To develop a webpage that is the performance analytics that displays the progress of the students based on their performance and achievements in the given task.

How effective is the performance analytics? Is there already a study that tells specifically the measurement or metrics used is effective in gauging the progress of the students.

## Scope

### **Performance Analytics Module**

Will you employ different graphs to show the student Progress?

### **Join Class Module**

The students can join a class created by the teacher using an access code.

Is this online and virtual?

## Limitation

In the game play module, the game will only focus on the following programming languages such as HTML5, CSS3, JavaScript, JQuery, PHP and SQL.

Will it cover the entire topics and sub topics of the above mentioned Programming Languages?

DEFENSE EVALUATION FORM			
SPONSORED LEARNING FOR WEB DEVELOPMENT			
NAME OF DEFENDER		SIGNATURE	
CHARLES MARCOS MARGARET P. CUACHON			
JULIANO B. MARATAS JR.			
BLAISE PASCAL A. MERCADO			
CHARLYN KY C. MIGUEL			
DATE OF DEFENSE	TIME OF DEFENSE	SCHOOL CAMPUS	SIGNATURE
MAY 26, 2023	1:00PM – 3:00PM	STI COLLEGE – GENERAL SANTOS, INC	
NAME OF LEAD PANELIST	SIGNATURE	NAME OF PANELIST	SIGNATURE
DAN HENLY P. SALES		JULIE B. OCENAR, MIT	
NAME OF ADVISER	SIGNATURE	NAME OF PANELIST	SIGNATURE
KRISTEL JOY C. TULAGAN, MIT		ENGR. ANN GILYN B. PREMARION, MIM, MAEd	
<p>The following revisions need to be complied with by the thesis group. Further evaluation on the thesis project will be done depending on the indicated result in the Recommendation Sheet.</p> <p>Revise acknowledgements</p> <p>Since you can Align the document to your system as gamified system rather than game-based system add more features as recommended by the LP.</p> <p>Improve the Methodology to add more narratives of the difficulties/solutions encountered/provided.</p>			

Figure 33: Final Revisions List Form (Part 1)

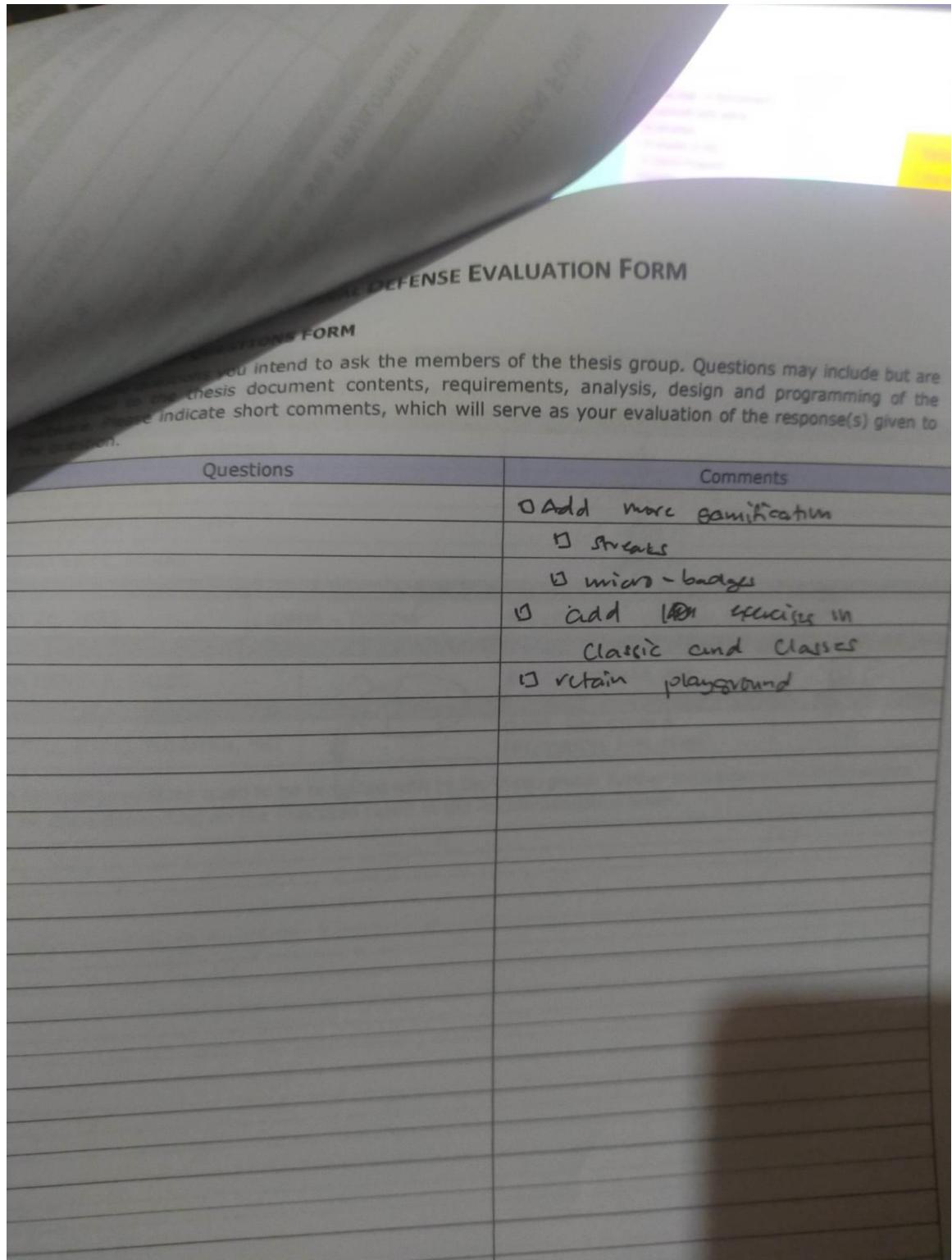
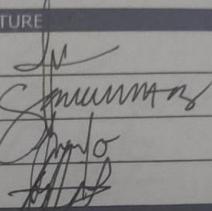
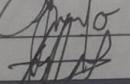
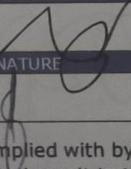
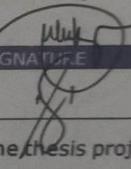
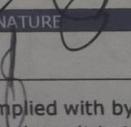
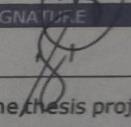


Figure 34: Final Revisions List Form (Part 2)

**FINAL DEFENSE EVALUATION FORM**

**PART 4. REVISION LIST FORM**

THESSIS TITLE			
WEBCRAFT: GAME-BASED LEARNING FOR WEB DEVELOPMENT			
NAME OF GROUP MEMBERS		SIGNATURE	
HANNAH MARGARET P. CUACHON			
MARIO B. MARATAS JR.			
BLAISE PASCAL A. MERCADO			
CHARLYN KY C. MIGUEL			
DATE OF DEFENSE	TIME OF DEFENSE	SCHOOL CAMPUS	
MAY 26, 2023	1:00PM – 3:00PM	STI COLLEGE – GENERAL SANTOS, INC	
NAME OF LEAD PANELIST	SIGNATURE	NAME OF PANELIST	SIGNATURE
DAN HENLY P. SALES		JULIE B. OCENAR, MIT	
NAME OF ADVISER	SIGNATURE	NAME OF PANELIST	SIGNATURE
KRISTEL JOY C. TULAGAN, MIT		ENGR. ANN GILYN B. PREMARION, MIM, MAED	

The following revisions need to be complied with by the thesis group. Further evaluation on the thesis project will be done depending on the indicated result in the Recommendation Sheet.

- \* Recompute your Hypercube ple.
- \* Focus on gamification in your document rather than game-based.

Figure 35: Final Revisions List Form (Part 3)

**APPENDIX M: CS THESIS 2 ACCOMPLISHMENT AND CONSULTATION FORM**

## ACCOMPLISHMENT AND CONSULTATION FORM

**INSTRUCTION:** List all the activities, improvements or accomplishments that has been made in your Thesis Documentation and System/Prototype. This form may be reproduced as you go along with your thesis. This form should be submitted to your Thesis Adviser every week.

Thesis Title: WEBCRAFT: Game-based Learning for Web Development  
 Week Number: 1

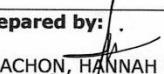
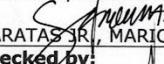
ACTIVITY/ ACCOMPLISHMENT	REMARKS/ COMMENTS/ SUGGESTIONS/ DELIVERABLES and DUE DATE
Cuachon * Fixing Errors Miguel (Teacher Side) * Enhance UI for Activity list & Manage Activity MARATAS: * Gameplay * Fixing errors MERCADO: - FIXING ERRORS - ENHANCE UI Miguel - UI for user profile	
<b>Prepared by:</b>	
CUACHON, HANNAH MARGARET P.  MARATAS JR., MARIO B.	MERCADO, BLAISE PASCAL A.  MIGUEL, CHARLYN KY C.
<b>Checked by:</b>	
KRISTEL JOY C. TULAGAN, MIT Thesis Adviser Date Signed:	KRISTEL JOY C. TULAGAN, MIT Thesis Coordinator Date Signed:

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Thesis Title: WEBCRAFT: Game-based Learning for Web Development  
 Week Number: 2

ACTIVITY/ ACCOMPLISHMENT	REMARKS/ COMMENTS/ SUGGESTIONS/ DELIVERABLES and DUE DATE
Miguel - Student Analytics (Mars) Cuachon - Fixing errors Maratas - Fixing Errors Mercado - FIXING ERRORS	
<b>Prepared by:</b>   CUACHON, HANNAH MARGARET P.  MARATAS JR., MARIO B.	 MERCADO, BLAISE PASCAL A.  MIGUEL, CHARLYN KY C.
<b>Checked by:</b>   KRISTEL JOY C. TULAGAN, MIT Thesis Adviser Date Signed:	<b>Noted by:</b>   KRISTEL JOY C. TULAGAN, MIT Thesis Coordinator Date Signed:

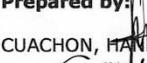
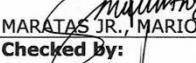
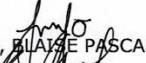
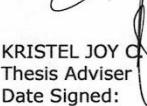
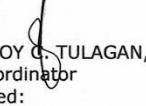
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 Week Number: 3

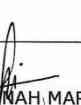
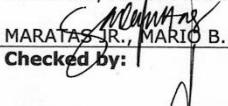
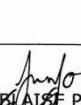
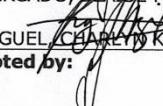
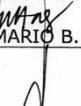
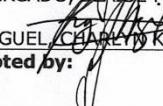
ACTIVITY/ ACCOMPLISHMENT	REMARKS/ COMMENTS/ SUGGESTIONS/ DELIVERABLES and DUE DATE
Miguel - Student Analytics (Wazi) Cuachon - Handout - fixing errors Maratas - Time - limited Mercado - class activity	
<b>Prepared by:</b>  CUACHON, HANNAH MARGARET P.  MARATAS JR., MARIO B.	 MERCADO, PASCAL A.  MIGUEL, CHARLYN RY C.
<b>Checked By:</b>  KRISTEL JOY C. TULAGAN, MIT Thesis Adviser Date Signed:	<b>Noted by:</b>  KRISTEL JOY C. TULAGAN, MIT Thesis Coordinator Date Signed:

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Thesis Title: WEBCRAFT: Game-based Learning for Web Development  
 Week Number: 4

ACTIVITY/ ACCOMPLISHMENT	REMARKS/ COMMENTS/ SUGGESTIONS/ DELIVERABLES and DUE DATE
<p>Miguel - Student Analytics (class)          CUACHON - Handouts          MARATAS - Time-limited          Dynamic game          creator, duplicate          game.          MERCADO - CLASS ACTIVITY          (UPDATE)          STUDENT ANALYTICS</p>	
<b>Prepared by:</b>  CUACHON, HANNAH MARGARET P.  MARATAS JR., MARIO B.	 MERCADO, BLAISE PASCAL A.  MIGUEL, CHARLES KY C.
<b>Checked by:</b>  KRISTEL JOY C. TULAGAN, MIT Thesis Adviser Date Signed:	<b>Noted by:</b>  KRISTEL JOY C. TULAGAN, MIT Thesis Coordinator Date Signed:

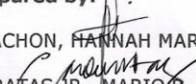
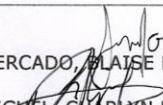
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Thesis Title: WEBCRAFT: Game-based Learning for Web Development  
 Week Number: 5

ACTIVITY/ ACCOMPLISHMENT	REMARKS/ COMMENTS/ SUGGESTIONS/ DELIVERABLES and DUE DATE
<b>CUACHON:</b> - ADMIN DROPODOWN - ARCHIVE - LINKING  <b>MERCADO:</b> - KEY MODULE - PTX ERROR  <b>MARATAS:</b> Gameplay training area Playground check errors legend difficulty  <b>Miguel:</b> - tutorial for student dashboard - tutorial for gameplay	b) Perform Beta & Alpha Test  b) Target audience: random student & non-proj. (guest)  b) Improve Performance Analytics  b) Reports
<b>Prepared by:</b>  CUACHON, HANNAH MARGARET P.  MARATAS JR., MARIO B.	MERCADO, BLAISE PASCAL A.  MIGUEL, CHARLYN KY C.
<b>Checked by:</b>  KRISTEL JOY C. TULAGAN, MIT Thesis Adviser Date Signed:	<b>Noted by:</b>  KRISTEL JOY C. TULAGAN, MIT Thesis Coordinator Date Signed:

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 Week Number: 6

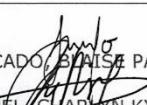
ACTIVITY/ ACCOMPLISHMENT	REMARKS/ COMMENTS/ SUGGESTIONS/ DELIVERABLES and DUE DATE
<p>Cauchon:</p> <ul style="list-style-type: none"> <li>- fixing dropdowns</li> <li>- Handouts</li> </ul> <p>Mercado:</p> <ul style="list-style-type: none"> <li>- CONTINUATION OF STUDENT ANALYTICS</li> </ul> <p>Maratas:</p> <ul style="list-style-type: none"> <li>- Update on the gameplay</li> </ul> <p>Miguel</p> <ul style="list-style-type: none"> <li>- Modals for class configuration</li> </ul>	
<b>Prepared by:</b>  CUACHON, HANNAH MARGARET P.  MARATAS JR., MARIO B.	  MERCADO, PLAISE PASCAL A.  MIGUEL, CHARLYN KY C.
<b>Checked by:</b>  KRISTEL JOY C. TULAGAN, MIT Thesis Advisor Date Signed:	  <b>Noted by:</b>  KRISTEL JOY C. TULAGAN, MIT Thesis Coordinator Date Signed:

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Thesis Title: WEBCRAFT: Game-based Learning for Web Development  
 Week Number: 7

ACTIVITY/ ACCOMPLISHMENT	REMARKS/ COMMENTS/ SUGGESTIONS/ DELIVERABLES and DUE DATE
<p>Wachon</p> <p>*Handouts</p> <p>*Edit database</p> <p>MERCADO</p> <ul style="list-style-type: none"> <li>- GRADE ANALYTIC (STUDENT)</li> </ul> <p>Miguel:</p> <ul style="list-style-type: none"> <li>- Enhancing UI for class configuration</li> <li>- Managing archive</li> </ul> <p>Maratas</p> <p>-Gameplay</p>	
<p><b>Prepared by:</b></p> <p>CUACHON, HANNAH MARGARET P.</p> <p>MARATAS JR., MARIO B.</p> <p><b>Checked by:</b></p> <p>KRISTEL JOY C. TULAGAN, MIT                      Thesis Advisor                      Date Signed: </p>	<p>MERCADO, ERNIE PASCAL A.                        MIGUEL, CHARLYN KY C.  <p><b>Noted by:</b></p> <p>KRISTEL JOY C. TULAGAN, MIT                      Thesis Coordinator                      Date Signed: </p> </p>

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 Week Number: 1

ACTIVITY/ ACCOMPLISHMENT	REMARKS/ COMMENTS/ SUGGESTIONS/ DELIVERABLES and DUE DATE
<p>Cuachon          * Fixing errors</p> <p>MERCADO</p> <ul style="list-style-type: none"> <li>- SCOPE</li> <li>TOTAL % ANALYTICS</li> <li>- MODALS</li> </ul> <p>Miguel</p> <ul style="list-style-type: none"> <li>- Redesigning of activity list</li> <li>- Debugging errors</li> </ul> <p>Maratas</p> <p>Gameplay</p>	
<b>Prepared by:</b>  CUACHON, HANNAH MARGARET P. MARATAS JR., MARIO B.	 MERCADO, BLAISE PASCAL A. MIGUEL CHARLYN KY C.
<b>Checked by:</b>  KRISTEL JOY C. TULAGAN, MIT Thesis Adviser Date Signed:	 KRISTEL JOY C. TULAGAN, MIT Thesis Coordinator Date Signed:
<b>Noted by:</b>	

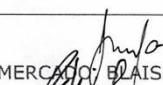
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Thesis Title: WEBCRAFT: Game-based Learning for Web Development  
 Week Number: 9

ACTIVITY/ ACCOMPLISHMENT	REMARKS/ COMMENTS/ SUGGESTIONS/ DELIVERABLES and DUE DATE
<p>Wachan</p> <ul style="list-style-type: none"> <li>* Create module</li> <li>* Archiving</li> <li>* Fixing errors</li> </ul> <p>MERCADO</p> <ul style="list-style-type: none"> <li>- CREATING GRAPH</li> <li>FOR STUDENT ANALYTICS</li> </ul> <p>Miguel</p> <ul style="list-style-type: none"> <li>- Managing Activities</li> <li>- adding activity category</li> <li>- adding module to which activity is given</li> </ul> <p>MARATAS - Gameplay</p>	
<p><b>Prepared by:</b></p> <p>CUACHON, HANNAH MARGARET P.          MARATAS JR., MARIO B.</p>	 MERCADO, BLAISE PASCAL A. MIGUEL, CHARLYN KY C.
<p><b>Checked by:</b></p> <p>KRISTEL JOY C. TULAGAN, MIT          Thesis Adviser          Date Signed: </p>	 KRISTEL JOY C. TULAGAN, MIT Thesis Coordinator Date Signed:

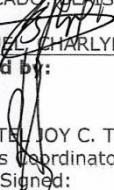
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Thesis Title: WEBCRAFT: Game-based Learning for Web Development  
 Week Number: 10

ACTIVITY/ ACCOMPLISHMENT	REMARKS/ COMMENTS/ SUGGESTIONS/ DELIVERABLES and DUE DATE
Cuachon - Handouts - Edit module - Archiving <b>MERCADO</b> - CONTINUATION STUDENT ANALYSIS - LINKING <b>Miguel</b> - UI for Adding awards to Activity - Managing Awards <b>Maratas</b> - Gameplay	
<b>Prepared by:</b>   CUACHON, HANNAH MARGARET P.   MERCADO, MARIASE PASCAL A.   MARATAS JR., MARIO B. <b>MIGUEL CHARLYN KY C.</b>	
<b>Checked by:</b>   KRISTEL JOY C. TULAGAN, MIT Thesis Advisor Date Signed: 	<b>Noted by:</b>   KRISTEL JOY C. TULAGAN, MIT Thesis Coordinator Date Signed: 

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Thesis Title: WEBCRAFT: Game-based Learning for Web Development  
 Week Number: 11

ACTIVITY/ ACCOMPLISHMENT	REMARKS/ COMMENTS/ SUGGESTIONS/ DELIVERABLES and DUE DATE
Cuachon: linking - Archiving - VF MERCADO - STUDENT ACHIEVEMENTS - PAVING ERROR Miguel - Generate Reports for teacher (student logs, record book, enrolled student) Maratas - Gamplay	
<b>Prepared by:</b>  CUACHON, HANNAH MARGARET P. MARATAS JR., MARIO B.	MERCADO, BLAISE PASCAL A. MIGUEL, CARMELYN KY C. <b>Noted by:</b> KRISTEL JOY C. TULAGAN, MIT
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## APPENDIX N: LIKERT SCALE FOR EVALUATION

### Likert Scale for Evaluation

Scale	Range	Verbal Description
5	4.20 – 5.00	Strong Agree
4	3.40 – 4.19	Agree
3	2.60 – 3.39	Neutral
2	1.80 – 2.59	Disagree
1	1.0 – 1.79	Strong Disagree

Table 14: Likert Scale for Evaluation

## APPENDIX O: SYSTEM MOCKUP

## Landing Page

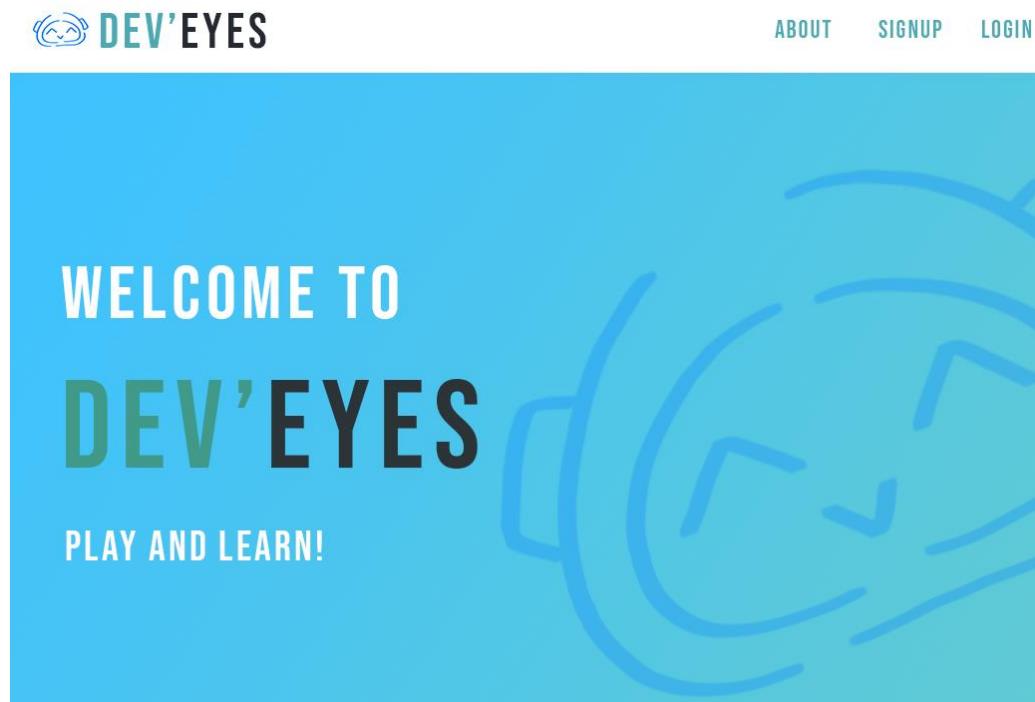


Figure 36: Landing Page

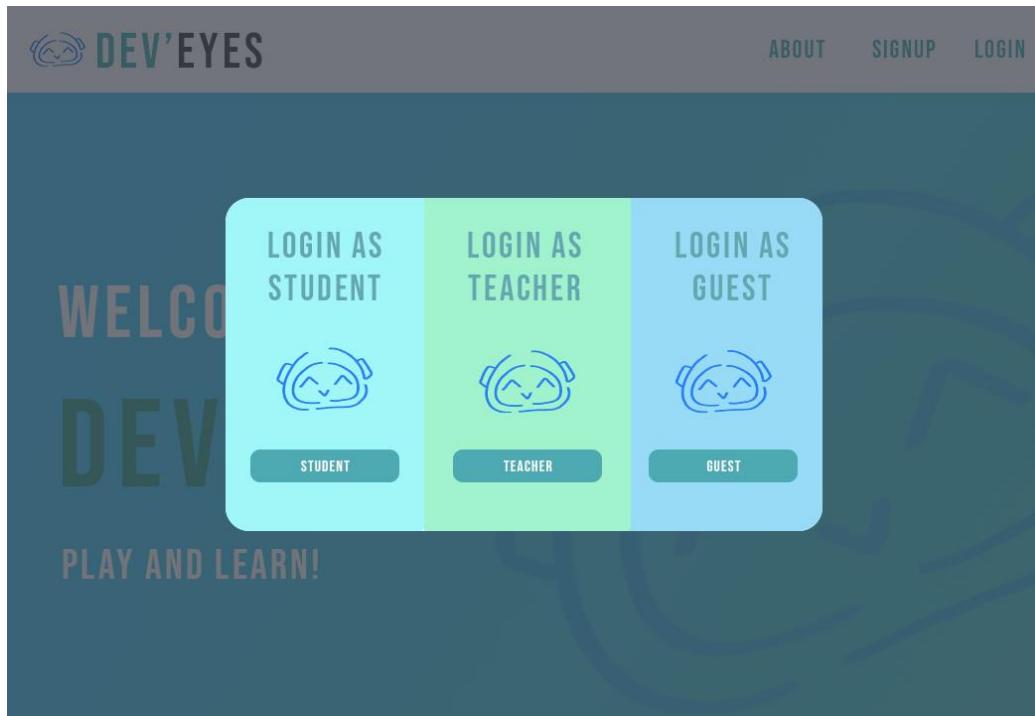


Figure 37: Login Page for different users

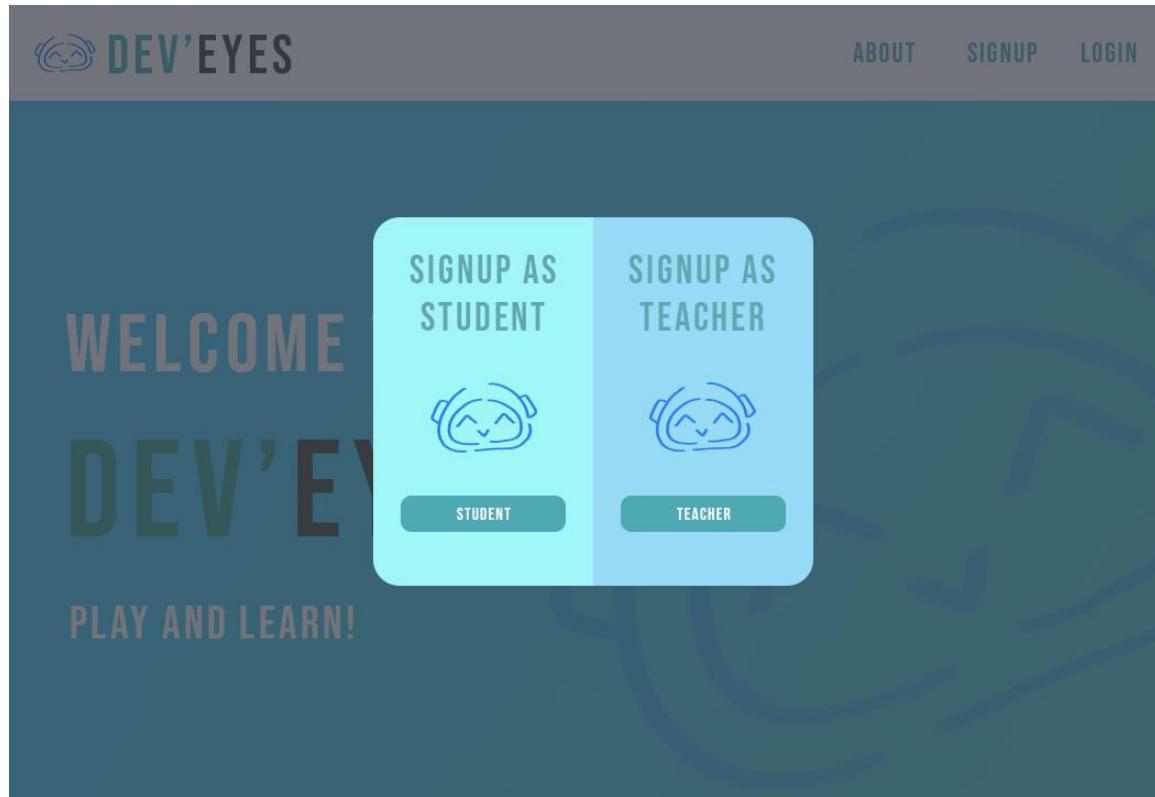


Figure 38: Signup Page for Teachers and Students

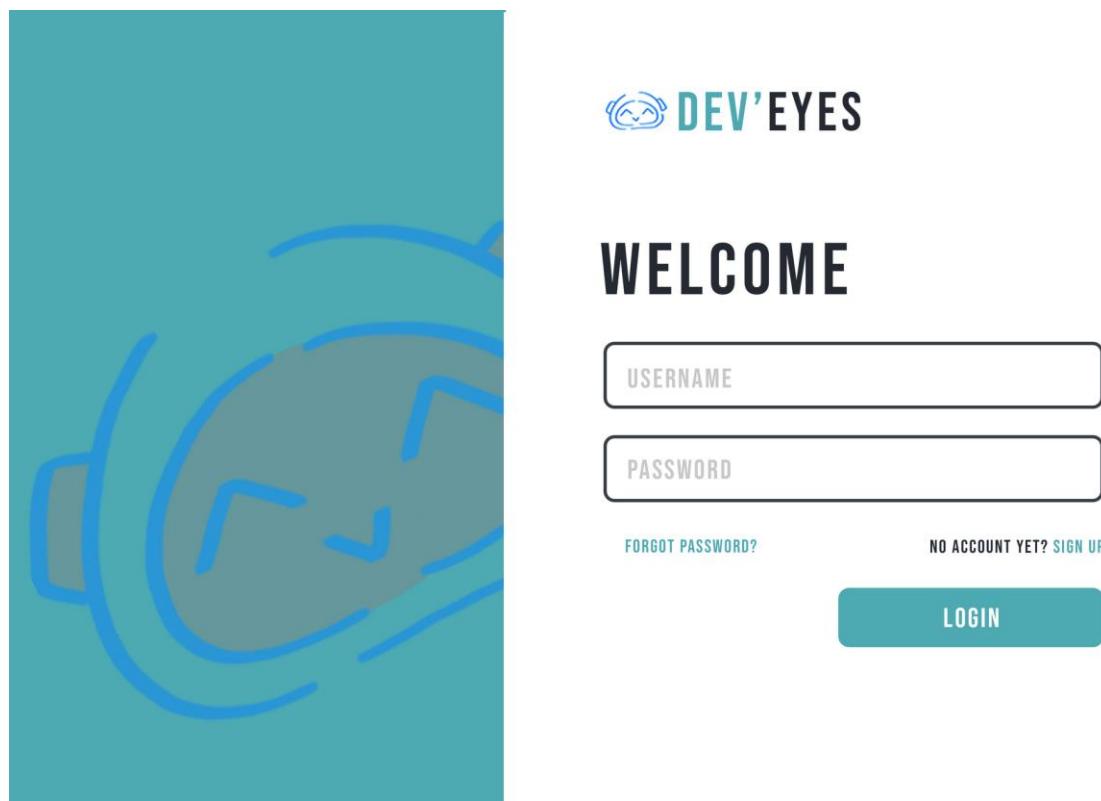


Figure 39: Login Page

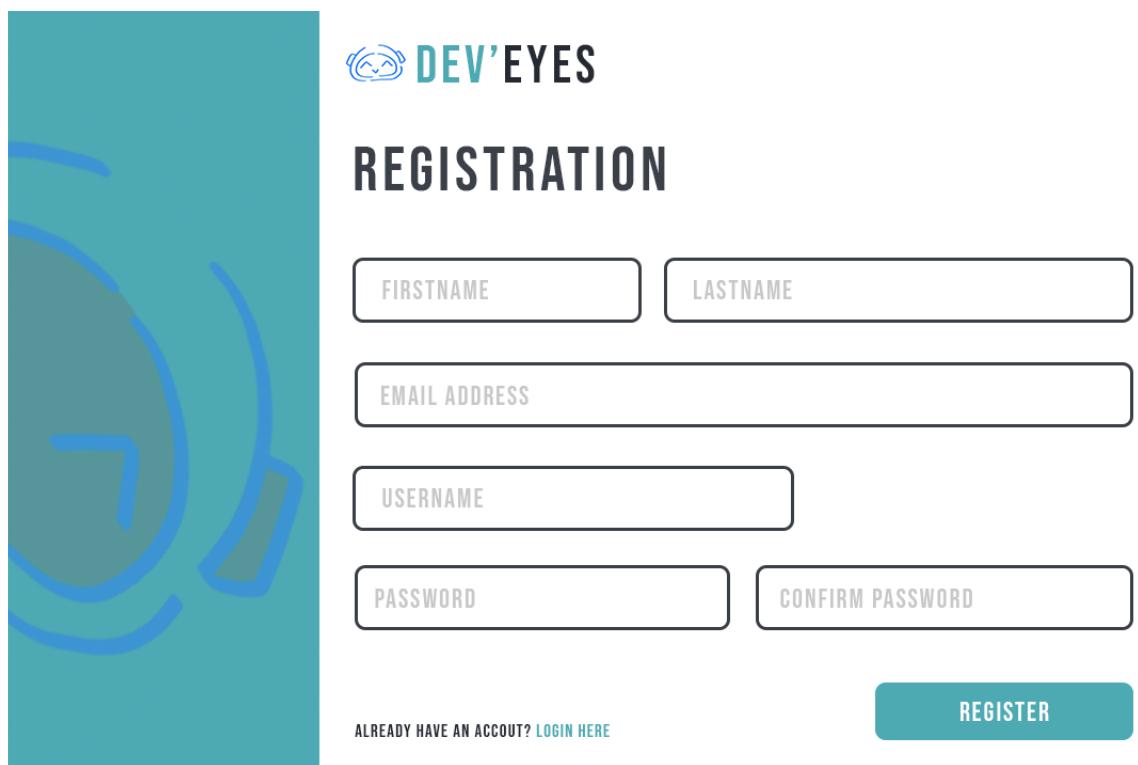


Figure 40: Registration Page

The dashboard has a light blue header with navigation links: 'CLASSIC' (highlighted), 'TIME-LIMITED', 'PLAYGROUND', and 'JOIN CLASS'. On the right is a 'USERNAME' field with a blue placeholder icon. The main content area is titled 'CLASSIC MODE' with '1 / 10' below it. At the bottom of this section are 'SKIP' and 'NEXT' buttons. The rest of the page is a large, empty light blue space.

Figure 41: Student's Dashboard (Part 1)

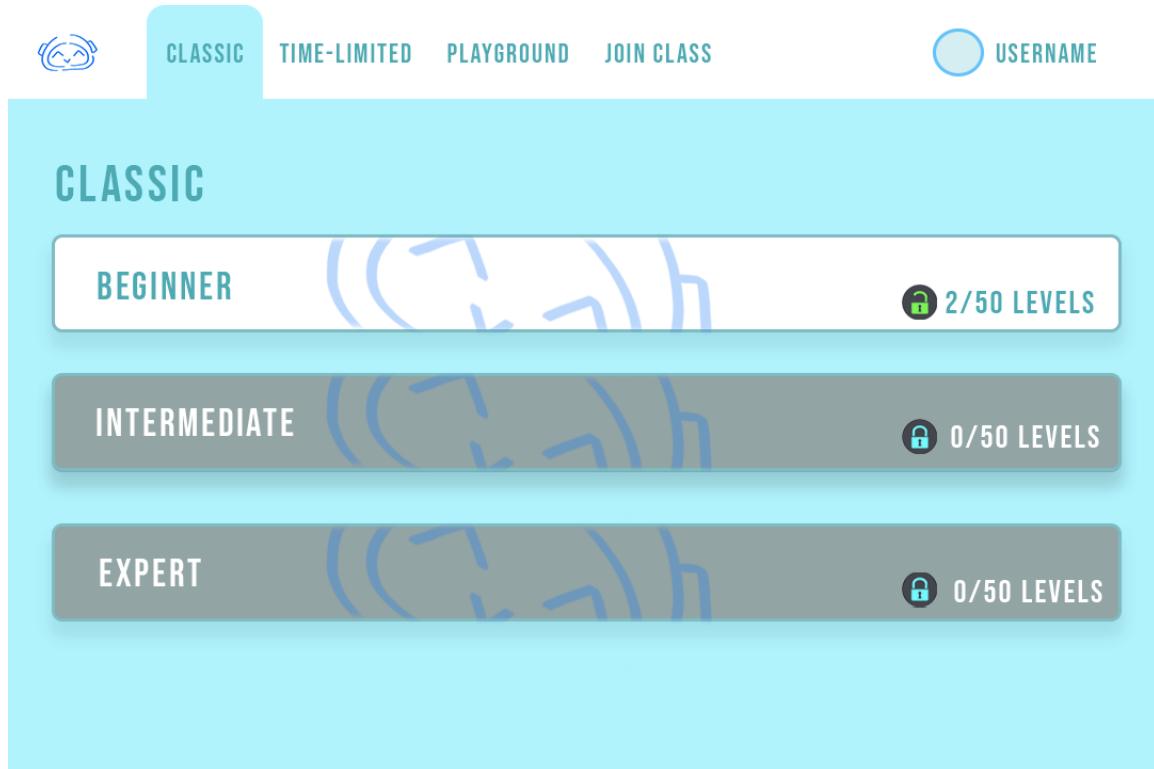


Figure 42: Student's Dashboard (Part 2)

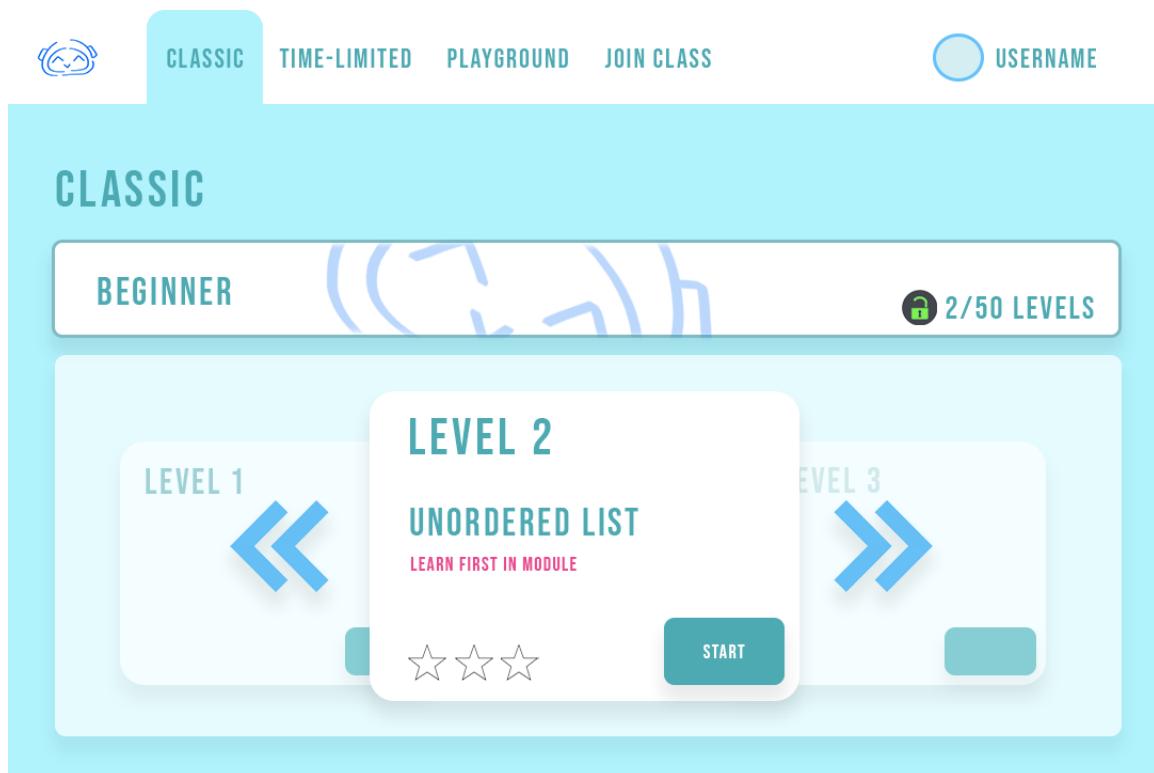


Figure 43: Student's Dashboard Gameplay

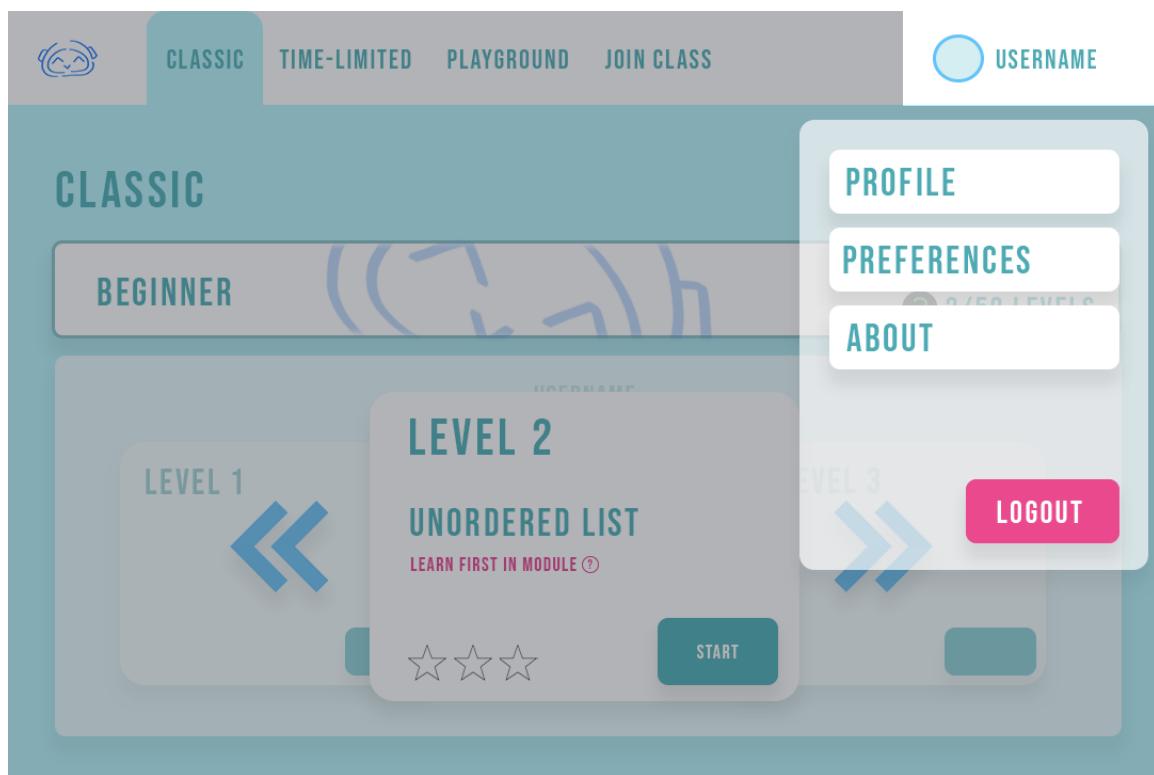


Figure 44: Student's Profile



Figure 45: Student's Display Profile

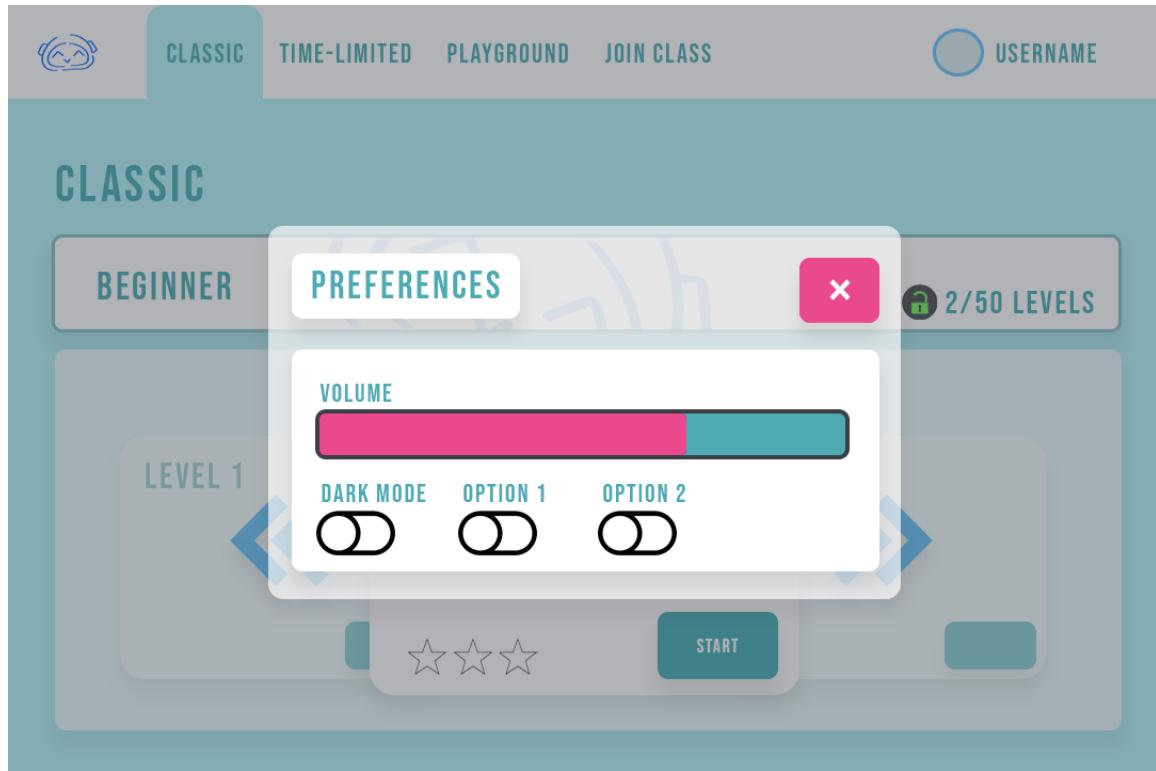


Figure 46: Settings for Volume and modes

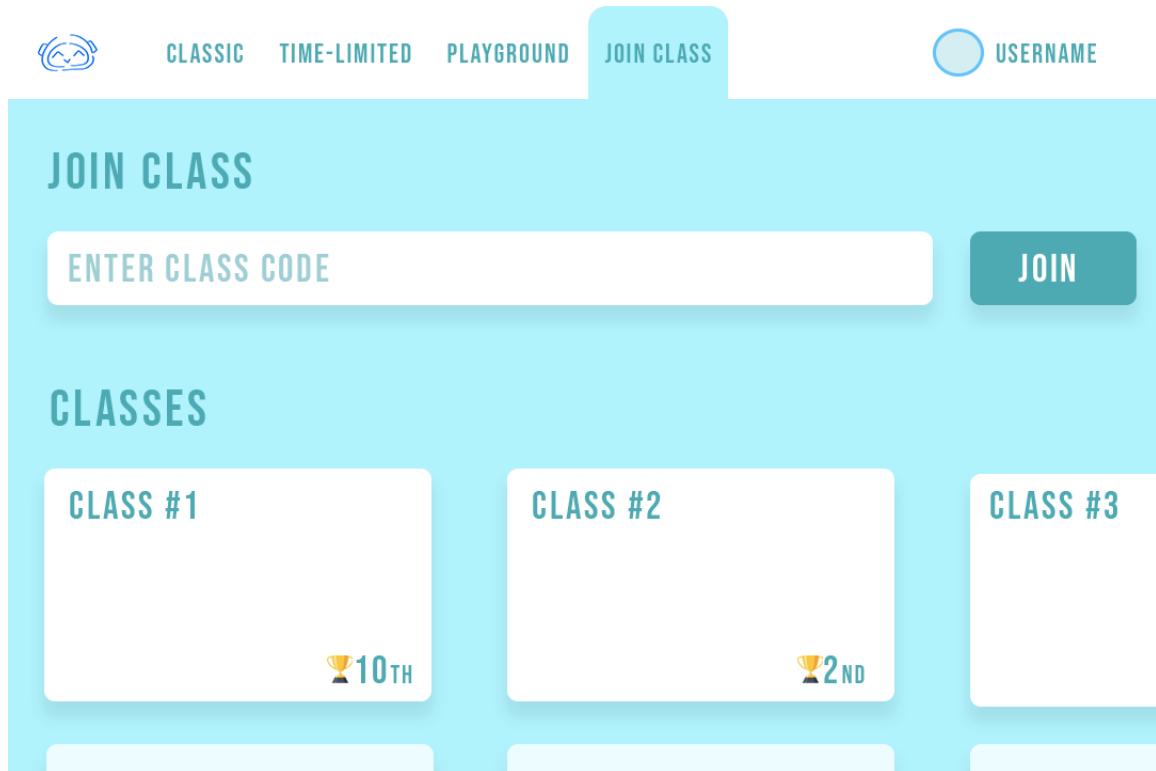


Figure 47: Join Class

## UNORDERED LIST LEVEL 2

1. LOREM IPSUM LOREM  
IPSUM LOREM?

00:00:00

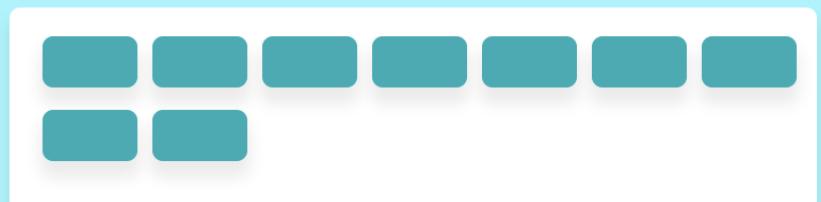
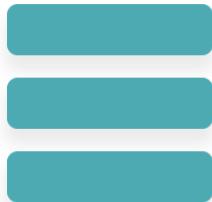


Figure 48: Game Play

CSS

```
div {  
    background-color: red;  
    color: blue;  
    text-align: center;  
    display: block;  
}  
.container {  
    background-color: #ffffff;  
    display: grid;  
    grid-gap: 2rem;  
}
```

HTML

JAVASCRIPT

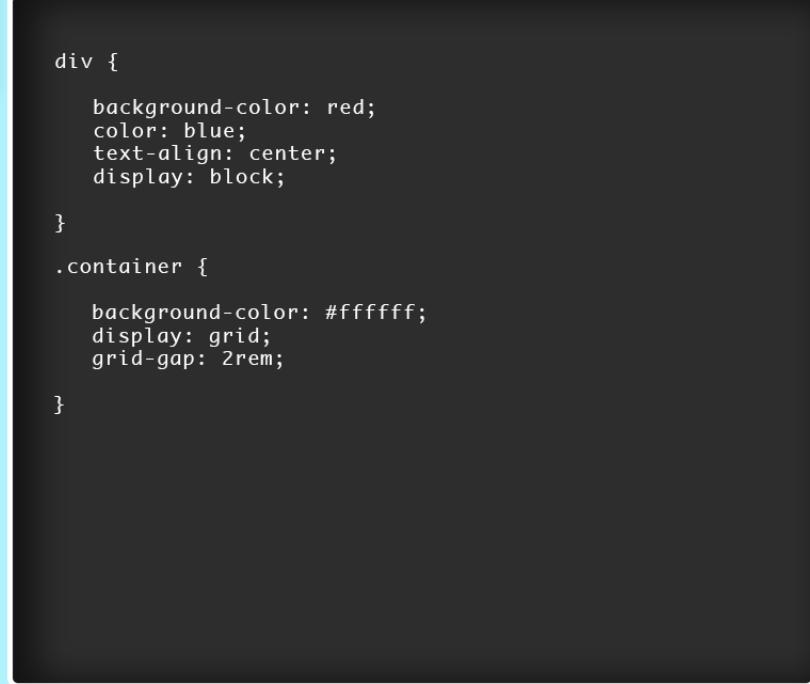
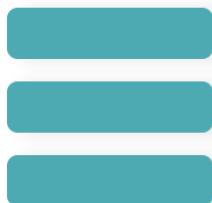


Figure 49: Game Play and Language Type

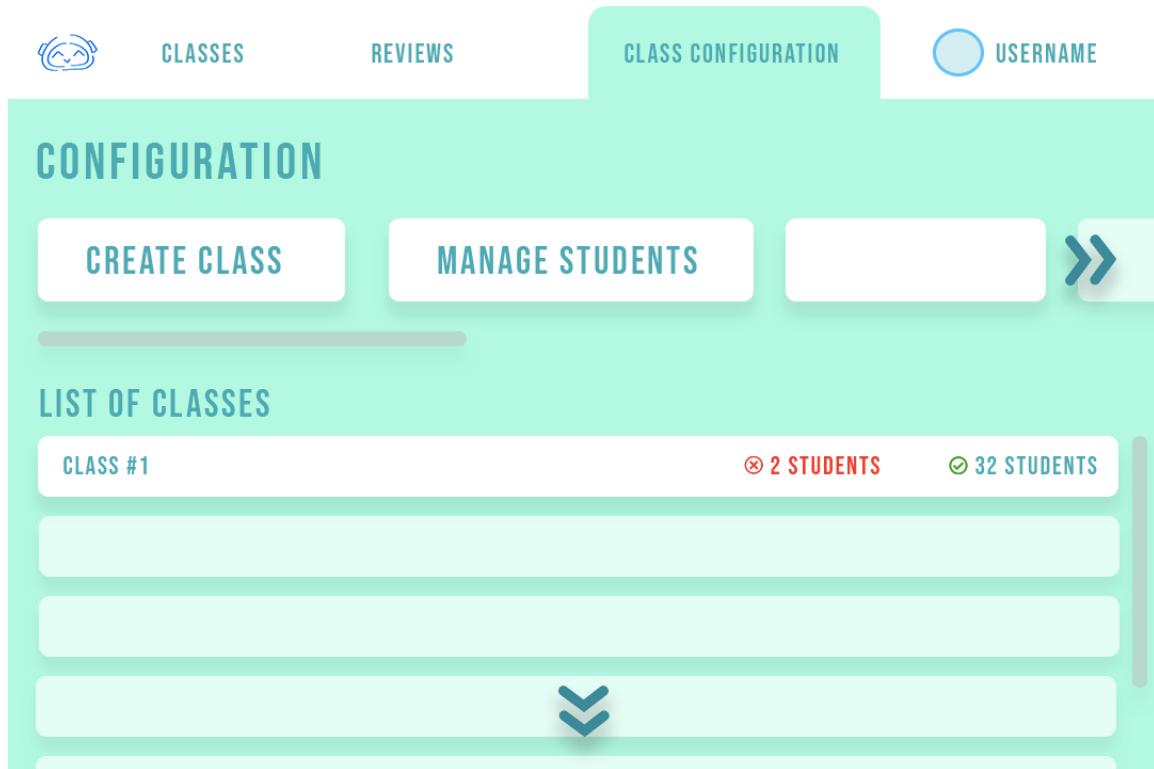


Figure 50: Teacher Dashboard

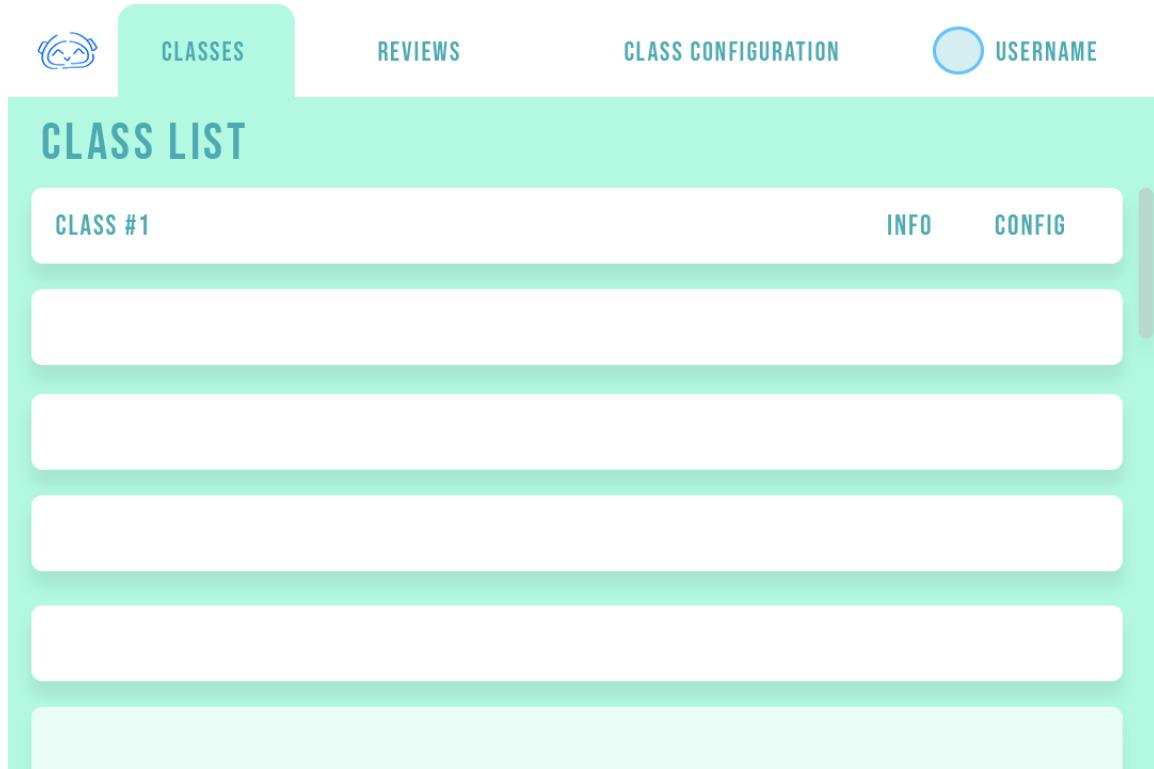


Figure 51: Teacher Class List

## **APPENDIX P: USER ACCEPTANCE FORM RESPONSES**

Name: \_\_\_\_\_ Date: 04-29-17

Age: 15

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (STUDENT)	1	2	3	4	5
<b>USER INTERFACE</b>					
1. The web interface is very appealing.				/	
2. The fonts used is readable and clear. Including the font style and size.				/	
3. The color theme that is being used complements are complementary to the other elements.				/	
4. The logo and icons are in proper size/proportion.				/	
5. The layout of the web is simple yet sophisticated.				/	
6. The content is appropriate.				/	
7. The organization of content is in proper section.				/	
<b>USER EXPERIENCE</b>					
1. The instructions are very easy to understand.				/	
2. Website is free of broken links and missing images.				/	
3. The game did not exhibit any lagging or crashing issues			/		
4. I received prompt messages from the website such as indicating invalid entries and/or inputs				/	
5. The website content is relevant and useful				/	
6. The website is user-friendly				/	
<b>FUNCTIONALITY</b>					
1. It has an effective authentication to secure user's account				/	
2. The information entered can be easily updated.				/	

Questions (STUDENT)	1	2	3	4	5
3 It is easy to access the learning materials				/	
4 The class codes are functioning				/	
5 The playground is working proficiently				/	
6 The class code generated per class is unique				/	
7 It is possible to download the files from the playground				/	
8 The games on the time-limited mode and in the classic mode are indeed challenging				/	

Name: CARL LORENZ L. BILLONES Date: 04-19-23  
 Age: 21

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (STUDENT)	1	2	3	4	5
<b>USER INTERFACE</b>					
1. The web interface is very appealing.				/	
2. The fonts used is readable and clear. Including the font style and size.				/	
3. The color theme that is being used complements are complementary to the other elements.				/	
4. The logo and icons are in proper size/proportion.				/	
5. The layout of the web is simple yet sophisticated.				/	
6. The content is appropriate.				/	
7. The organization of content is in proper section.				/	
<b>USER EXPERIENCE</b>					
1. The instructions are very easy to understand.				/	
2. Website is free of broken links and missing images.				/	
3. The game did not exhibit any lagging or crashing issues				/	
4. I received prompt messages from the website such as indicating invalid entries and/or inputs				/	
5. The website content is relevant and useful				/	
6. The website is user-friendly				/	
<b>FUNCTIONALITY</b>					
1. It has an effective authentication to secure user's account				/	
2. The information entered can be easily updated.				/	

Questions (STUDENT)	1	2	3	4	5
3. It is easy to access the learning materials					/
4. The class codes are functioning					/
5. The playground is working proficiently					/
6. The class code generated per class is unique					/
7. It is possible to download the files from the playground					/
8. The games on the time-limited mode and in the classic mode are indeed challenging					/

Name: Khestor Gabe F. Orlango Date: 7/29/23  
 Age: 21

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (STUDENT)	1	2	3	4	5
<b>USER INTERFACE</b>					
1. The web interface is very appealing.					/
2. The fonts used is readable and clear. Including the font style and size.				/	
3. The color theme that is being used complements are complementary to the other elements.			/		
4. The logo and icons are in proper size/proportion.				/	
5. The layout of the web is simple yet sophisticated.			/		
6. The content is appropriate.				/	
7. The organization of content is in proper section.				/	
<b>USER EXPERIENCE</b>					
1. The instructions are very easy to understand.					/
2. Website is free of broken links and missing images.				/	
3. The game did not exhibit any lagging or crashing issues				/	
4. I received prompt messages from the website such as indicating invalid entries and/or inputs					/
5. The website content is relevant and useful				/	
6. The website is user-friendly				/	
<b>FUNCTIONALITY</b>					
1. It has an effective authentication to secure user's account					/
2. The information entered can be easily updated.				/	

Questions (STUDENT)	1	2	3	4	5
3 It is easy to access the learning materials					/
4 The class codes are functioning					/
5 The playground is working proficiently					/
6 The class code generated per class is unique					/
7 It is possible to download the files from the playground					/
8 The games on the time-limited mode and in the classic mode are indeed challenging					/

Name: 1-7 Date: 04/29

Age: \_\_\_\_\_

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (STUDENT)	1	2	3	4	5
USER INTERFACE					
1. The web interface is very appealing.					/
2. The fonts used is readable and clear. Including the font style and size.					/
3. The color theme that is being used complements are complementary to the other elements.					/
4. The logo and icons are in proper size/proportion.					/
5. The layout of the web is simple yet sophisticated.					/
6. The content is appropriate.					/
7. The organization of content is in proper section.					/
USER EXPERIENCE					
1. The instructions are very easy to understand.					/
2. Website is free of broken links and missing images.			/		
3. The game did not exhibit any lagging or crashing issues.	/			/	
4. I received prompt messages from the website such as indicating invalid entries and/or inputs	/				
5. The website content is relevant and useful					/
6. The website is user-friendly					/
FUNCTIONALITY					
1. It has an effective authentication to secure user's account		/	/		
2. The information entered can be easily updated.	/		/		

Questions (STUDENT)	1	2	3	4	5
3. It is easy to access the learning materials					/
4. The class codes are functioning					/
5. The playground is working proficiently					/
6. The class code generated per class is unique					/
7. It is possible to download the files from the playground			/		
8. The games on the time-limited mode and in the classic mode are indeed challenging			/		

Name: Jean Dela Cruz Date: 09/20/23

Age: \_\_\_\_\_

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (STUDENT)	1	2	3	4	5
<b>USER INTERFACE</b>					
1. The web interface is very appealing.					/
2. The fonts used is readable and clear. Including the font style and size.				/	
3. The color theme that is being used complements are complementary to the other elements.			/		
4. The logo and icons are in proper size/proportion.			/		
5. The layout of the web is simple yet sophisticated.			/		
6. The content is appropriate.			/		
7. The organization of content is in proper section.			/		
<b>USER EXPERIENCE</b>					
1. The instructions are very easy to understand.				/	
2. Website is free of broken links and missing images.			/		
3. The game did not exhibit any lagging or crashing issues		/			
4. I received prompt messages from the website such as indicating invalid entries and/or inputs	/				
5. The website content is relevant and useful			/		
6. The website is user-friendly			/		
<b>FUNCTIONALITY</b>					
1. It has an effective authentication to secure user's account			/		
2. The information entered can be easily updated.			/		

Questions (STUDENT)	1	2	3	4	5
3. It is easy to access the learning materials					/
4. The class codes are functioning				/	
5. The playground is working proficiently				/	
6. The class code generated per class is unique			/		
7. It is possible to download the files from the playground		/			
8. The games on the time-limited mode and in the classic mode are indeed challenging			/		

Name: Earl Lloyd Julian Date: \_\_\_\_\_

Age: 21

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (STUDENT)	1	2	3	4	5
USER INTERFACE					
1. The web interface is very appealing.					/
2. The fonts used is readable and clear. Including the font style and size.					/
3. The color theme that is being used complements are complementary to the other elements.					/
4. The logo and icons are in proper size/proportion.					/
5. The layout of the web is simple yet sophisticated.					/
6. The content is appropriate.					/
7. The organization of content is in proper section.					/
USER EXPERIENCE					
1. The instructions are very easy to understand.					/
2. Website is free of broken links and missing images.					/
3. The game did not exhibit any lagging or crashing issues					/
4. I received prompt messages from the website such as indicating invalid entries and/or inputs					/
5. The website content is relevant and useful					/
6. The website is user-friendly					/
FUNCTIONALITY					
1. It has an effective authentication to secure user's account					/
2. The information entered can be easily updated.					/

Questions (STUDENT)	1	2	3	4	5
3 It is easy to access the learning materials					/
4 The class codes are functioning					/
5 The playground is working proficiently					/
6 The class code generated per class is unique					/
7 It is possible to download the files from the playground					/
8 The games on the time-limited mode and in the classic mode are indeed challenging					/

Name: Ladzmin | Hontawi | Date: 04-29-22  
 Age: 22

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (STUDENT)	1	2	3	4	5
<b>USER INTERFACE</b>					
1. The web interface is very appealing.					
2. The fonts used is readable and clear. Including the font style and size.					/
3. The color theme that is being used complements are complementary to the other elements.				/	
4. The logo and icons are in proper size/proportion.				/	
5. The layout of the web is simple yet sophisticated.				/	
6. The content is appropriate.				/	
7. The organization of content is in proper section.				/	
<b>USER EXPERIENCE</b>					
1. The instructions are very easy to understand.					
2. Website is free of broken links and missing images.					/
3. The game did not exhibit any lagging or crashing issues				/	
4. I received prompt messages from the website such as indicating invalid entries and/or inputs				/	
5. The website content is relevant and useful					
6. The website is user-friendly				/	
<b>FUNCTIONALITY</b>					
1. It has an effective authentication to secure user's account					
2. The information entered can be easily updated.				/	

Questions (STUDENT)	1	2	3	4	5
3. It is easy to access the learning materials					/
4. The class codes are functioning					/
5. The playground is working proficiently					/
6. The class code generated per class is unique					/
7. It is possible to download the files from the playground					/
8. The games on the time-limited mode and in the classic mode are indeed challenging					/

Name: Edfranis Date: 29/09/23

Age: 12

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (STUDENT)	1	2	3	4	5
<b>USER INTERFACE</b>					
1. The web interface is very appealing.					/
2. The fonts used is readable and clear. Including the font style and size.					/
3. The color theme that is being used complements are complementary to the other elements.					/
4. The logo and icons are in proper size/proportion.					/
5. The layout of the web is simple yet sophisticated.					/
6. The content is appropriate.					/
7. The organization of content is in proper section.					/
<b>USER EXPERIENCE</b>					
1. The instructions are very easy to understand.					/
2. Website is free of broken links and missing images.					/
3. The game did not exhibit any lagging or crashing issues					/
4. I received prompt messages from the website such as indicating invalid entries and/or inputs					/
5. The website content is relevant and useful					/
6. The website is user-friendly					/
<b>FUNCTIONALITY</b>					
1. It has an effective authentication to secure user's account					/
2. The information entered can be easily updated.					/

Questions (STUDENT)	1	2	3	4	5
3. It is easy to access the learning materials					/
4. The class codes are functioning.					/
5. The playground is working proficiently					/
6. The class code generated per class is unique					/
7. It is possible to download the files from the playground					/
8. The games on the time-limited mode and in the classic mode are indeed challenging					/

Name: Albert S Ruiz Date: 07/17/2023

Age: 73

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (STUDENT)	1	2	3	4	5
<b>USER INTERFACE</b>					
1. The web interface is very appealing.					/
2. The fonts used is readable and clear. Including the font style and size.					/
3. The color theme that is being used complements are complementary to the other elements.					/
4. The logo and icons are in proper size/proportion.					/
5. The layout of the web is simple yet sophisticated.					/
6. The content is appropriate.					/
7. The organization of content is in proper section.					/
<b>USER EXPERIENCE</b>					
1. The instructions are very easy to understand.					/
2. Website is free of broken links and missing images.					/
3. The game did not exhibit any lagging or crashing issues					/
4. I received prompt messages from the website such as indicating invalid entries and/or inputs					/
5. The website content is relevant and useful					/
6. The website is user-friendly					/
<b>FUNCTIONALITY</b>					
1. It has an effective authentication to secure user's account					/
2. The information entered can be easily updated.					/

Questions (STUDENT)	1	2	3	4	5
3. It is easy to access the learning materials					/
4. The class codes are functioning					/
5. The playground is working proficiently					/
6. The class code generated per class is unique					/
7. It is possible to download the files from the playground					/
8. The games on the time-limited mode and in the classic mode are indeed challenging					/

Name: Ruben

Date: 6/1-29-23

Age: 20

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (STUDENT)	1	2	3	4	5
<b>USER INTERFACE</b>					
1. The web interface is very appealing.					/
2. The fonts used is readable and clear. Including the font style and size.					/
3. The color theme that is being used complements are complementary to the other elements.					/
4. The logo and icons are in proper size/proportion.					/
5. The layout of the web is simple yet sophisticated.					/
6. The content is appropriate.					/
7. The organization of content is in proper section.					/
<b>USER EXPERIENCE</b>					
1. The instructions are very easy to understand.					/
2. Website is free of broken links and missing images.					/
3. The game did not exhibit any lagging or crashing issues					/
4. I received prompt messages from the website such as indicating invalid entries and/or inputs					/
5. The website content is relevant and useful					/
6. The website is user-friendly					/
<b>FUNCTIONALITY</b>					
1. It has an effective authentication to secure user's account					/
2. The information entered can be easily updated.					/

Questions (STUDENT)	1	2	3	4	5
3 It is easy to access the learning materials					/
4 The class codes are functioning					/
5 The playground is working proficiently					/
6 The class code generated per class is unique					/
7 It is possible to download the files from the playground					/
8 The games on the time-limited mode and in the classic mode are indeed challenging					/

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Age: \_\_\_\_\_

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (STUDENT)	1	2	3	4	5
<b>USER INTERFACE</b>					
1. The web interface is very appealing.					/
2. The fonts used is readable and clear. Including the font style and size.					/
3. The color theme that is being used complements are complementary to the other elements.					/
4. The logo and icons are in proper size/proportion.					/
5. The layout of the web is simple yet sophisticated.					/
6. The content is appropriate.					/
7. The organization of content is in proper section.					/
<b>USER EXPERIENCE</b>					
1. The instructions are very easy to understand.					/
2. Website is free of broken links and missing images.					/
3. The game did not exhibit any lagging or crashing issues				/	
4. I received prompt messages from the website such as indicating invalid entries and/or inputs				/	
5. The website content is relevant and useful				/	
6. The website is user-friendly				/	
<b>FUNCTIONALITY</b>					
1. It has an effective authentication to secure user's account					/
2. The information entered can be easily updated.					/

Questions (STUDENT)	1	2	3	4	5
3. It is easy to access the learning materials.					/
4. The class codes are functioning.					/
5. The playground is working proficiently.					/
6. The class code generated per class is unique					/
7. It is possible to download the files from the playground.					/
8. The games on the time-limited mode and in the classic mode are indeed challenging.					/

Name: GULFAR ARNEL LISAT Date: 08/07/22

Age: \_\_\_\_\_

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (STUDENT)	1	2	3	4	5
<b>USER INTERFACE</b>					
1. The web interface is very appealing.					✓
2. The fonts used is readable and clear. Including the font style and size.					✓
3. The color theme that is being used complements are complementary to the other elements.					✓
4. The logo and icons are in proper size/proportion.					✓
5. The layout of the web is simple yet sophisticated.					✓
6. The content is appropriate.					✓
7. The organization of content is in proper section.					✓
<b>USER EXPERIENCE</b>					
1. The instructions are very easy to understand.					✓
2. Website is free of broken links and missing images.					✓
3. The game did not exhibit any lagging or crashing issues					✓
4. I received prompt messages from the website such as indicating invalid entries and/or inputs					✓
5. The website content is relevant and useful					✓
6. The website is user-friendly					✓
<b>FUNCTIONALITY</b>					
1. It has an effective authentication to secure user's account					✓
2. The information entered can be easily updated.					✓

Questions (STUDENT)	1	2	3	4	5
3. It is easy to access the learning materials.					✓
4. The class codes are functioning.					✓
5. The playground is working proficiently.					✓
6. The class code generated per class is unique					✓
7. It is possible to download the files from the playground.					✓
8. The games on the time-limited mode and in the classic mode are indeed challenging.					✓

Name: Jatra Ameera M Hassan Date: 04/29/23

Age: \_\_\_\_\_

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (STUDENT)	1	2	3	4	5
<b>USER INTERFACE</b>					
1. The web interface is very appealing.					✓
2. The fonts used is readable and clear. Including the font style and size.					✓
3. The color theme that is being used complements are complementary to the other elements.					✓
4. The logo and icons are in proper size/proportion.					✓
5. The layout of the web is simple yet sophisticated.					✓
6. The content is appropriate.					✓
7. The organization of content is in proper section.					✓
<b>USER EXPERIENCE</b>					
1. The instructions are very easy to understand.					✓
2. Website is free of broken links and missing images.					✓
3. The game did not exhibit any lagging or crashing issues					✓
4. I received prompt messages from the website such as indicating invalid entries and/or inputs					✓
5. The website content is relevant and useful					✓
6. The website is user-friendly					✓
<b>FUNCTIONALITY</b>					
1. It has an effective authentication to secure user's account					✓
2. The information entered can be easily updated.					✓

Questions (STUDENT)	1	2	3	4	5
3. It is easy to access the learning materials.					✓
4. The class codes are functioning.					✓
5. The playground is working proficiently.					✓
6. The class code generated per class is unique					✓
7. It is possible to download the files from the playground.					✓
8. The games on the time-limited mode and in the classic mode are indeed challenging.					✓

Name: GALMAR CATALAN Date: 01-29-23

Age: 23

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (STUDENT)	1	2	3	4	5
<b>USER INTERFACE</b>					
1. The web interface is very appealing.				/	
2. The fonts used is readable and clear. Including the font style and size.			/		
3. The color theme that is being used complements are complementary to the other elements.				/	
4. The logo and icons are in proper size/proportion.				/	
5. The layout of the web is simple yet sophisticated.			/		
6. The content is appropriate.				/	
7. The organization of content is in proper section.			/		
<b>USER EXPERIENCE</b>					
1. The instructions are very easy to understand.				/	
2. Website is free of broken links and missing images.		/			
3. The game did not exhibit any lagging or crashing issues	/				
4. I received prompt messages from the website such as indicating invalid entries and/or inputs		/			
5. The website content is relevant and useful			/		
6. The website is user-friendly			/		
<b>FUNCTIONALITY</b>					
1. It has an effective authentication to secure user's account				/	
2. The information entered can be easily updated.				/	

Name: DERAMOS, RHODA MAT Date: 04/29/23  
 Age: 20

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (STUDENT)	1	2	3	4	5
<b>USER INTERFACE</b>					
1. The web interface is very appealing.					/
2. The fonts used is readable and clear. Including the font style and size.					/
3. The color theme that is being used complements are complementary to the other elements.					/
4. The logo and icons are in proper size/proportion.					/
5. The layout of the web is simple yet sophisticated.					/
6. The content is appropriate.					/
7. The organization of content is in proper section.					/
<b>USER EXPERIENCE</b>					
1. The instructions are very easy to understand.					/
2. Website is free of broken links and missing images.					/
3. The game did not exhibit any lagging or crashing issues					/
4. I received prompt messages from the website such as indicating invalid entries and/or inputs					/
5. The website content is relevant and useful					/
6. The website is user-friendly					/
<b>FUNCTIONALITY</b>					
1. It has an effective authentication to secure user's account					/
2. The information entered can be easily updated.					/

Questions (STUDENT)	1	2	3	4	5
3. It is easy to access the learning materials.					/
4. The class codes are functioning.					/
5. The playground is working proficiently.					/
6. The class code generated per class is unique					/
7. It is possible to download the files from the playground.					/
8. The games on the time-limited mode and in the classic mode are indeed challenging.					/

Name: Edgar Alan Date: \_\_\_\_\_  
 Age: \_\_\_\_\_

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (STUDENT)	1	2	3	4	5
<b>USER INTERFACE</b>					
1. The web interface is very appealing.					/
2. The fonts used is readable and clear. Including the font style and size.					/
3. The color theme that is being used complements are complementary to the other elements.					/
4. The logo and icons are in proper size/proportion.					/
5. The layout of the web is simple yet sophisticated.					/
6. The content is appropriate.					/
7. The organization of content is in proper section.					/
<b>USER EXPERIENCE</b>					
1. The instructions are very easy to understand.					/
2. Website is free of broken links and missing images.					/
3. The game did not exhibit any lagging or crashing issues					/
4. I received prompt messages from the website such as indicating invalid entries and/or inputs					/
5. The website content is relevant and useful					/
6. The website is user-friendly					/
<b>FUNCTIONALITY</b>					
1. It has an effective authentication to secure user's account					/
2. The information entered can be easily updated.					/

Questions (STUDENT)	1	2	3	4	5
3. It is easy to access the learning materials.					/
4. The class codes are functioning.					/
5. The playground is working proficiently.					/
6. The class code generated per class is unique					/
7. It is possible to download the files from the playground.					/
8. The games on the time-limited mode and in the classic mode are indeed challenging.					/

Name: Aiza Panjaro Date: April 21, 2023

Age: \_\_\_\_\_

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (STUDENT)	1	2	3	4	5
<b>USER INTERFACE</b>					
1. The web interface is very appealing.					/
2. The fonts used is readable and clear. Including the font style and size.					/
3. The color theme that is being used complements are complementary to the other elements.					/
4. The logo and icons are in proper size/proportion.					/
5. The layout of the web is simple yet sophisticated.					/
6. The content is appropriate.					/
7. The organization of content is in proper section.					/
<b>USER EXPERIENCE</b>					
1. The instructions are very easy to understand.					/
2. Website is free of broken links and missing images.					/
3. The game did not exhibit any lagging or crashing issues					/
4. I received prompt messages from the website such as indicating invalid entries and/or inputs					/
5. The website content is relevant and useful					/
6. The website is user-friendly					/
<b>FUNCTIONALITY</b>					
1. It has an effective authentication to secure user's account					/
2. The information entered can be easily updated.					/

Name: Pat, Nilda Mae O. Date: April 29, 2023  
 Age: 22

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (STUDENT)	1	2	3	4	5	Questions (STUDENT)	1	2	3	4	5
<b>USER INTERFACE</b>											
1. The web interface is very appealing.					/	3. It is easy to access the learning materials.					/
2. The fonts used is readable and clear. Including the font style and size.					/	4. The class codes are functioning.					/
3. The color theme that is being used complements are complementary to the other elements.				/		5. The playground is working proficiently.					/
4. The logo and icons are in proper size/proportion.					/	6. The class code generated per class is unique					/
5. The layout of the web is simple yet sophisticated.					/	7. It is possible to download the files from the playground.					/
6. The content is appropriate.					/	8. The games on the time-limited mode and in the classic mode are indeed challenging.					/
7. The organization of content is in proper section.					/						
<b>USER EXPERIENCE</b>											
1. The instructions are very easy to understand.											
2. Website is free of broken links and missing images.					/						
3. The game did not exhibit any lagging or crashing issues					/						
4. I received prompt messages from the website such as indicating invalid entries and/or inputs					/						
5. The website content is relevant and useful					/						
6. The website is user-friendly					/						
<b>FUNCTIONALITY</b>											
1. It has an effective authentication to secure user's account						/					
2. The information entered can be easily updated.						/					

Name: \_\_\_\_\_ Date: 04/29/28

Age: 12

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (STUDENT)	1	2	3	4	5
<b>USER INTERFACE</b>					
1. The web interface is very appealing.					/
2. The fonts used is readable and clear. Including the font style and size.			/		
3. The color theme that is being used complements are complementary to the other elements.			/		
4. The logo and icons are in proper size/proportion.				/	
5. The layout of the web is simple yet sophisticated.				/	
6. The content is appropriate.				/	
7. The organization of content is in proper section.			/		
<b>USER EXPERIENCE</b>					
1. The instructions are very easy to understand.				/	
2. Website is free of broken links and missing images.			/		
3. The game did not exhibit any lagging or crashing issues			/		
4. I received prompt messages from the website such as indicating invalid entries and/or inputs					/
5. The website content is relevant and useful					/
6. The website is user-friendly					/
<b>FUNCTIONALITY</b>					
1. It has an effective authentication to secure user's account			/		
2. The information entered can be easily updated.			/		

Questions (STUDENT)	1	2	3	4	5
3. It is easy to access the learning materials.			/		
4. The class codes are functioning.				/	
5. The playground is working proficiently.			/		
6. The class code generated per class is unique					/
7. It is possible to download the files from the playground.			/		
8. The games on the time-limited mode and in the classic mode are indeed challenging.			/		

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Age: 12

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (STUDENT)	1	2	3	4	5
<b>USER INTERFACE</b>					
1. The web interface is very appealing.					/
2. The fonts used is readable and clear. Including the font style and size.					/
3. The color theme that is being used complements are complementary to the other elements.					/
4. The logo and icons are in proper size/proportion.				/	/
5. The layout of the web is simple yet sophisticated.					/
6. The content is appropriate.					/
7. The organization of content is in proper section.					/
<b>USER EXPERIENCE</b>					
1. The instructions are very easy to understand.					/
2. Website is free of broken links and missing images.				/	
3. The game did not exhibit any lagging or crashing issues				/	
4. I received prompt messages from the website such as indicating invalid entries and/or inputs				/	
5. The website content is relevant and useful				/	
6. The website is user-friendly					/
<b>FUNCTIONALITY</b>					
1. It has an effective authentication to secure user's account					/
2. The information entered can be easily updated.					/

Questions (STUDENT)	1	2	3	4	5
3. It is easy to access the learning materials.					/
4. The class codes are functioning.				/	
5. The playground is working proficiently.				/	
6. The class code generated per class is unique				/	
7. It is possible to download the files from the playground.				/	
8. The games on the time-limited mode and in the classic mode are indeed challenging.					/

Name: \_\_\_\_\_ Date: \_\_\_\_\_  
 Age: 22

Check the box to the extent to which you agree or disagree with the following statements:  
 Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (STUDENT)	1	2	3	4	5
<b>USER INTERFACE</b>					
1. The web interface is very appealing.					/
2. The fonts used is readable and clear. Including the font style and size.					/
3. The color theme that is being used complements are complementary to the other elements.					/
4. The logo and icons are in proper size/proportion.				/	
5. The layout of the web is simple yet sophisticated.				/	
6. The content is appropriate.					/
7. The organization of content is in proper section.					/
<b>USER EXPERIENCE</b>					
1. The instructions are very easy to understand.				/	
2. Website is free of broken links and missing images.					/
3. The game did not exhibit any lagging or crashing issues					/
4. I received prompt messages from the website such as indicating invalid entries and/or inputs					/
5. The website content is relevant and useful				/	
6. The website is user-friendly					/
<b>FUNCTIONALITY</b>					
1. It has an effective authentication to secure user's account					/
2. The information entered can be easily updated.					/

Questions (STUDENT)	1	2	3	4	5
3. It is easy to access the learning materials.					/
4. The class codes are functioning.					/
5. The playground is working proficiently.					/
6. The class code generated per class is unique				/	
7. It is possible to download the files from the playground.					/
8. The games on the time-limited mode and in the classic mode are indeed challenging.					/

Name: \_\_\_\_\_ Date: 09-29-23

Age: 22

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (STUDENT)	1	2	3	4	5
<b>USER INTERFACE</b>					
1. The web interface is very appealing.					/
2. The fonts used is readable and clear. Including the font style and size.					/
3. The color theme that is being used complements are complementary to the other elements.					/
4. The logo and icons are in proper size/proportion.					/
5. The layout of the web is simple yet sophisticated.					/
6. The content is appropriate.					/
7. The organization of content is in proper section.					/
<b>USER EXPERIENCE</b>					
1. The instructions are very easy to understand.					/
2. Website is free of broken links and missing images.					/
3. The game did not exhibit any lagging or crashing issues					/
4. I received prompt messages from the website such as indicating invalid entries and/or inputs					/
5. The website content is relevant and useful					/
6. The website is user-friendly					/
<b>FUNCTIONALITY</b>					
1. It has an effective authentication to secure user's account					/
2. The information entered can be easily updated.					/

Name: \_\_\_\_\_ Date: 04-11-23

Age: \_\_\_\_\_

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (STUDENT)	1	2	3	4	5
<b>USER INTERFACE</b>					
1. The web interface is very appealing.					/
2. The fonts used is readable and clear. Including the font style and size.					/
3. The color theme that is being used complements are complementary to the other elements.					/
4. The logo and icons are in proper size/proportion.					/
5. The layout of the web is simple yet sophisticated.					/
6. The content is appropriate.					/
7. The organization of content is in proper section.					/
<b>USER EXPERIENCE</b>					
1. The instructions are very easy to understand.					/
2. Website is free of broken links and missing images.					/
3. The game did not exhibit any lagging or crashing issues					/
4. I received prompt messages from the website such as indicating invalid entries and/or inputs					/
5. The website content is relevant and useful					/
6. The website is user-friendly					/
<b>FUNCTIONALITY</b>					
1. It has an effective authentication to secure user's account					/
2. The information entered can be easily updated.					/

Questions (STUDENT)	1	2	3	4	5
3. It is easy to access the learning materials.					/
4. The class codes are functioning.					/
5. The playground is working proficiently.					/
6. The class code generated per class is unique					/
7. It is possible to download the files from the playground.					/
8. The games on the time-limited mode and in the classic mode are indeed challenging.					/

  
Name: Jules PAUL PRIMA

Date: 4-19-29

Age: \_\_\_\_\_

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (TEACHER)	1	2	3	4	5
USER INTERFACE					
1. The web interface is very appealing.					/
2. The fonts used is readable and clear. Including the font style and size.					/
3. The color theme that is being used complements are complementary to the other elements.					/
4. The logo and icons are in proper size/proportion.					
5. The layout of the web is simple yet sophisticated.				/	
6. The content is appropriate.				/	
7. The organization of content is in proper section.				/	
USER EXPERIENCE					
1. The instructions are very easy to understand.					/
2. Website is free of broken links and missing images.					/
3. The game did not exhibit any lagging or crashing issues during my experience.				/	
4. I received prompt messages from the website such as indicating invalid entries and/or inputs.					/
5. The website content is relevant and useful					/
6. The website is user-friendly					/
FUNCTIONALITY					
1. It has an effective authentication to secure user's account					/
2. The information entered can be easily updated					/

	1	2	3	4	5
3. Managing entries in class such as adding, modifying, and archiving is fast					/
4. Managing entries in activities such as adding, modifying, and archiving is fast					/
5. The class code generated per class is unique					/
6. Managing student's progress such as bulk adding and individual adding is easy and fast					/
7. Uploading of learning materials and accessing materials is easy					/
8. The generated rank in leadership board is accurate					/

Name: LAURENTE, GRACE Date: 5/2/23

Age: 14

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (TEACHER)	1	2	3	4	5		1	2	3	4	5
<b>USER INTERFACE</b>											
1. The web interface is very appealing.					/						/
2. The fonts used is readable and clear. Including the font style and size.					/					/	
3. The color theme that is being used complements are complementary to the other elements.					/					/	
4. The logo and icons are in proper size/proportion.					/					/	
5. The layout of the web is simple yet sophisticated.					/					/	
6. The content is appropriate.					/					/	
7. The organization of content is in proper section.					/					/	
<b>USER EXPERIENCE</b>											
1. The instructions are very easy to understand.					/						
2. Website is free of broken links and missing images.					/						
3. The game did not exhibit any lagging or crashing issues during my experience.					/						
4. I received prompt messages from the website such as indicating invalid entries and/or inputs.					/						
5. The website content is relevant and useful					/						
6. The website is user-friendly					/						
<b>FUNCTIONALITY</b>											
1. It has an effective authentication to secure user's account					/						
2. The information entered can be easily updated					/						

Name: KYM A. BRIETOS Date: 4/29/23

Age: \_\_\_\_\_

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (TEACHER)	1	2	3	4	5
<b>USER INTERFACE</b>					
1. The web interface is very appealing.					/
2. The fonts used is readable and clear. Including the font style and size.					/
3. The color theme that is being used complements are complementary to the other elements.					/
4. The logo and icons are in proper size/proportion.				/	
5. The layout of the web is simple yet sophisticated.				/	
6. The content is appropriate.				/	
7. The organization of content is in proper section.				/	
<b>USER EXPERIENCE</b>					
1. The instructions are very easy to understand.					/
2. Website is free of broken links and missing images.					/
3. The game did not exhibit any lagging or crashing issues during my experience.					
4. I received prompt messages from the website such as indicating invalid entries and/or inputs.					/
5. The website content is relevant and useful					/
6. The website is user-friendly					/
<b>FUNCTIONALITY</b>					
1. It has an effective authentication to secure user's account					/
2. The information entered can be easily updated					

	1	2	3	4	5
3. Managing entries in class such as adding, modifying, and archiving is fast					/
4. Managing entries in activities such as adding, modifying, and archiving is fast					/
5. The class code generated per class is unique					/
6. Managing student's progress such as bulk adding and individual adding is easy and fast					/
7. Uploading of learning materials and accessing materials is easy					
8. The generated rank in leadership board is accurate					

Name: Agaton, Edison Ltn. B. Date: 07/09/23

Age: 20

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (TEACHER)	1	2	3	4	5	Questions (TEACHER)	1	2	3	4	5
USER INTERFACE						FUNCTIONALITY					
1. The web interface is very appealing.	/					1. The website gives error messages that clearly tell me what the problem is.	/				
2. The fonts used is readable and clear. Including the font style and size.	/					2. The displayed profile information is accurate and easy to update	/				
3. The color theme that is being used complements are complementary to the other elements.		/				3. Managing a class is simple and easy to navigate	/				
4. The logo and icons are in proper size/proportion.	/					4. Managing an account in this website is easy.	/				
5. The layout of the web is simple yet sophisticated.	/	/				5. Managing the activities to be given to my class is seamless to navigate	/				
6. The content is appropriate.	/					6. The class code used to invite students is performing effectively	/				
7. The organization of content is in proper section.	/					7. Managing students in class is working without issues	/				
USER EXPERIENCE											
1. The instructions are very easy to understand.	/					8. Managing modules in my class is simple to use	/				
2. Website is free of broken links and missing images.	/					9. Learning materials created by the administrator are accessible and can be utilize in my class	/				
3. The game did not exhibit any lagging or crashing issues during my experience.		/				10. The leaderboard accurately displays the student rank according to his/her score	/				
4. I receive error messages from the website that are straightforward and help me identify the issue easily.		/									
5. The website content is relevant and useful		/									
6. The website is user-friendly	/										

Name: Ateaxis Peter Date: 04-27-22

Age: 21

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

1 2 3 4 5

**Questions (Student)**      **1 2 3 4 5**

USER INTERFACE

1. The web interface is very appealing. /
2. The fonts used is readable and clear. Including the font style and size. /
3. The color theme that is being used complements are complementary to the other elements. /
4. The logo and icons are in proper size/proportion. /
5. The layout of the web is simple yet sophisticated. /
6. The content is appropriate. /
7. The organization of content is in proper section. /

USER EXPERIENCE

1. The instructions are very easy to understand. /
2. Website is free of broken links and missing images. /
3. The game did not exhibit any lagging or crashing issues. /
4. I received prompt messages from the website such as indicating invalid entries and/or inputs. /
5. The website content is relevant and useful. /
6. The website is user-friendly. /

FUNCTIONALITY

1. Activities like scores, questions, choices and time are functional. /
2. Learning materials are accessible. /
3. The website gives error messages that clearly tell me what the problem is. /

Name: Meka Elan J. Pernio

Date: 54/21/2023

Age: 2

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

1 2 3 4 5

**Questions (Student)**      **1 2 3 4 5**  
USER INTERFACE

1. The web interface is very appealing.
2. The fonts used is readable and clear. Including the font style and size.
3. The color theme that is being used complements are complementary to the other elements.
4. The logo and icons are in proper size/proportion.
5. The layout of the web is simple yet sophisticated.
6. The content is appropriate.
7. The organization of content is in proper section.

USER EXPERIENCE

1. The instructions are very easy to understand.
2. Website is free of broken links and missing images.
3. The game did not exhibit any lagging or crashing issues.
4. I received prompt messages from the website such as indicating invalid entries and/or inputs
5. The website content is relevant and useful
6. The website is user-friendly

FUNCTIONALITY

1. Activities like scores, questions, choices and time are functional.
2. Learning materials are accessible.
3. The website gives error messages that clearly tell me what the problem is.

4. The website has all the functions and capabilities I expect it to have.
5. The website displays the progress of the user.
6. Creating and managing an account in this website is easy.
7. The code for the class given by the teacher can be easily accessed.
8. Has the ability to join one or more classes.

Name: Gwen Margreth A. Parro Date: 4/28/2023

Age: 17

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (STUDENT)	1	2	3	4	5
<b>USER INTERFACE</b>					
1. The web interface is very appealing.					
2. The fonts used is readable and clear. Including the font style and size.				/	
3. The color theme that is being used complements are complementary to the other elements.				/	
4. The logo and icons are in proper size/proportion.				/	
5. The layout of the web is simple yet sophisticated.				/	
6. The content is appropriate.				/	
7. The organization of content is in proper section.				/	
<b>USER EXPERIENCE</b>					
1. The instructions are very easy to understand.					
2. Website is free of broken links and missing images.				/	
3. The game did not exhibit any lagging or crashing issues				/	
4. I received prompt messages from the website such as indicating invalid entries and/or inputs				/	
5. The website content is relevant and useful				/	
6. The website is user-friendly				/	
<b>FUNCTIONALITY</b>					
1. It has an effective authentication to secure user's account.					
2. The information entered can be easily updated.				/	

Questions (STUDENT)	1	2	3	4	5
3. It is easy to access the learning materials					/
4. The class codes are functioning					/
5. The playground is working proficiently					/
6. The class code generated per class is unique					/
7. It is possible to download the files from the playground					/
8. The games on the time-limited mode and in the classic mode are indeed challenging					/

Name: Emmanuel Ken S. Almendro Date: April 28, 2023

Age: 17

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (STUDENT)	1	2	3	4	5
USER INTERFACE					
1. The web interface is very appealing.				/	
2. The fonts used is readable and clear. Including the font style and size.					/
3. The color theme that is being used complements are complementary to the other elements.					/
4. The logo and icons are in proper size/proportion.			/		
5. The layout of the web is simple yet sophisticated.			/		
6. The content is appropriate.				/	
7. The organization of content is in proper section.	/				
USER EXPERIENCE					
1. The instructions are very easy to understand.					/
2. Website is free of broken links and missing images.			/		
3. The game did not exhibit any lagging or crashing issues			/		
4. I received prompt messages from the website such as indicating invalid entries and/or inputs				/	
5. The website content is relevant and useful				/	
6. The website is user-friendly			/		
FUNCTIONALITY					
1. It has an effective authentication to secure user's account					/
2. The information entered can be easily updated.					/

Questions (STUDENT)	1	2	3	4	5
3. It is easy to access the learning materials				/	
4. The class codes are functioning.				/	
5. The playground is working proficiently.				/	
6. The class code generated per class is unique				/	
7. It is possible to download the files from the playground				/	
8. The games on the time-limited mode and in the classic mode are indeed challenging				/	

Name: Shirmyl Layugan Date: 4/28/2023

Age: 17

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (STUDENT)	1	2	3	4	5
<b>USER INTERFACE</b>					
1. The web interface is very appealing.				/	
2. The fonts used is readable and clear. Including the font style and size.					/
3. The color theme that is being used complements are complementary to the other elements.					/
4. The logo and icons are in proper size/proportion.					/
5. The layout of the web is simple yet sophisticated.				/	
6. The content is appropriate.					/
7. The organization of content is in proper section.					/
<b>USER EXPERIENCE</b>					
1. The instructions are very easy to understand.					/
2. Website is free of broken links and missing images.					/
3. The game did not exhibit any lagging or crashing issues			/		
4. I received prompt messages from the website such as indicating invalid entries and/or inputs					/
5. The website content is relevant and useful					/
6. The website is user-friendly					/
<b>FUNCTIONALITY</b>					
1. It has an effective authentication to secure user's account					/
2. The information entered can be easily updated.					/

Questions (STUDENT)	1	2	3	4	5
3. It is easy to access the learning materials					/
4. The class codes are functioning					/
5. The playground is working proficiently					/
6. The class code generated per class is unique					/
7. It is possible to download the files from the playground					/
8. The games on the time-limited mode and in the classic mode are indeed challenging				/	

Name: Ziv Myer Bolgadu Date: Apr 21, 2013

Age: 13

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (STUDENT)	1	2	3	4	5	Questions (STUDENT)	1	2	3	4	5
<b>USER INTERFACE</b>											
1. The web interface is very appealing.						3. It is easy to access the learning materials					
2. The fonts used is readable and clear. Including the font style and size.						4. The class codes are functioning.					
3. The color theme that is being used complements are complementary to the other elements.						5. The playground is working proficiently.					
4. The logo and icons are in proper size/proportion.						6. The class code generated per class is unique					
5. The layout of the web is simple yet sophisticated.						7. It is possible to download the files from the playground					
6. The content is appropriate.						8. The games on the time-limited mode and in the classic mode are indeed challenging					
7. The organization of content is in proper section.											
<b>USER EXPERIENCE</b>											
1. The instructions are very easy to understand.											
2. Website is free of broken links and missing images.											
3. The game did not exhibit any lagging or crashing issues											
4. I received prompt messages from the website such as indicating invalid entries and/or inputs											
5. The website content is relevant and useful											
6. The website is user-friendly											
<b>FUNCTIONALITY</b>											
1. It has an effective authentication to secure user's account											
2. The information entered can be easily updated.											

Name: Rhyzel Faye T. Magisulan Date: April 28, 2023

Age: 13

Check the box to the extent to which you agree or disagree with the following statements:

Legend:

- 1 – Strongly Disagree
- 2 – Somewhat Disagree
- 3 – Neutral
- 4 – Somewhat Agree
- 5 – Strongly Agree

Questions (STUDENT)	1	2	3	4	5
<b>USER INTERFACE</b>					
1. The web interface is very appealing.					✓
2. The fonts used is readable and clear. Including the font style and size.					✓
3. The color theme that is being used complements are complementary to the other elements.					✓
4. The logo and icons are in proper size/proportion.					✓
5. The layout of the web is simple yet sophisticated.					✓
6. The content is appropriate.					✓
7. The organization of content is in proper section.					✓
<b>USER EXPERIENCE</b>					
1. The instructions are very easy to understand.					✓
2. Website is free of broken links and missing images.					✓
3. The game did not exhibit any lagging or crashing issues				✓	
4. I received prompt messages from the website such as indicating invalid entries and/or inputs					✓
5. The website content is relevant and useful					✓
6. The website is user-friendly					✓
<b>FUNCTIONALITY</b>					
1. It has an effective authentication to secure user's account					✓
2. The information entered can be easily updated.					✓

Questions (STUDENT)	1	2	3	4	5
3. It is easy to access the learning materials					✓
4. The class codes are functioning					✓
5. The playground is working proficiently					✓
6. The class code generated per class is unique					✓
7. It is possible to download the files from the playground					✓
8. The games on the time-limited mode and in the classic mode are indeed challenging					✓

**APPENDIX Q: TALLY SHEETS**

RESPONDENTS	QUESTIONS												SUMMARY					LEGEND									
	USER INTERFACE							USER EXPERIENCE					FUNCTIONALITY						SCALE								
	1	2	3	4	5	6	7	1	2	3	4	5	6	1	2	3	4		5	6	7	8	5	4	3	2	1
1	5	5	5	5	5	5	5	5	4	5	5	5	5	5	5	5	5	5	4	4	34	5	1	0	0		
2	5	5	5	5	5	5	5	5	4	5	4	5	4	5	4	5	5	5	5	4	4	31	7	2	0	0	
3	5	5	5	4	4	5	5	4	5	5	5	4	5	4	5	5	5	5	4	5	5	32	6	2	0	0	
4	5	5	5	5	5	5	5	5	4	4	4	4	5	4	4	5	4	4	4	4	4	4	31	7	2	0	0
5	5	3	3	5	5	4	3	4	3	3	5	5	5	3	3	3	4	3	5	3	3	5	29	9	2	0	0
6	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	33	6	1	0	0
7	5	5	5	5	5	5	5	4	4	5	4	5	5	5	5	5	5	5	5	5	5	5	32	5	2	1	0
8	5	5	5	5	5	5	5	5	4	4	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
9	5	4	5	5	5	5	5	5	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
10	5	5	5	5	5	5	5	4	4	4	5	5	4	5	4	5	5	5	5	5	5	5	5	5	5	5	
11	5	5	5	5	5	4	5	5	4	5	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
12	5	5	5	5	5	5	5	5	5	4	4	4	4	5	5	5	5	5	3	4	4	5	31	9	0	0	0
13	5	5	5	5	5	5	5	5	4	4	4	5	5	5	5	5	5	5	5	5	5	5	14	16	9	1	0
14	5	5	5	5	5	5	5	5	4	5	4	5	5	5	5	5	5	5	5	5	5	5	17	12	6	4	1
15	5	5	5	5	5	5	5	5	4	5	5	5	5	5	5	5	5	5	5	5	5	5	30	9	1	0	0
16	5	5	4	4	4	4	4	4	4	4	3	5	4	4	4	4	4	4	4	4	4	4	31	8	1	0	0
17	5	5	5	5	4	5	5	4	5	4	5	5	5	5	5	5	5	5	5	5	5	5	27	10	3	0	0
18	5	4	4	4	5	5	5	5	4	3	2	5	5	3	4	5	5	5	4	3	3	3	27	11	2	0	0
19	5	5	5	5	5	5	5	5	3	4	1	5	5	4	4	5	5	4	4	3	4	3	31	7	2	0	0
20	5	4	4	5	4	5	5	5	5	5	5	5	5	5	4	5	5	5	5	5	5	5	33	7	0	0	0
21	4	4	4	5	5	5	5	5	4	4	4	4	4	5	5	5	5	5	4	5	4	4	27	10	3	0	0
22	4	5	5	5	5	5	5	4	4	4	3	4	4	4	4	4	4	4	4	4	4	4	27	12	0	1	0
23	5	5	5	5	5	5	5	5	5	4	5	5	5	5	5	5	5	5	5	5	5	5	25	9	6	0	0
24	5	4	4	5	5	5	5	5	5	5	4	3	5	5	5	5	5	5	5	5	5	5	23	13	4	0	0
25	4	5	5	4	5	5	5	5	3	5	5	5	5	5	5	5	5	5	5	5	3	3	5	5	5	5	
26	4	5	5	3	3	5	2	5	3	3	5	5	5	5	4	5	5	5	5	5	3	3	5	5	5	5	
27	5	5	5	5	5	5	5	5	4	5	5	5	5	5	5	5	5	5	5	5	5	5	3	5	5	5	
28	5	5	5	5	5	5	5	5	3	3	3	4	4	4	5	5	5	5	5	5	5	5	3	5	5	5	
29	5	5	5	5	5	5	5	5	4	3	5	5	5	5	3	4	5	5	5	5	5	4	4	5	5	5	
30	3	3	3	3	3	3	3	4	3	4	4	3	3	3	4	3	3	5	4	2	3	4	3	5	4	2	
31	5	5	5	5	5	5	5	5	5	3	3	4	5	4	4	4	4	4	4	4	4	4	6	5	5	5	
32	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	7	6	5	5	
33	5	5	5	5	5	5	5	5	4	5	5	5	5	5	4	4	4	4	4	4	4	4	7	6	5	5	
34	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	1	2	3	4	
35	5	5	5	5	5	5	5	5	2	5	5	5	5	5	5	5	5	5	5	5	5	5	2	3	4	4	
36	5	5	5	5	4	5	5	5	5	4	4	5	5	5	4	5	5	5	5	4	5	5	4	5	5	5	
37	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
38	5	4	5	4	5	5	4	5	2	2	2	4	4	5	5	5	5	5	3	5	5	4	3	4	3	5	
39	5	5	5	4	4	4	4	5	5	3	2	5	5	5	5	5	5	4	4	4	3	5	4	3	4	3	
40	5	5	5	4	4	4	4	5	5	3	2	5	5	5	5	5	5	4	4	4	3	5	4	3	4	3	

Table 15: Tally Sheet (Student)

		QUESTIONS														SUMMARY											
RESPONDENT		USER INTERFACE							USER EXPERIENCE						FUNCTIONALITY							SCALE					
		1	2	3	4	5	6	7	1	2	3	4	5	6	1	2	3	4	5	6	7	8	5	4	3	2	1
1		5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	1	0	0	0
2		5	5	5	5	5	5	5	4	4	4	5	5	5	5	4	5	4	5	5	3	4	3	1	0	0	0
3		4	4	5	4	4	5	5	5	5	5	4	5	5	5	5	5	5	5	5	4	5	4	0	0	0	0
4		5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	5	3	1	0	0	0

		QUESTIONS														SUMMARY															
RESPONDENT		USER INTERFACE							USER EXPERIENCE						FUNCTIONALITY							SCALE									
		1	2	3	4	5	6	7	1	2	3	4	5	6	1	2	3	4	5	6	7	8	5	4	3	2	1				
1		1	The web interface is very appealing.	2	The fonts used is readable and clear. Including the font style and size.	3	The color theme that is being used complements are complementary to the other elements.	4	The logo and icons are in proper size/proportion.	5	The layout of the web is simple yet sophisticated.	6	The content is appropriate.	7	The organization of content is in proper section.	1	Strongly Disagree	2	Disagree	3	Neutral	4	Agree	5	Strongly Agree	1	3	1	0	0	
2		1	The instructions are very easy to understand	2	Website is free of broken links and missing images.	3	The game did not exhibit any lagging or crashing issues	4	I received prompt messages from the website such as indicating invalid entries and/or inputs	5	The website content is relevant and useful.	6	The website is user-friendly.	1	1	3	1	0	0	0	0	0	0	1	3	1	0	0			
3		1	It has an effective authentication to secure user's account	2	The information entered can be easily updated	3	Managing entries in class such as adding, modifying, and archiving is fast	4	Managing entries in activities such as adding, modifying, and archiving is fast	5	The class code generated per class is unique	6	Managing student's progress such as bulk adding and individual adding is easy and fast	7	Uploading of learning materials and accessing materials is easy	8	The generated rank in leadership board is accurate	1	4	0	0	0	0	0	0	1	3	1	0	0	0
4		1	2	3	4	5	6	7	1	2	3	4	5	6	1	2	3	4	5	6	7	8	1	3	1	0	0				

Table 16: Tally Sheet (Teacher)

RESPONDENTS	QUESTIONS															
	USER INTERFACE							USER EXPERIENCE				FUNCTIONALITY				
	1	2	3	4	5	6	7	1	2	3	4	5	6	1	2	3
1	3	4	5	2	5	5	5	4	3	4	4	4	2	1	3	5
	2	4	4	4	4	3	4	4	3	4	4	4	3	3	3	4
	3	3	4	5	4	5	4	3	3	4	4	4	3	4	3	4
	4	5	5	5	3	5	4	3	4	5	4	5	3	3	3	3
	5	4	4	5	4	5	4	4	4	5	4	5	4	3	4	5
	6	4	5	4	4	5	4	4	3	4	4	5	4	4	4	4
	7	5	5	4	4	4	5	5	4	4	4	5	5	4	4	5

RESPONDENTS	QUESTIONS														
	USER INTERFACE							USER EXPERIENCE				FUNCTIONALITY			
1	2	3	4	5	6	7	1	2	3	4	5	6	1	2	3
1	The web interface is very appealing.														
	2	The fonts used is readable and clear. Including the font style and size.													
	3	The color theme that is being used complements are complementary to the other elements.													
	4	The logo and icons are in proper size/proportion.													
	5	The layout of the web is simple yet sophisticated.													
	6	The content is appropriate.													
	7	The organization of content is in proper section.													
2	The instructions are very easy to understand														
	2	Website is free of broken links and missing images.													
	3	The game did not exhibit any lagging or crashing issues													
	4	I received prompt messages from the website such as indicating invalid entries and/or inputs													
	5	The website content is relevant and useful.													
	6	The website is user-friendly.													
3	All of the handouts are available for use.														
	2	The compiler within the website's coding environment is working efficiently													
	3	It is capable of selecting and engaging in different game play modes, including classic mode and a mode that has a time restriction.													

Table 17: Tally Sheet (Guest)

RESPONDENTS	SUMMARY														
	SCALE							INTERFACCE							
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	
1	2	3	2	0	0	3	4	0	0	0	4	3	0	0	
	3	4	0	5	1	1	0	4	3	0	0	0	3	3	1
	4	5	0	5	1	1	0	4	3	0	0	0	3	4	0
	5	4	4	3	1	0	0	3	4	0	0	0	3	4	0
	6	3	3	1	0	0	0	2	5	0	0	0	1	6	0
	7	3	4	0	0	0	0	1	6	0	0	0	4	3	0
	8	0	3	3	1	0	0	0	3	3	1	0	0	3	3
2	0	5	2	0	0	0	0	0	3	4	0	0	0	0	0
	1	6	0	0	0	0	0	1	6	0	0	0	0	0	0
	2	5	0	0	0	0	0	2	5	0	0	0	0	0	0
	3	4	0	0	0	0	0	4	3	0	0	0	0	0	0
	4	3	0	0	0	0	0	0	3	3	1	0	0	0	0
	5	0	3	3	1	0	0	0	0	3	3	1	0	0	0
3	0	3	3	0	1	0	0	0	3	3	1	0	0	0	0
	1	6	0	0	0	0	0	1	6	0	0	0	0	0	0
	2	5	0	0	0	0	0	2	5	0	0	0	0	0	0
4	0	3	4	0	0	0	0	0	3	4	0	0	0	0	0
	1	6	0	0	0	0	0	1	6	0	0	0	0	0	0
5	0	3	3	1	0	0	0	0	3	3	1	0	0	0	0
	1	6	0	0	0	0	0	1	6	0	0	0	0	0	0
6	0	3	3	1	0	0	0	0	3	3	1	0	0	0	0
	1	6	0	0	0	0	0	1	6	0	0	0	0	0	0
7	0	3	3	1	0	0	0	0	3	3	1	0	0	0	0
	1	6	0	0	0	0	0	1	6	0	0	0	0	0	0
8	0	3	3	1	0	0	0	0	3	3	1	0	0	0	0
	1	6	0	0	0	0	0	1	6	0	0	0	0	0	0

LEGEND														
1	Strongly Disagree													
2	Disagree													
3	Neutral													
4	Agree													
5	Strongly Agree													

## **APPENDIX R: USER'S MANUAL**

## Admin's Account Manual

Navigate to the **Landing Page** of Webcraft website [www.webcraftedu.com](http://www.webcraftedu.com)



Figure 52: Landing Page of webcraftedu.com (Admin)

- [1] Click to Login an existing account.
- [2] Click to know more about the website.
- [1] Click to Login an existing account.
- [3] Click to Signup an account, you can choose from the choices of signing up as a student or a teacher or as a guest.

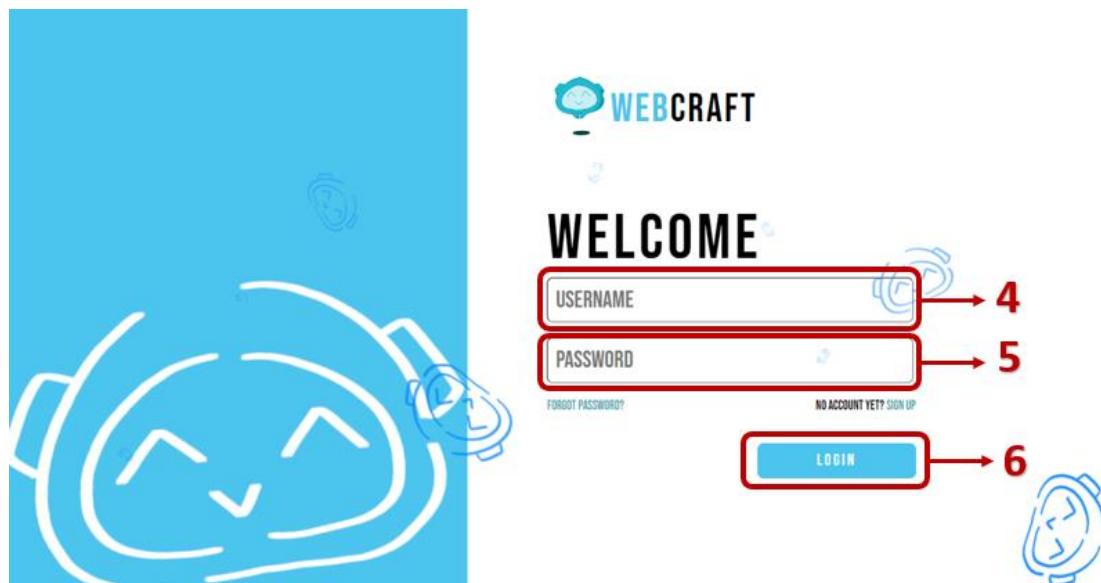


Figure 53: Login Page

- [4] The user will enter his or her username in the textbox provided.

- [5] The user will enter his or her password in the textbox provided.
- [6] Once the user clicks on this button, the system will proceed to process the user's credentials.



Figure 54: Welcome Page of webcraftedu.com

- [7] This is the initial page users will encounter upon visiting the website. If the user enters incorrect credentials, it will display a message stating that the account does not exist. Upon clicking the back button, the user will then be redirected again to the login page.

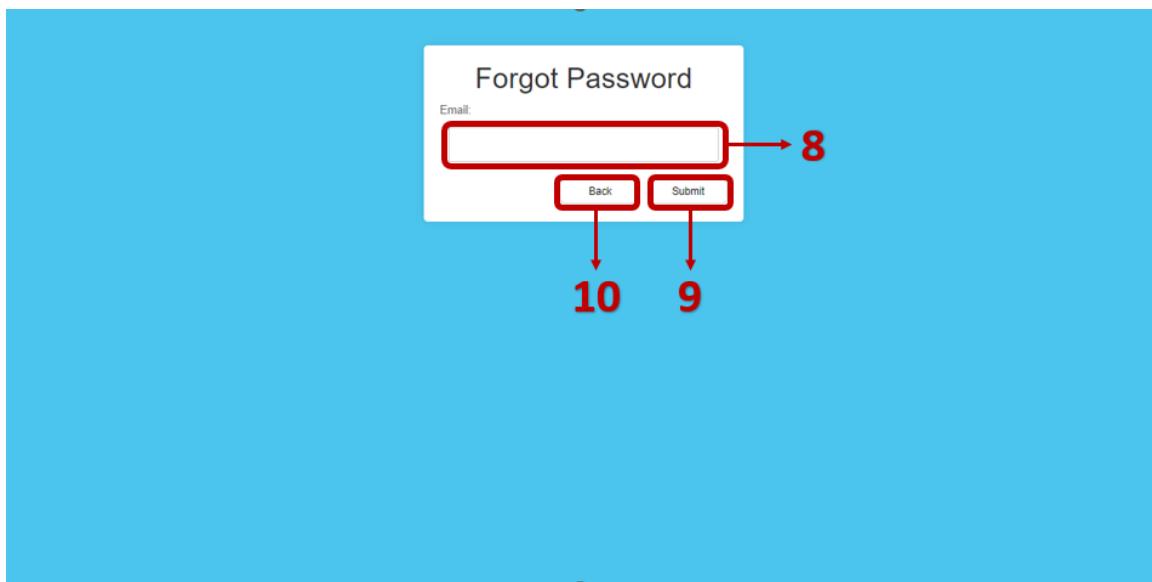


Figure 55: Forgot Password Page of webcraftedu.com

[8] Incase the user forgot his or her password the user will then put their email in the given textbox.

[9] Upon clicking this button, the user's email will be submitted and undergo a series of processes to enable the user to initiate the password change process.

[10] If the user clicks this button the user will be redirected to the Login page.



Figure 56: Welcome Page of webcraftedu.com

[11] This particular page serves as the welcome page of the website, and if the user has provided the correct credentials, they will be greeted by their name. After clicking the continue button, the user will be redirected to the administrator dashboard, as this section is specifically intended for the administrator's manual.

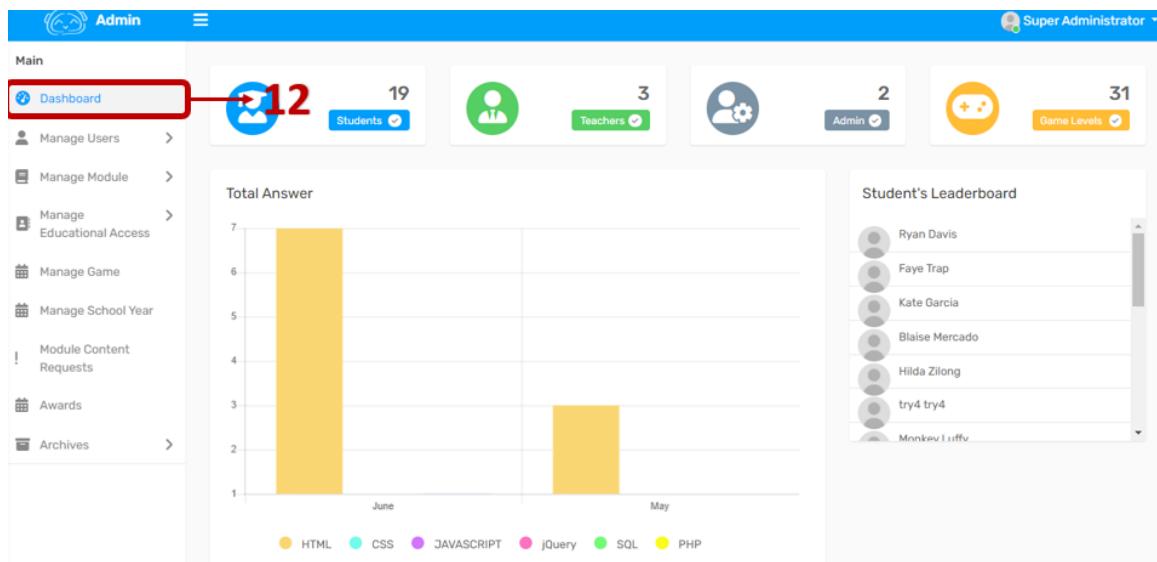


Figure 57: Dashboard of the admin

[12] By selecting this button within the admin's dashboard, a comprehensive summary of the report will be promptly displayed.

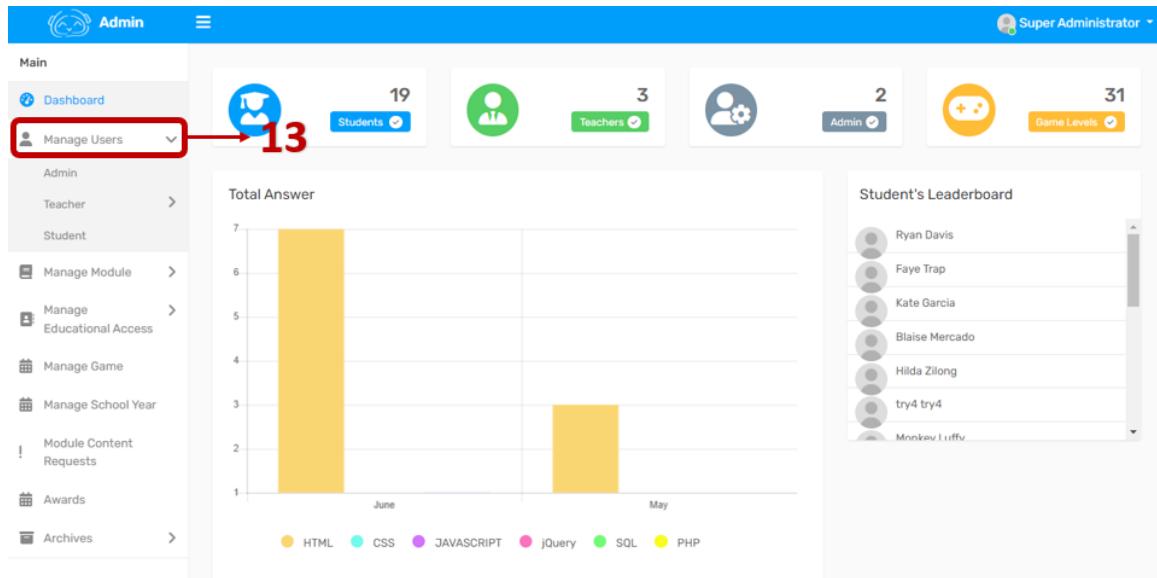


Figure 58: Manage users

[13] By clicking this dropdown menu it will then provide options for selecting different user roles, including the administrator, teacher, and student.

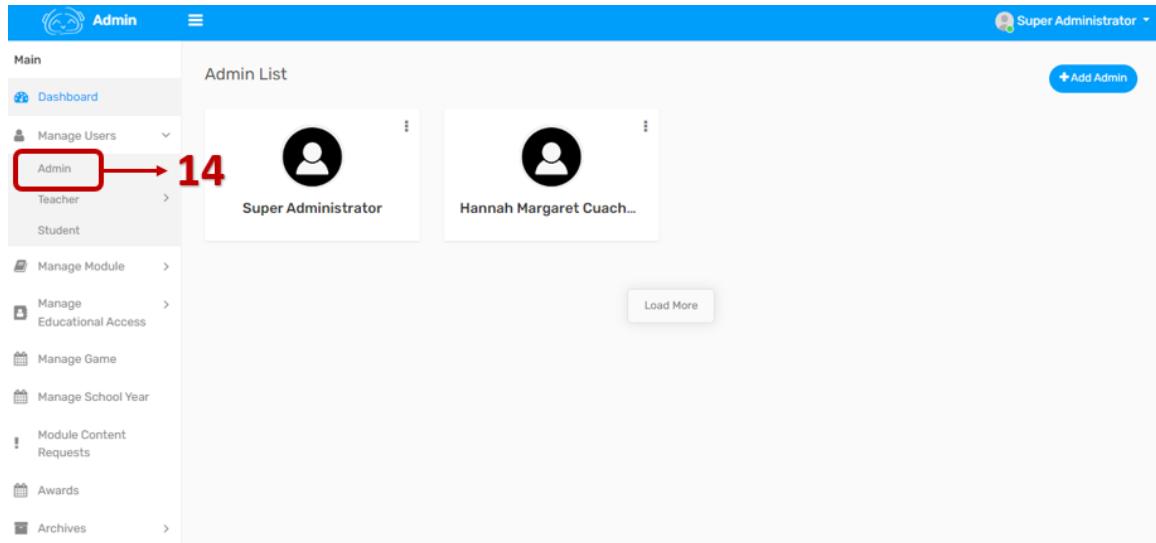


Figure 59: List of Admins

[14] Once this button is clicked, the user will be redirected to a page that showcases the list of administrators.

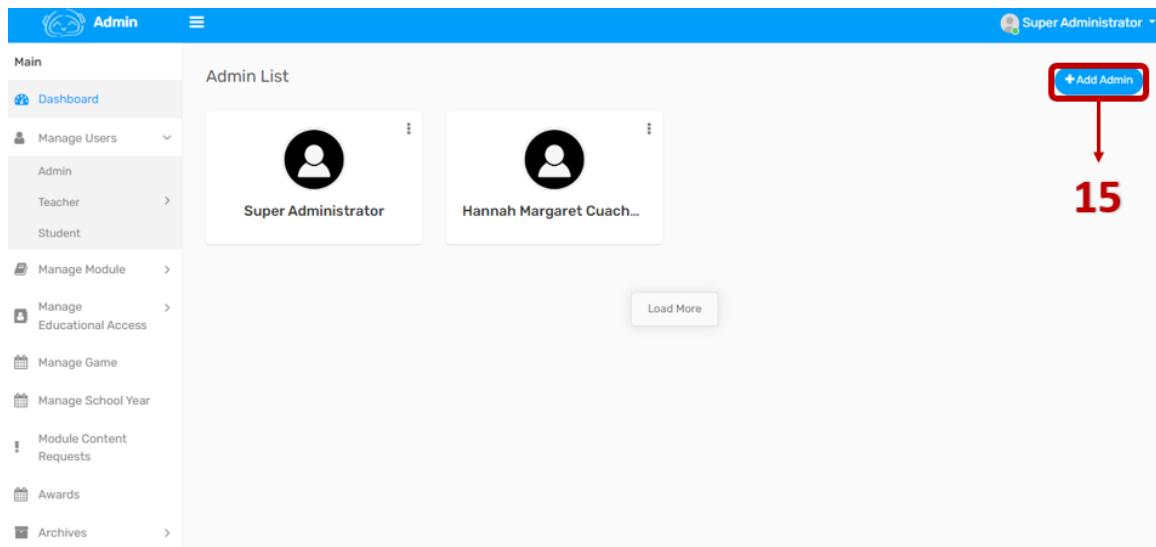


Figure 60: Adding an admin

[15] By clicking this button the user will be redirected to a page where they can add a new admin.

The screenshot shows the 'Add Admin' form in the Admin interface. The form fields are as follows:

- First Name \*
- Middle Name
- Last Name \*
- Suffix
- Gender \*
- Birthdate \*
- Contact Number
- Address\*
- Province\*
- Municipality\*
- Email \*
- Username\*
- Password \*

Figure 61: Data of the new Admin (Part1)

This is the designated area where the information of the new administrator will be entered.

The screenshot shows the 'Add Admin' form in the Admin interface. The 'ADD ADMIN' button is highlighted with a red box and the number 15. The form fields are identical to Figure 61.

Figure 62: Data of the new Admin (Part2)

[15] Upon clicking this button, the current user will gain the capability to add a new administrator to the system.

The screenshot shows the 'Admin List' page. On the left is a sidebar with various menu items. In the center, there's a grid of administrator profiles. The first profile, 'Super Administrator', has a 'View' button highlighted with a red box and a large red arrow labeled '16' pointing to it. Other profiles include 'Hannah Margaret Cuach...'. A blue button at the top right says '+ Add Admin'.

Figure 63: Viewing the data

[16] The "View" button enables the user to access and examine the data of other administrators.

The screenshot shows the 'Admin Info' page for the 'Super Administrator'. The left sidebar has 'Admin' selected under 'Manage Users'. The main area displays various personal and contact information fields, all of which are currently empty or grayed out. The fields include First Name, Middle Name, Last Name, Suffix, Gender, Date of Birth, Contact Number, Address, Province, Municipality, Username, Email, and Password.

Figure 64: Data of the admin

Above are the details or information of the administrator.

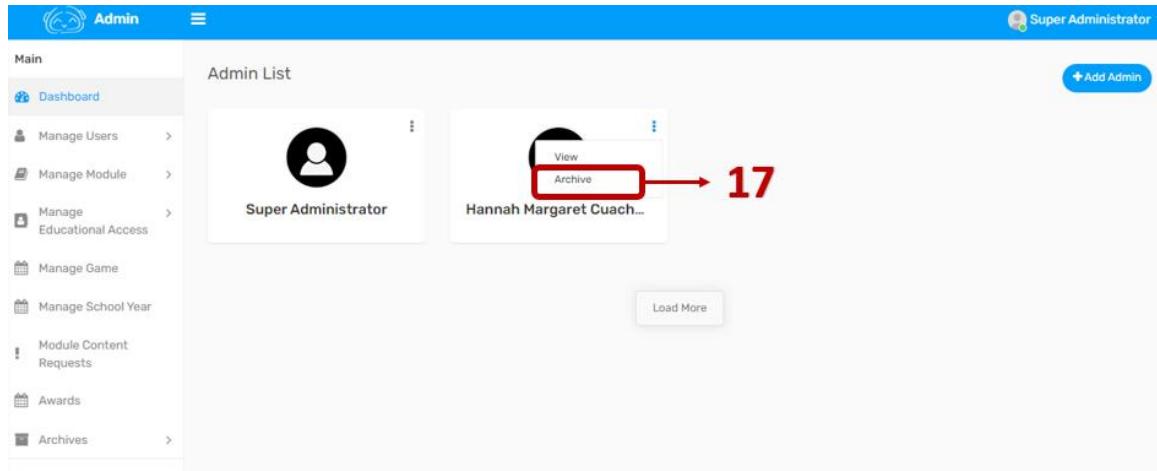


Figure 65: Archiving an admin

[17] Once the user clicks the button, they will be granted the ability to remove an administrator. This action will result in the admin's existing account being transferred to the archive list, effectively revoking their privileges and access as an administrator.

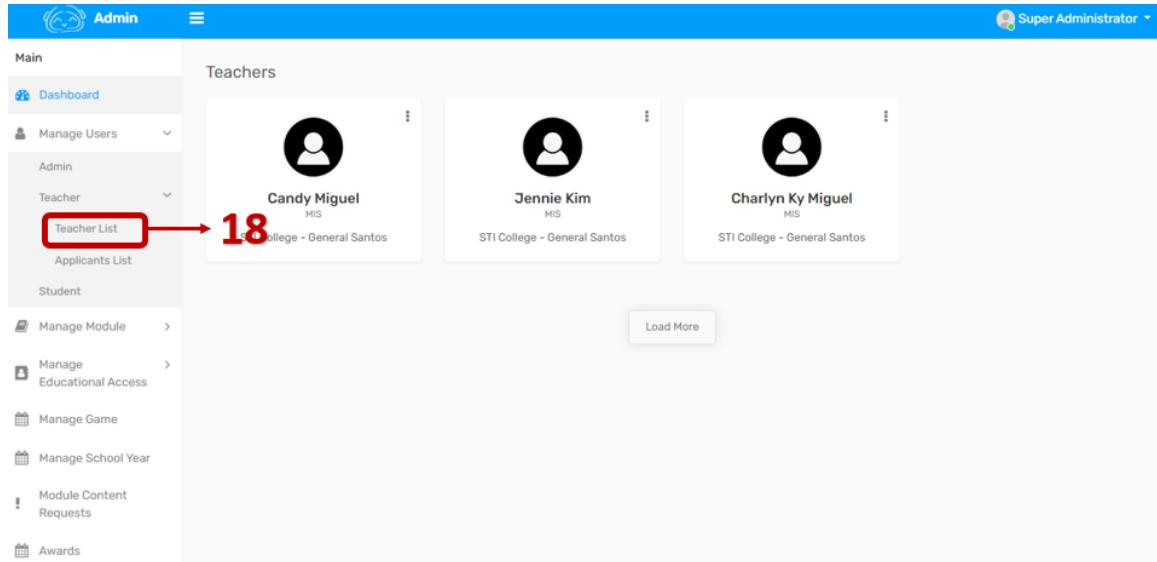


Figure 66: List of Teachers

[18] By clicking this the user will be redirected to the page that displays the list of all the registered teachers in the system.

The screenshot shows the Admin interface with a sidebar on the left containing various management options like Dashboard, Manage Users, Teacher List, and Student. The main area displays a list of teachers under the heading 'Teachers'. Each teacher entry includes a profile picture, name, title, and college information. The first entry, 'Candy Miguel MIS STI College - General Santos', has a red box around the 'View' button in its details panel.

Figure 67: Viewing the Teacher's data

[19] The "View" button allows you to access and view the information of the teacher.

The screenshot shows the Admin interface with a sidebar on the left. The main area is titled 'Teacher Info' and contains a form with fields for First Name, Middle Name, Last Name, Suffix, Gender, Date of Birth, Contact Number, Address, Province, Municipality, Username, Email, and Password. On the right side of the form, there is a blue button labeled 'Class Lists' which is highlighted with a red box and a red arrow pointing to it.

Figure 68: Teacher's data and the list of classes

[20] By clicking on the "Class List" option, the admin will be able to view the list of classes associated with a specific teacher.

The screenshot shows the 'Class Lists' section of the Admin interface. On the left, a sidebar menu includes 'Dashboard', 'Manage Users' (with sub-options 'Admin', 'Teacher', 'Student'), 'Manage Module', 'Manage Educational Access', 'Manage Game', 'Manage School Year', 'Module Content Requests', and 'Awards'. The main content area displays a card titled 'Class Lists' containing a user profile picture, the name 'Candy Miguel', and the class name 'JavaScript BSCS'. A three-dot menu icon is located at the top right of the card.

Figure 69: Teacher's list of classes

This page displays the list of the classes the teacher has.

The screenshot is identical to Figure 69, but it includes a red rectangular box highlighting the 'View' button next to the 'Candy Miguel' profile picture. A large red arrow points from this highlighted button towards the number '21' in the center of the screen, which likely indicates the count of classes or students.

Figure 70: Viewing the class

[21] By clicking this the user will be able to view the class created by the teacher, they will be able to access the leaderboard for that particular class.

The screenshot shows the 'Student's Leaderboard' section of the Admin interface. On the left, there is a sidebar with various administrative options like Dashboard, Manage Users, Manage Module, etc. The main area displays a table titled 'Student's Leaderboard' with columns 'Name' and 'Lastname'. The data in the table is as follows:

Name	Lastname
Ryan	Davis
Faye	Trap
Kate	Garcia
Aiza	Panciang

Figure 71: Student's Leaderboard per class

This page exhibits the leaderboard of students.

The screenshot shows the 'Teachers' section of the Admin interface. On the left, there is a sidebar with various administrative options like Dashboard, Manage Users, Manage Module, etc. The main area displays a list of teachers with their names, departments, and college locations. One teacher, Candy Miguel, has an 'Archive' button highlighted with a red box and a large red arrow pointing to it. The data in the list is as follows:

Teacher Name	Department	College Location
Candy Miguel	MIS	STI College - General Santos
Jennie Kim	MIS	STI College - General Santos
Charlyn Ky Miguel	MIS	STI College - General Santos

Figure 72: Archiving the Teacher

[22] Clicking the "Archive" button will remove the teacher from the list of active teachers, resulting in the termination of their account.

The screenshot shows the Admin dashboard with a sidebar on the left containing various management links. Under the 'Teacher' category, the 'Teacher List' and 'Applicants List' links are visible. A red box highlights the 'Applicants List' link, and a red arrow points to it with the number '23'.

Figure 73: The List of Teacher Applicants

[23] By clicking this it will then redirect the user to this page, where it showcases the list of users who are registering as teachers.

The screenshot shows the Admin dashboard with a sidebar on the left containing various management links. Under the 'Student' category, the 'Student' link is highlighted with a red box, and a red arrow points to it with the number '24'.

Name	Age	Address	Email	Action
Try Lang	15		try@gmail.com	<a href="#">View</a> <a href="#">Archive</a>
Monkey Luffy	23		Luffy@gmail.com	<a href="#">View</a> <a href="#">Archive</a>
Blazer Hernando	25		mercadbblaise@gmail.com	<a href="#">View</a> <a href="#">Archive</a>
try3 try3	15		try3@gmail.com	<a href="#">View</a> <a href="#">Archive</a>
Ryan Davis	19		Ry@gmail.com	<a href="#">View</a> <a href="#">Archive</a>
Faye Trap	15		Faye@gmail.com	<a href="#">View</a> <a href="#">Archive</a>
Dennis Cruz	28		Dennis@gmail.com	<a href="#">View</a> <a href="#">Archive</a>
Kate Garcia	20		Garcia@gmail.com	<a href="#">View</a> <a href="#">Archive</a>
Aiza Panciang	22		aizabunsonpanciang@gmail.com	<a href="#">View</a> <a href="#">Archive</a>

Figure 74: List of Student's

[24] By clicking this the user will then be redirected to this page where it showcases all the students who are registered in the system.

Name	Age	Address	Email	Action
Try Lang	15		try@gmail.com	<span>View</span> <span>Archive</span>
Monkey Luffy	23		Luffy@gmail.com	<span>View</span> <span>Archive</span>
Blazer Hernando	25		mercadolblaise@gmail.com	<span>View</span> <span>Archive</span>
try3 try3	15		try3@gmail.com	<span>View</span> <span>Archive</span>
Ryan Davis	19		Ry@gmail.com	<span>View</span> <span>Archive</span>
Faye Trap	15		Faye@gmail.com	<span>View</span> <span>Archive</span>
Dennis Cruz	28		Dennis@gmail.com	<span>View</span> <span>Archive</span>
Kate Garcia	20		Garcia@gmail.com	<span>View</span> <span>Archive</span>
Aiza Panciang	22		aizabunsonpanciang@gmail.com	<span>View</span> <span>Archive</span>

Figure 75: List of Student's (Part2)

[25] By clicking the view button, the user will then be redirected to another page where the user will be able to see the data of the students.

[26] By clicking the archive button the chosen name will be remove from the active list of students and will be placed on the archives.

Main

- Dashboard
- Manage Users
- Manage Module
  - HTML Module **27**
  - CSS Module
  - JavaScript Module
  - jQuery Module
  - SQL Module
  - PHP Module
- Manage Educational Access
- Manage Game
- Manage School Year
- Module Content Requests

HTML Module

HTML  
Introductions

+ Add **28**

Figure 76: List of Modules and adding of modules

[27] By clicking this the user will then be redirected to another page that showcases the list of modules created by the admin, which includes HTML, CSS, JavaScript, jQuery, SQL, and PHP in that order.

[28] If the user clicks the "Add" button, they will be redirected to a page where the admin will be prompted to select the type of module they wish to add.

The screenshot shows a 'Main' sidebar with various administrative options like 'Dashboard', 'Manage Users', 'Manage Module', etc. The 'Manage Module' option is expanded, showing sub-options: 'HTML Module', 'CSS Module', 'JavaScript Module', 'jQuery Module', 'SQL Module', and 'PHP Module'. The main content area is titled 'Add Module'. It has fields for 'Module Title' (containing 'Sample Title'), 'Description\*' (containing 'Sample Desc'), and a 'Subject' dropdown set to 'HTML'. At the bottom is a blue 'ADD' button, which is highlighted with a red box and an arrow pointing to it from the number 29.

Figure 77: Creating a new Module

[29] By clicking the add button a new module will then be created.



Figure 78: Archiving a module

[30] By clicking this button, the user will be able to change the current module into an archive mode, subsequently removing it from the list of active modules.

Name	Status	Action
1 Instructor	Inactive	<input type="button" value="Edit"/> <input type="button" value="Archive"/>
2 MIS	Active	<input type="button" value="Edit"/> <input type="button" value="Archive"/>

Figure 79: Manage Educational Role Page and Adding an Educational Role

- [31] By clicking this the user will then be redirected to the page where it displays all the educational role.
- [32] By clicking this button, the admin will gain the ability to add a new role.

Figure 80: Creating a new Educational Role

- [33] This is the section where the admin can input the title and status of the new role by clicking the add role button.

Educational Role		
Name	Status	Action
1 Instructor	Inactive	Edit  Archive
2 MIS	Active	Edit  Archive
3 Sample Role	Active	Edit  Archive

Figure 81: Editing an Educational Role and Archiving

[34] By clicking this the user will be able to edit the current data.

[35] By clicking this the user will now be able to remove the chosen role from the list and move it into the archives.

Edit Educational Role

Role Name \*

Status

Active  Inactive

**SUBMIT**

Figure 82: Editing Educational Role

[36] By clicking the button, all the previous data of the educational role will be overwritten with the new data that has been set.

Name	Status	Action
1 Mindanao State University - General Santos Campus	Active	Edit Archive
2 SPED Integrated School	Active	Edit Archive

Figure 83: Manage School University Page and Adding School

[37] By clicking this the user will be redirected to a page where it showcases all the list of schools or universities that are registered in the system.

[38] By clicking the button, the user will gain the ability to add a new school to the list.

Add School/University

School/University Name \*

Status

Active  Inactive

**ADD SCHOOL/UNIVERSITY**

Figure 84: Creating a new data for a new school or university

[39] The user can now enter the data for the new school, and by clicking the "Add" button, the entered data will be added to the list of existing schools in the records.

## Teacher's Account Manual

Navigate to the **Landing Page** of Webcraft website [www.webcraftedu.com](https://webcraftedu.com)



Figure 85: Landing Page of webcraftedu.com (Teacher)

- [1] Click to Login an account.
- [2] Click to Sign up an account, you can either sign up as a student, sign up as a teacher or sign up as a guest.
- [3] This displays the information about the website.

### Create an Account

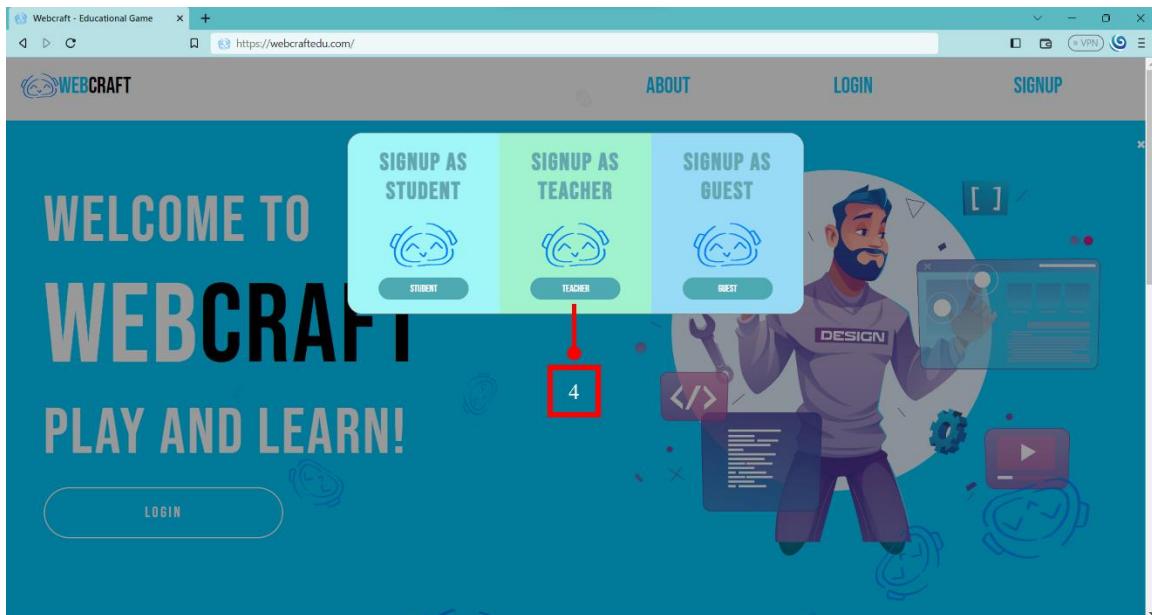


Figure 86: Signup Modal (Teacher)

[4] Click to be redirected to Account Registration for teachers.

To create an account, click on the [2] **Signup** button as shown in Figure 82. A modal will pop up containing signup buttons for different users. When you click on [4] **Teacher** button, you will be redirected to the Account Registration Page for Teachers as shown below. Red asterisks (\*) indicates that the fields are required to be filled out.

ACCOUNT REGISTRATION

PERSONAL INFORMATION

First Name\*  
FIRST NAME  
Middle Name Last Name  
MIDDLE NAME LAST NAME  
Suffix Gender\*  
SUFFIX (OPTIONAL) SELECT GENDER  
Birthdate\* Age\*  
BIRTHDATE AGE  
Contact Number\*  
CONTACT NUMBER  
Address\*  
ADDRESS  
Province\* City/Municipality\*  
SELECT PROVINCE SELECT CITY / MUNICIPALIT

ACCOUNT INFORMATION

Figure 87: Account Registration page (Personal Information – Teacher)

[5] Enter your personal information such as your name, gender, date of birth, contact number and address. Age will be automatically computed according to the date of birth you have entered.

ACCOUNT INFORMATION

Email Address\*  
EMAIL ADDRESS  
Username\*  
USERNAME  
Password\*  
PASSWORD  
Password Strength:  
• 1 LOWERCASE & 1 UPPERCASE  
• 1 NUMBER (0-9)  
• 1 SPECIAL CHARACTER (!@#\$%^&\*).  
• ATLEAST 8 CHARACTER

Confirm Password\*  
CONFIRM PASSWORD  
SHOW PASSWORD

EDUCATIONAL ACCESS

Educational Role\*  
SELECT ROLE  
School/University\*  
SELECT SCHOOL/UNIVERSITY

PROOF OF EMPLOYMENT

Choose File NO FILE CHOSEN

Figure 88: Account Registration page (Account Information – Teacher)

[6] This section asks for your account information such as your email address, username and password. You must enter an active email address as it will be used for your account verification. As for the password, it must contain the following characters; at least eight (8) characters containing one (1) lowercase and one (1) uppercase, one (1) number (0-9), one (1) special character.

The screenshot shows a web browser window titled "Teacher Registration" with the URL "webcraftedu.com/TeacherReg.php". The page features a teal background with a white line-art illustration of a smiling face. On the right side, there are several input fields and dropdown menus:

- USERNAME**: An input field for entering a username.
- Password\***: An input field for entering a password.
- PASSWORD**: A larger input field for confirming the password.
- Confirm Password\***: A placeholder text indicating where to enter the confirmed password.
- CONFIRM PASSWORD**: A button to confirm the password.
- SHOW PASSWORD**: A link to toggle password visibility.
- EDUCATIONAL ACCESS**:
  - Educational Role\***: A dropdown menu labeled "SELECT ROLE".
  - School/University\***: A dropdown menu labeled "SELECT SCHOOL/UNIVERSITY".
- PROOF OF EMPLOYMENT**:
  - A red box labeled **7** points to the "Choose File" button.
  - A red box labeled **8** points to the "NO FILE CHOSEN" message.
  - A placeholder text "Upload a proof of employment\*" is visible.
- CREATE ACCOUNT**: A blue button to submit the form.

Figure 89: Account Registration page (Educational Access – Teacher)

[7] Upload a file containing the proof that you are a certified teacher. You are required to upload a **Proof of Employment** to validate the authenticity of the account.

[8] **Create Account** button submits the data you entered on the fields above.

After reviewing and filling out all the required fields, click the [8] **Create Account** button to proceed. A message will pop up after a successful account registration, as shown on the figure below.

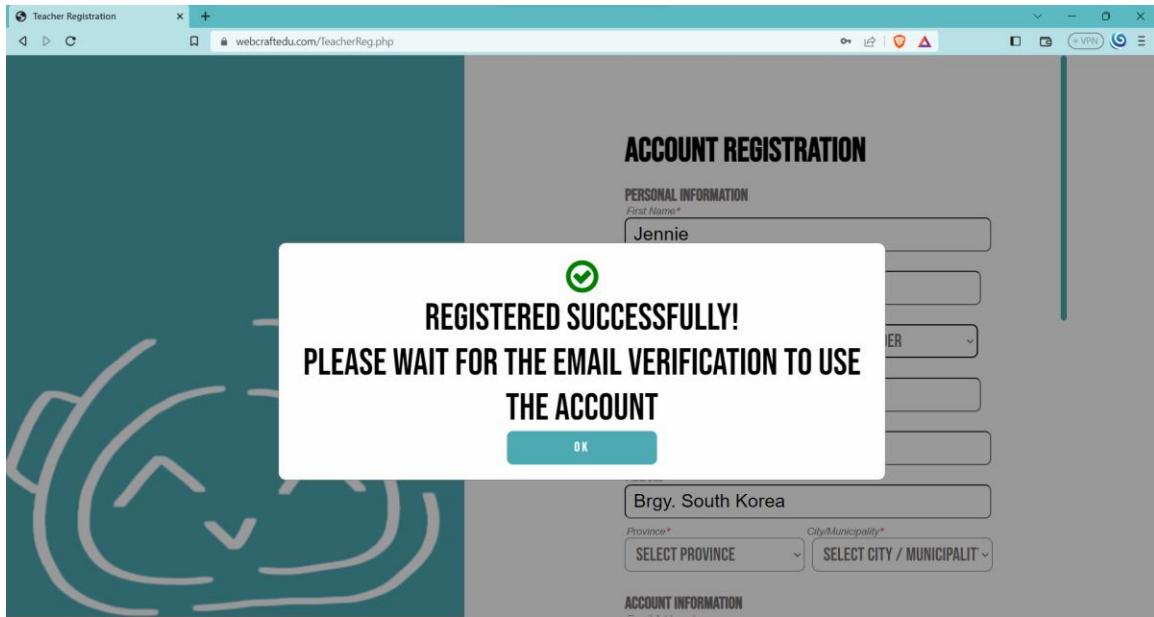


Figure 90: Account Registration page (Educational Access – Part 2)

Before you could proceed to the Login page to login your account, the administrator will first validate your account if you really are a teacher. After the application is approved, an email will be sent.

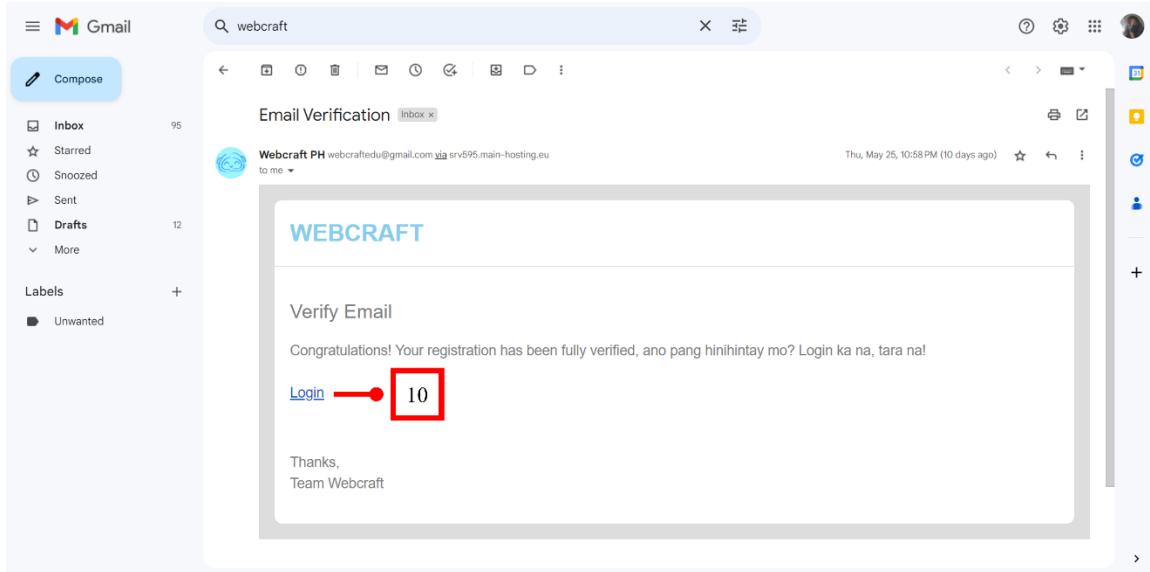


Figure 91: Email Verification (Teacher)

[10] This link will redirect you to the Login Page of the website. If you receive this kind of email, this means that the administrator has validated your account. You can then proceed with the login for your newly created account.

## Login Account

To Login your account, click the **Login** button and you will be redirected to the Login Page, as shown below.

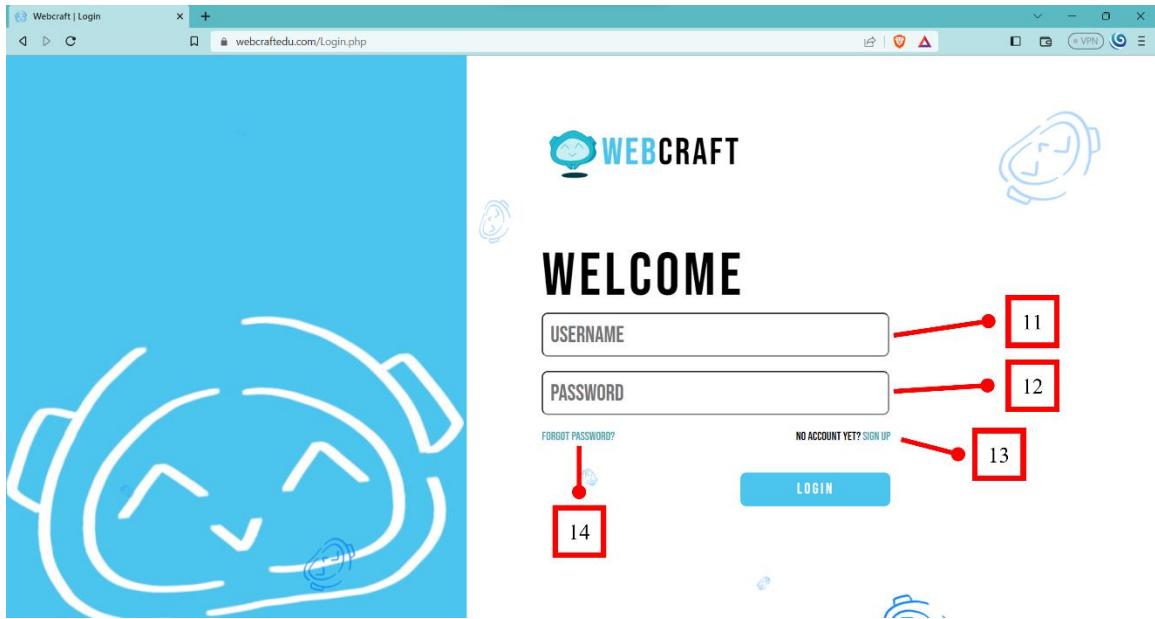


Figure 92: Login Page (Teacher)

- [11] Enter your **Username** for teacher's account.
- [12] Enter your **Password** for teacher's account.
- [13] If you don't have an account yet, click the **Sign up** to register an account.
- [14] Here is where you can reset your account's password if ever you forgot your password.

After filling out the [11] and [12] the system will validate if the entered credentials are valid. Failure to enter valid credentials will prompt a message as shown in Figure 93. Successful login will prompt a message welcoming the account logged in (see Figure 94).

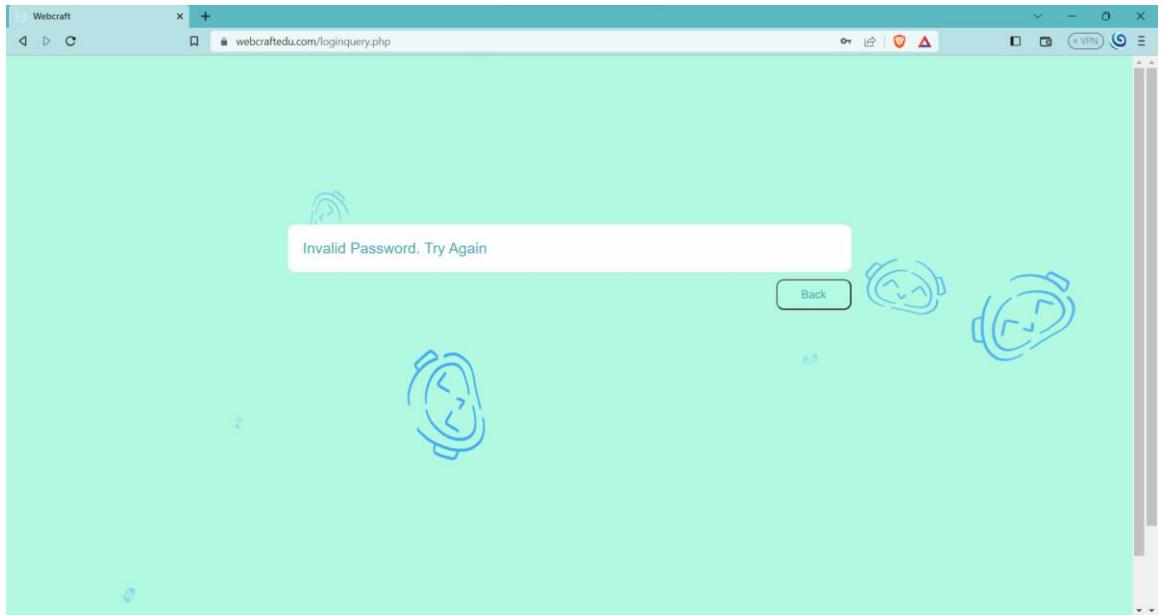


Figure 93: Invalid Password page if the user enter an invalid password for the account

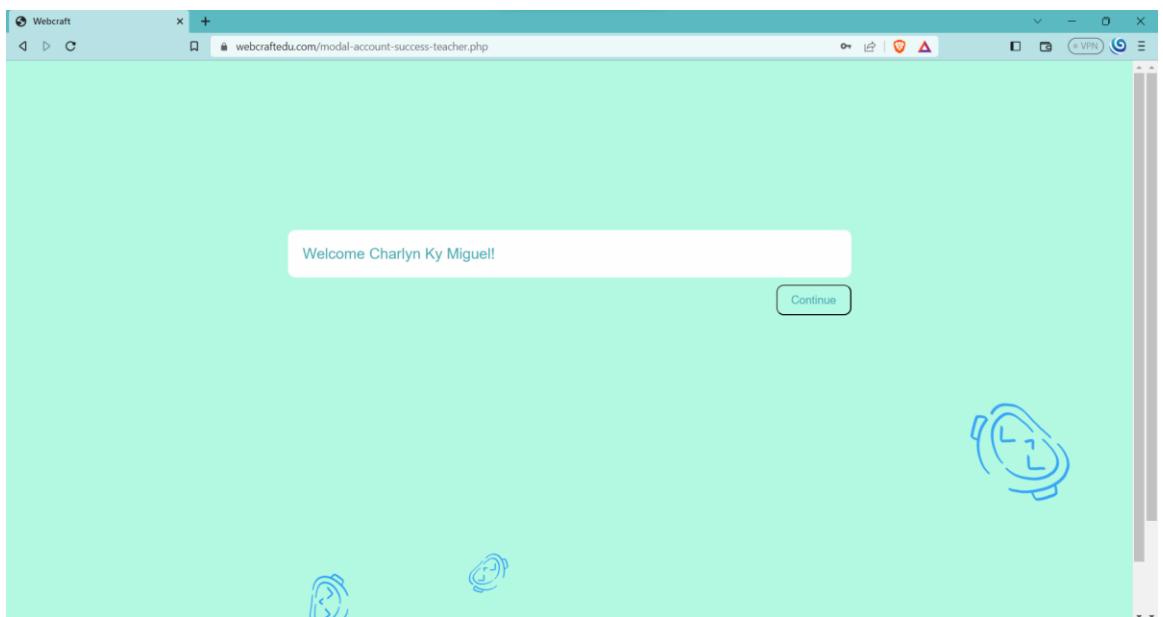


Figure 94: Welcome Page if the user enter a valid account credentials

After the successful login you will be redirected to the Teachers dashboard. Below is the dashboard interface for the teacher account.

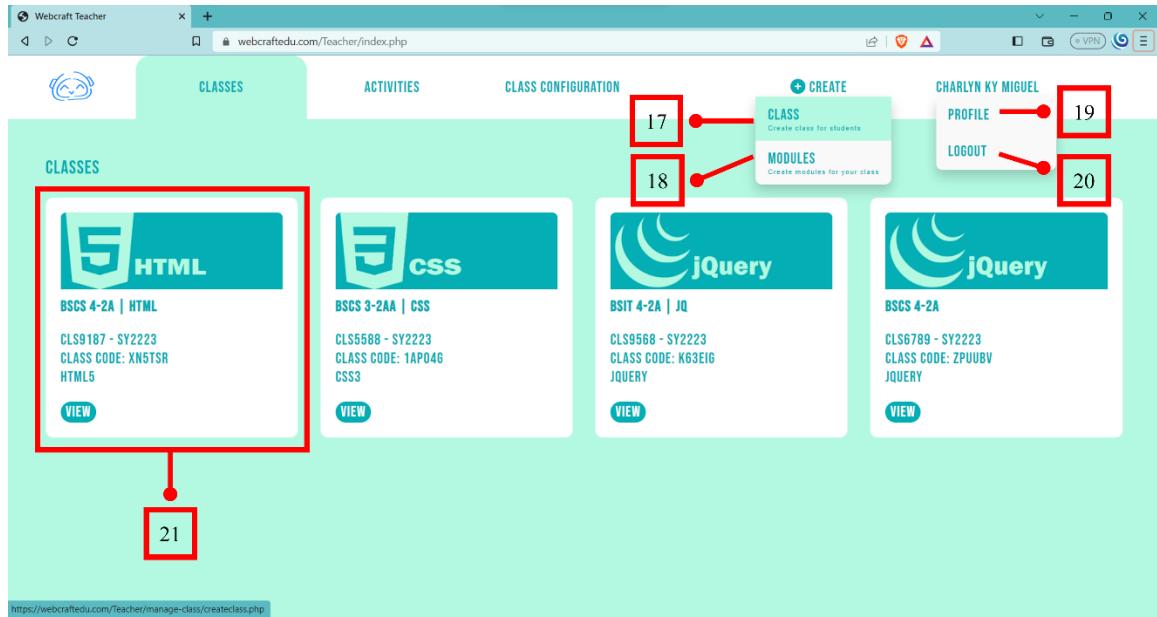


Figure 95: Teacher Dashboard

- [17] Here you can create your own class. To navigate the page, just click the interface.
- [18] Here you can create modules for your class. In this area you can create modules outside your class. To navigate the page, just click the interface.
- [19] Here is where you can view your information. You can edit and update your information. To navigate the page just click the interface.
- [20] Click the **Logout** button if you wish to sign out your account.
- [21] Here displays the classes you have created. It is represented with a tile layout. You can see some of the details of the class such as the class name, class identification, school year, class code and the class topic. If you want to navigate directly to the page, just click the **View** button.

### Create a Class

To create a class, hover your mouse at the **+ CREATE** button and select the **Class**. A form will be loaded asking for the class details as shown below.

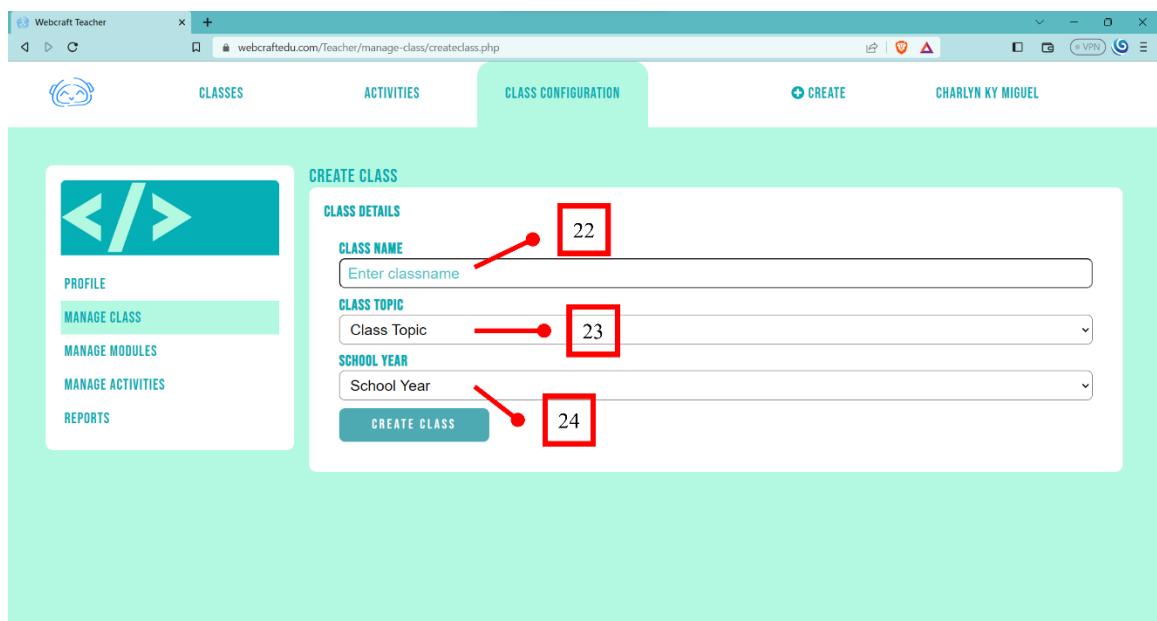


Figure 96: Create Class Page

[22] Enter your desired name for your class.

[23] Choose a class topic for your class to this dropdown interface. Class topics include HTML5, CSS3, JavaScript, JQuery, PHP and SQL.

[24] Choose the school year for your class to this dropdown interface.

After filling out the fields, click the **Create Class** button, you will then be redirected back to the teacher's dashboard. Take note that you can only create six (6) active classes.

After successfully creating a class, click on the **View** button under [21] to view the manage modules and its contents, manage students and manage activities. The figure below shows the modules inside the class.

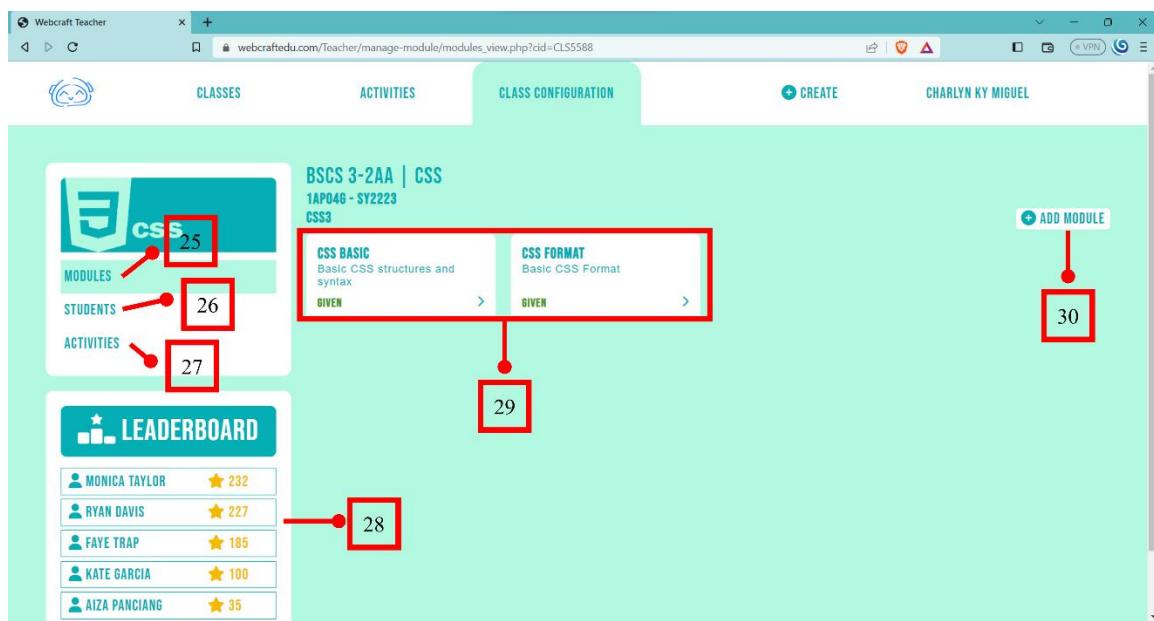


Figure 97: Module List (Teacher)

- [25] **Module** navigation redirects you to the list of modules that are created inside the class.
- [26] **Students** navigates you to the list of students enrolled to your class. You manage students such as add students to class, approved join class requests and unenroll students.
- [27] **Activities** navigates you to the list of activities, where in you can manage the activities.
- [28] Here displays the outstanding students in the class. Leaderboard scores are based on the task scores of the students per activity you have created.
- [29] Here you can view the list of modules created inside the class. Modules are represented in tiles which contains its details such as, the module name, module description and the module status.
- [30] Click the **Add Module** button if you wish to add a module to the class. This button will redirect you to the Add Module Page.

### Add Module to Class

Click the [30] **Add Module** button at the upper right of the page in Figure 97. The figure below shows the **Add Module Page** to which the Add Module button is directed to.

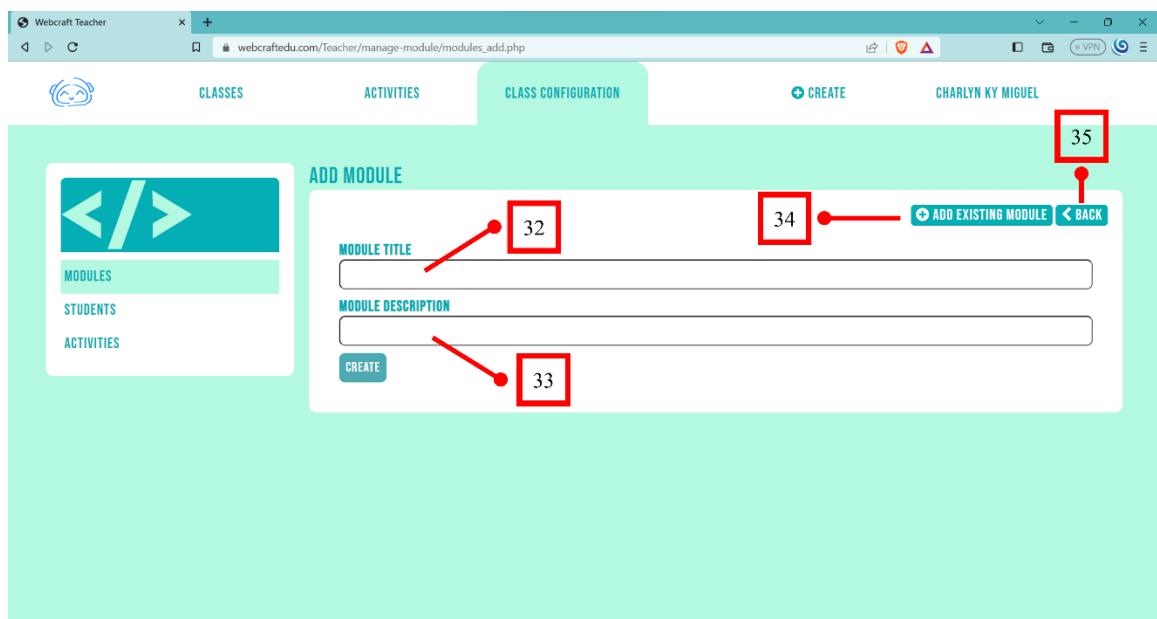


Figure 98: Add Module Page

- [32] Enter your desired **Module Title** here.
- [33] Enter the **Module Description** on this field.
- [34] Click **Add Existing Module** button if you wish to add an existing module inside your class. Existing modules are modules created by the administrator to which you can use freely.
- [35] Click the **Back** button if you wish to go back to the module list page.

If you wish to add an existing module, click the [34] Add Existing button. A page shown below will appear.

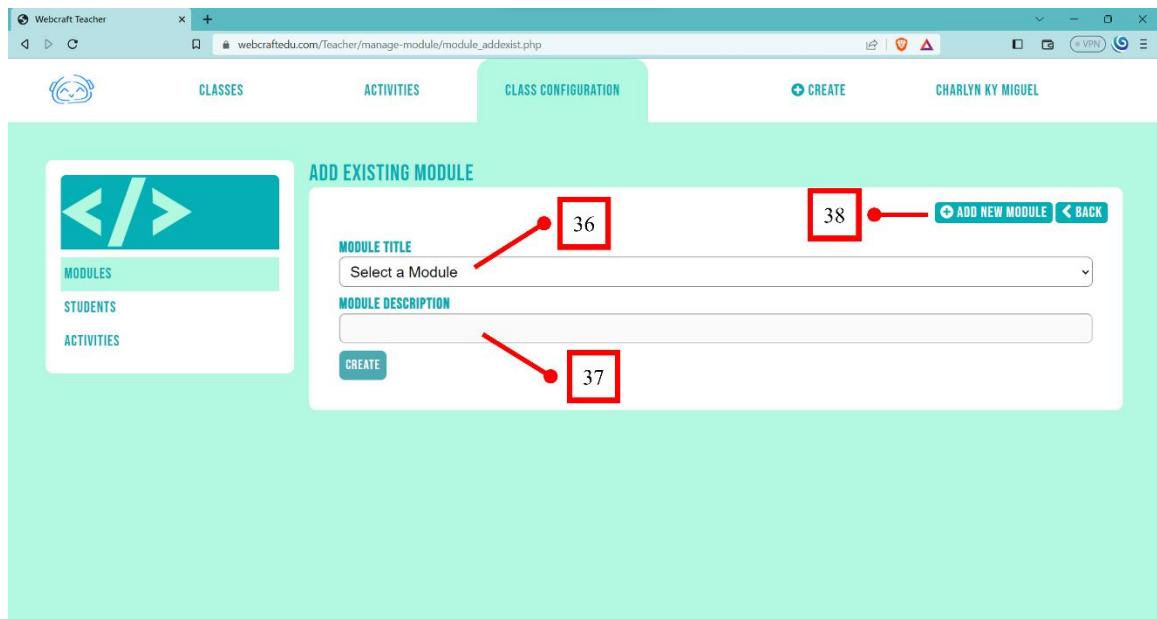


Figure 99: Add Existing Module Page

- [36] Click the drop down to select the existing module you want to add.
- [37] This field will automatically be filled with a value based on the drop down above.
- [38] This button will redirect you to the previous form, which is adding a new module.

After filling out the required fields for either of the way you want to add a module, click the **Create** button to submit the data. If the module is created or successfully added a popup message will appear.

### Manage Module Content

To view and upload a content or handout inside the created module, in [29] under the Figure 97, click the forward button ( $>$ ) on a tile with the name of the module you wish to add its content. A page containing the list of contents inside the module will appear.

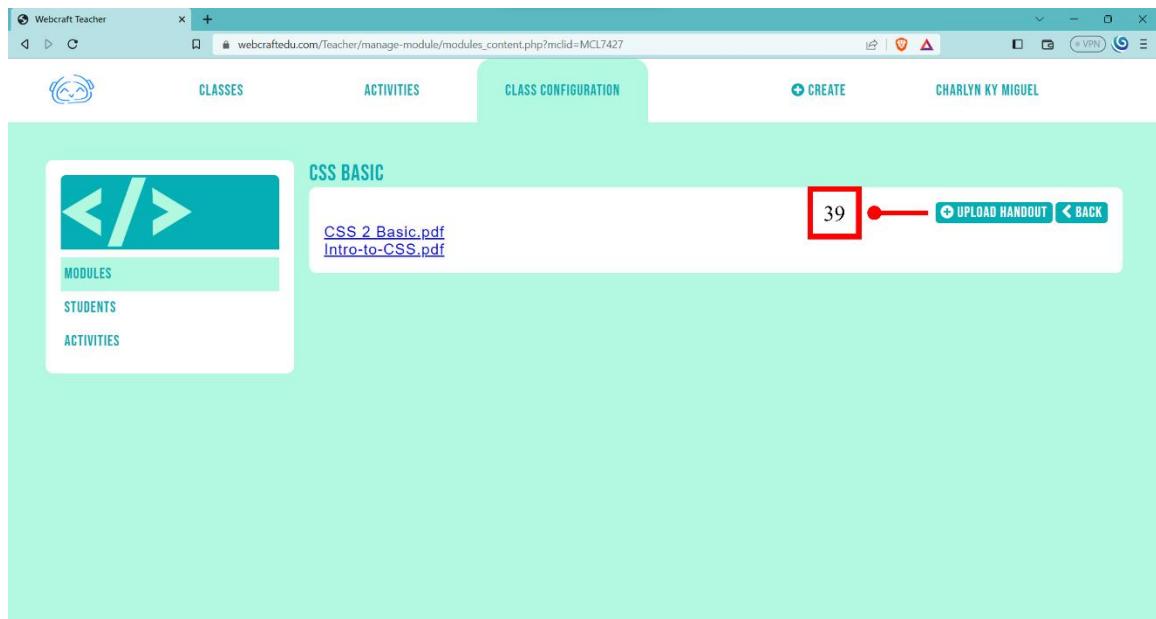


Figure 100: Module Content List (Teacher)

- [39] This button redirects to the upload handout page, which will let you upload contents for your module.

Click the [34] Upload Handout button, to add a content for the module. A page will load as shown below.

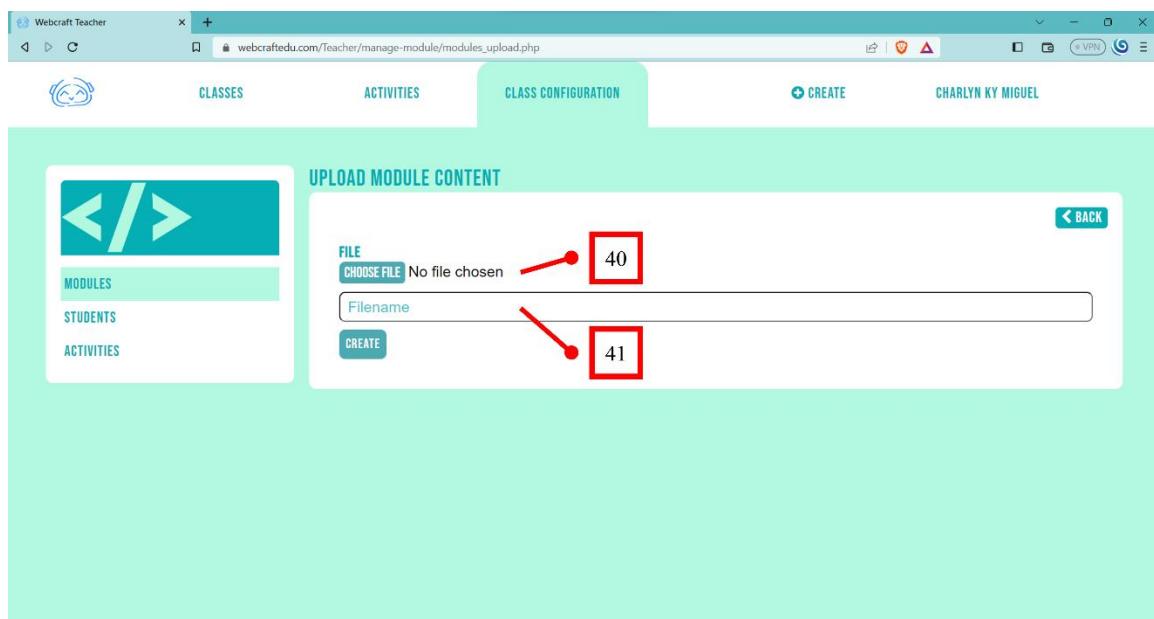


Figure 101: Upload Module Content Page

To upload module content, click the Choose File button as shown on Figure 101. Fill out the **Filename** field and click **Create** button to successfully create and upload a module content. Before the uploaded module content is displayed to your class, it must first be validated and approved by the administrator.

## Manage Students

In Figure 97, click the [26] **Students** link to navigate the list of students. As shown at the figure below, this section displays all the students enrolled in the class.

STUDENT ID	NAME	ACTION
USR9634	Monica Taylor	ANALYTICS  UNENROLL
USR2987	Faye Trap	ANALYTICS  UNENROLL
USR3584	Kate Garcia	ANALYTICS  UNENROLL
USR8266	Hilda Zilong	ANALYTICS  UNENROLL
USR3672	Aiza Panciang	ANALYTICS  UNENROLL
USR7526	Blaise Mercado	ANALYTICS  UNENROLL
USR2338	Ryan Davis	ANALYTICS  UNENROLL

Figure 102: List of students enrolled in the class

- [42] Click to view the **Analytics** of the student.
- [43] If you wish to remove or unenroll the student in the class, click this link.
- [44] Click **Add Student** button to manually add students to your class. You can either add them individually or add them by batch.
- [45] Here you can see the number of students who requested to join your class through the invitation code or the class code you have given. If you want to navigate directly to the page, just click the **Requests** button.

In adding the students, click [44] under the Figure 102. You can either add one (1) student at a time or add by batch as shown below.

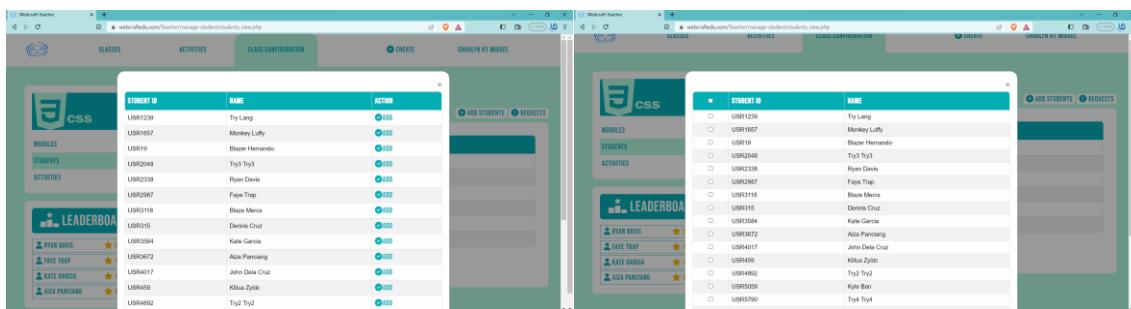


Figure 103: Individual and batch enroll students

Aside from manually enrolling a student in the class, the teacher can also invite students to join the class by giving a class code. Students who join the class via invitation codes are redirected to the requests list waiting to be approved by the teacher.

Figure 104: Request List

A list of requests will be displayed where you can either approve or decline the student's request.

## Manage Activities

In Figure 97, click the [27] Activities link to navigate the list of activities. As shown at the figure below, this section displays all the activities in the class.

The screenshot shows the 'ACTIVITIES' tab selected in the top navigation bar. The page title is 'BSCS 3-2AA | CSS'. On the left, there's a sidebar with 'MODULES' (selected), 'STUDENTS', and 'ACTIVITIES'. Below it is a 'LEADERBOARD' section showing student names and scores. The main area lists activities with columns for name, start date, due date, given status, max score, and percentage overall. A red box highlights the 'EXERCISE (FILL IN THE BLANK)' activity. Another red box highlights the 'UPLOAD1' activity, which has a yellow star icon. A third red box highlights the 'EXERCISE' button in the top right. A fourth red box highlights the 'ADD ACTIVITIES' button. A fifth red box highlights the 'QUIZ TYPE' and 'EXERCISE' descriptions. A sixth red box highlights the checkboxes in the activity row. A seventh red box highlights the '46' value in the top right corner. A eighth red box highlights the '47' value in the top center. A ninth red box highlights the '48' value in the activity list. A tenth red box highlights the '49' value in the activity list. A eleventh red box highlights the '50' value at the bottom left of the activity list.

Figure 105: List of Activities (Teacher)

[46] On mouse hover, a dialog box will appear, displaying two (2) options in adding an activity. You can add a quiz type activity which contains multiple choice, true/false and fill-in-the-blank. You can also add exercise type of activity where you upload a file to be viewed by the student.

[47] Here are the action buttons used to manage activities. You can give, ungive, add an award, edit and archive activities.

[48] This displays the name of the activity. If the name of the activity is clicked it will be redirected to the list of submissions for that specific activity.

[49] The star indicates that the activity has an existing award condition, meaning the students can have an award depending on the award you have set.

[50] Here are the checkboxes to be used along with the [47] action buttons to manage the activity. You select an activity before clicking any buttons.

## Usage of Action Buttons

Action buttons is composed of **Give**, **Ungive**, **Award**, **Edit**, and **Archive** button as shown below.



Figure 106: Action Buttons for Activity List

[51] **Give** button is clicked if you want the selected activity to be visible on the student side.

[52] **Ungive** button is clicked to make the activity not visible on the student side.

[53] **Award** button – sets an award to the activity, that if a certain condition is reached an award will be given to the student. [49] indicates that the activity has an award.

[54] **Edit** button edits the details of the existing activity. When clicking the Edit button there must be only one selected activity to proceed.

[55] **Archive** button sets the activity into archive making it not visible to anyone.

## Add Award to an Activity

Click the **Award** button shown in Figure 106, and modal will appear with a form as shown below.

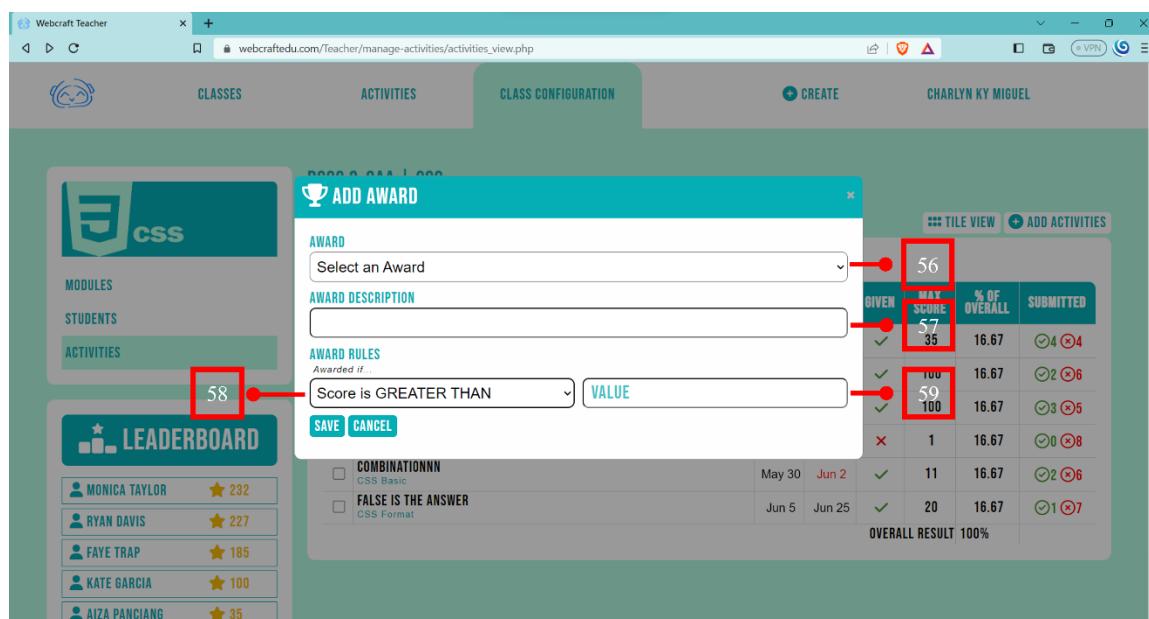


Figure 107: Add Award Popup (Teacher)

[56] A dropdown list with all the created award by the administrator. You can choose from the different kinds of awards available.

[57] Here displays the award description of the selected award on [56]. It will automatically be populated.

[58] Here are the qualifications for the award. It can be Greater than, Less than or Equal the set value on the [59]

[59] Sets the conditional value of the award. This field is only visible if the selected value on the [58] is either greater than or less than.

To add an award, select the desired award from the drop-down. If an award is selected the award description will be automatically populated. Award Rules is where your condition for the award is set. This sets the qualifications for the award to be given. Conditions such as Score is **Greater Than**, Score is **Less Than** the entered **Value** and **Perfect Record**.

### Add Activity

As stated above, on Figure 105 [46], click the type of activity you want to add. It can be either a **Quiz Type** or an **Exercise** type activity.

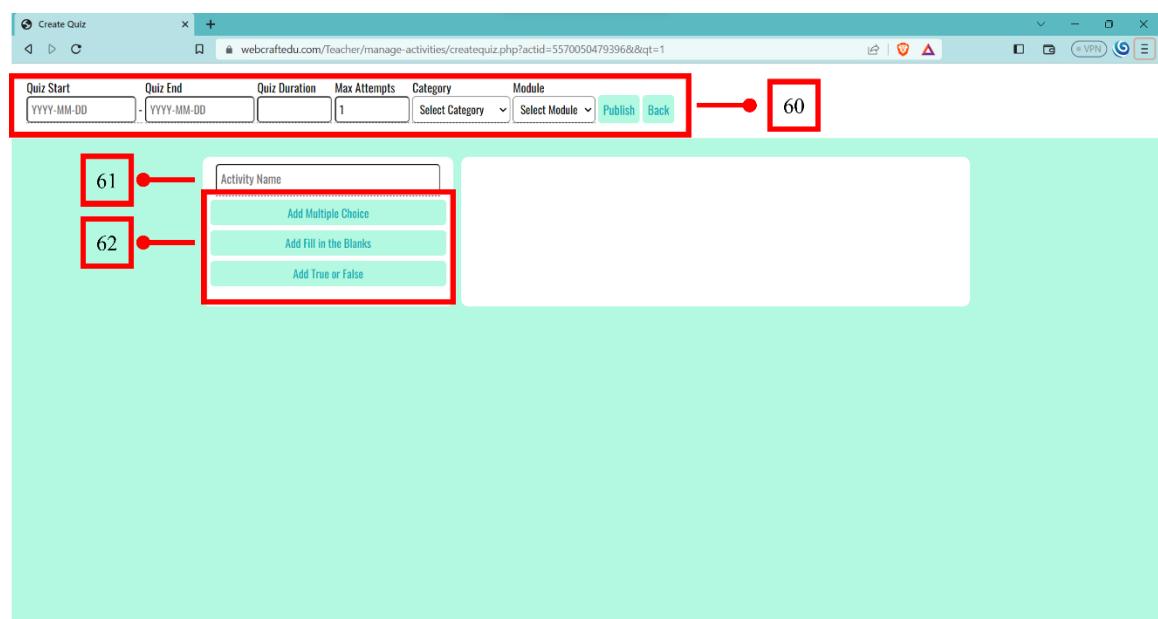


Figure 108: Quiz Type Activity

[60] Here is the header of the template. You can set the quiz details such as the start, end duration, max attempts, category, and module reference.

[61] Here is where you put the name for the activity.

[62] These are collection of buttons to which a template for quiz type activities are located. If you want to put a multiple-choice question to your activity, click the first button that says **Add Multiple Choice** button. Or a fill-in-the-blank question, just click the second button that says **Add Fill in the Blanks** button, and lastly if you want a true/false question just click the **Add True or False** button.

If the **Add Multiple Choice** button is clicked a template like in Figure 109 will appear.

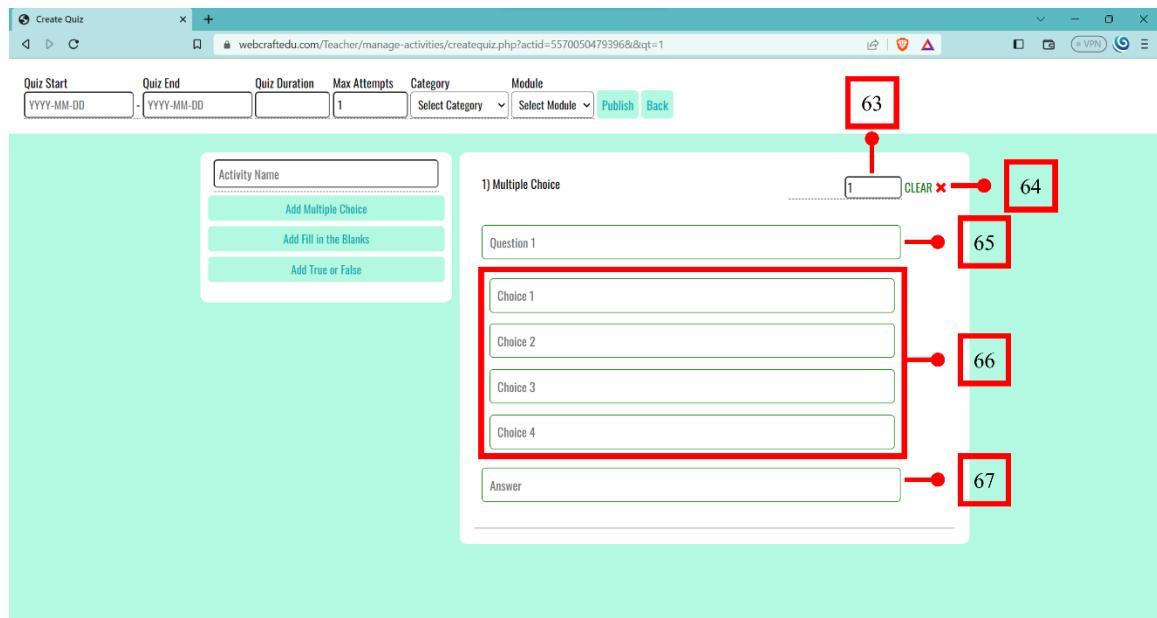


Figure 109: Multiple Choice Template

[63] This is where you can edit the points or score for the question item.

[64] Click the Clear button if you wish to delete the question item.

[65] Enter the question or the instructions for this item.

[66] Here are the choices for the question item. It represents letters from A (choice 1) to D (choice 4).

[67] You can set and enter the answer for this question in this field. Type the answer not just the letter that corresponds to the answer.

If the **Add Fill in the Blanks** button is clicked a template like in Figure 110 will appear.

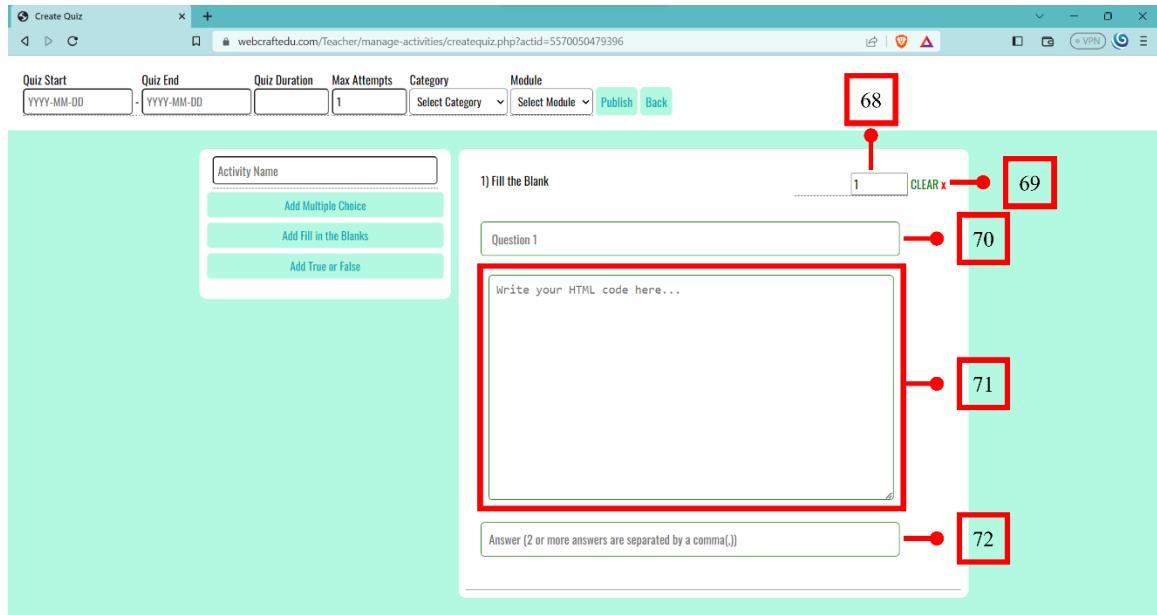


Figure 110: Fill-in-the-Blanks Template

- [68] This is where you can edit the points or score for the question item.
- [69] Click the Clear button if you wish to delete the question item.
- [70] Enter the question or the instructions for this item.
- [71] This sets the code for the question. If you want to set the specific code as blank, you need to change the code into blank1. As the number of the blank code increases the number of at the end of the blank must also increase (e.g. blank1, blank2, blank3...)

#### Sample code to input:

```

```

- [72] You can set and enter the answer for this question in this field. If there are more than one blanks on the code, the answers should be separated with a comma (,).

If the **Add True or False**, button is clicked a template like in Figure 111 will appear.

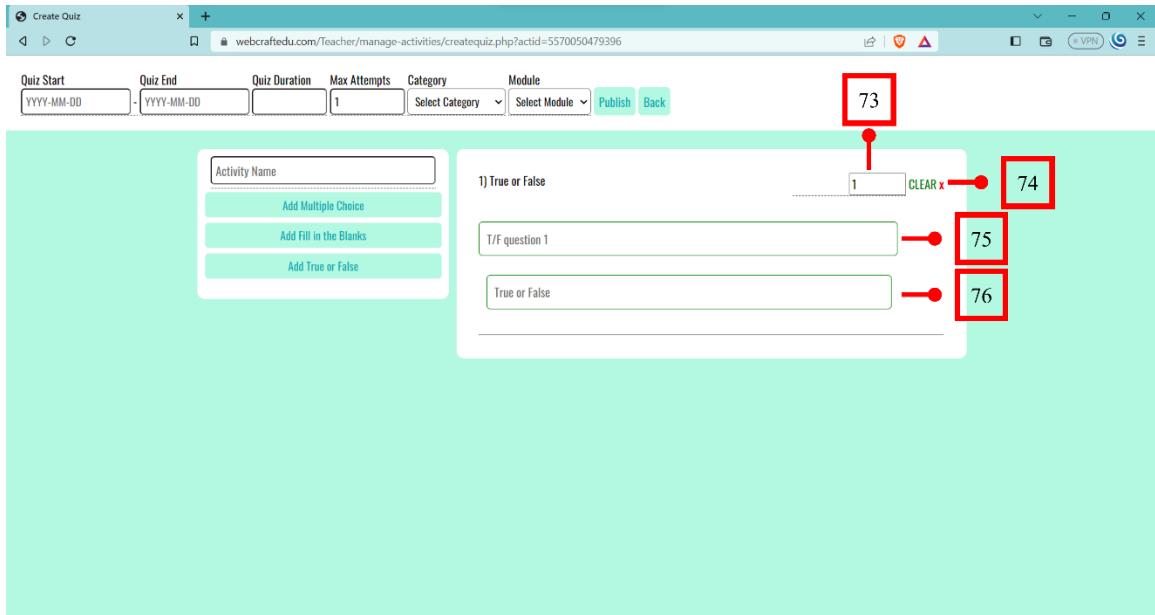


Figure 111: True/False Template

- [73] This is where you can edit the points or score for the question item.
- [74] Click the Clear button if you wish to delete the question item.
- [75] Enter the question or the instructions for this item.
- [76] You can set and enter the answer for this question in this field. Type “True” or “False”

As for the Exercise type of activity, there's only one template used. Quiz Type and Exercise have almost the same template, however for Exercise type it only has one button to generate a template.

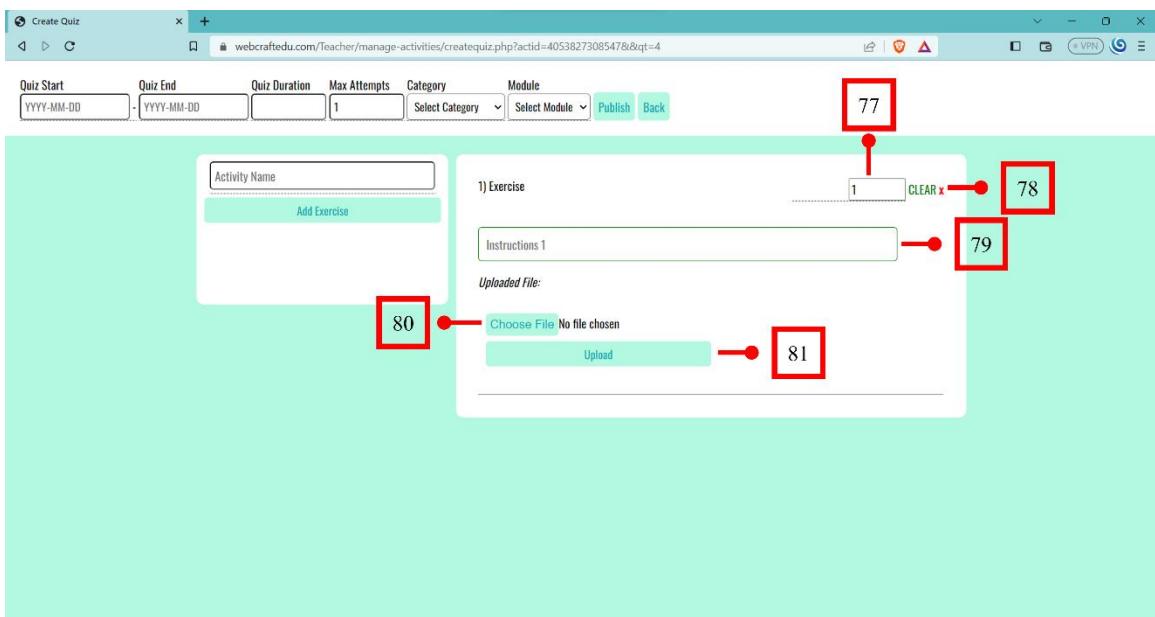


Figure 112: Exercise type Template

- [77] This is where you can edit the points or score for the question item.
- [78] Click the Clear button if you wish to delete the question item.
- [79] Enter the question or the instructions for this item.
- [80] Choose a file that has additional information about the exercise.
- [81] After choosing a file in [80] click **Upload** to submit the selected file.

## User Profile

In Figure 95, click the [19] Profile link to view the information of your account. A page will load that contains your information as shown below.

The screenshot shows the 'User Profile' page of the Webcraft Teacher application. At the top, there's a navigation bar with links for 'CLASSES', 'ACTIVITIES', 'CLASS CONFIGURATION', 'CREATE', and the user's name 'CHARLYN KY MIGUEL'. On the left, a sidebar has 'PROFILE' selected and other options like 'MANAGE CLASS', 'MANAGE MODULES', 'MANAGE ACTIVITIES', and 'REPORTS'. The main area is titled 'USER INFORMATION' and contains sections for 'PERSONAL INFORMATION' (First Name: Charlyn Ky, Middle Name: Cerida, Last Name: Miguel, Suffix: None, Birthdate: 2001-11-19, Age: 21, Gender: Female), 'CONTACT NUMBER' (09215648596), 'ADDRESS' (Brgy. Lagao, Province: SOUTH COTABATO, City/Municipality: GENERAL SANTOS), 'ACCOUNT INFORMATION' (Email Address: kymiguel26@gmail.com, Username: chaa), and 'ADDITIONAL INFORMATION' (Educational Role: MIS, School/University: STI College - General Santos). Two specific buttons are highlighted with red boxes and numbers: 'EDIT PROFILE' at the top right (labeled 82) and 'REPORTS' in the sidebar (labeled 83).

Figure 113: User Profile Page

- [82] If you want to edit your information, click the **Edit Profile** button to make the fields editable.
- [83] This link will redirect you to the page for Reports. To navigate directly to the page, just click the **Reports** link.

## Reports

The website can generate three (3) reports, Student Visit Logs, Class Enrollment and Record book.

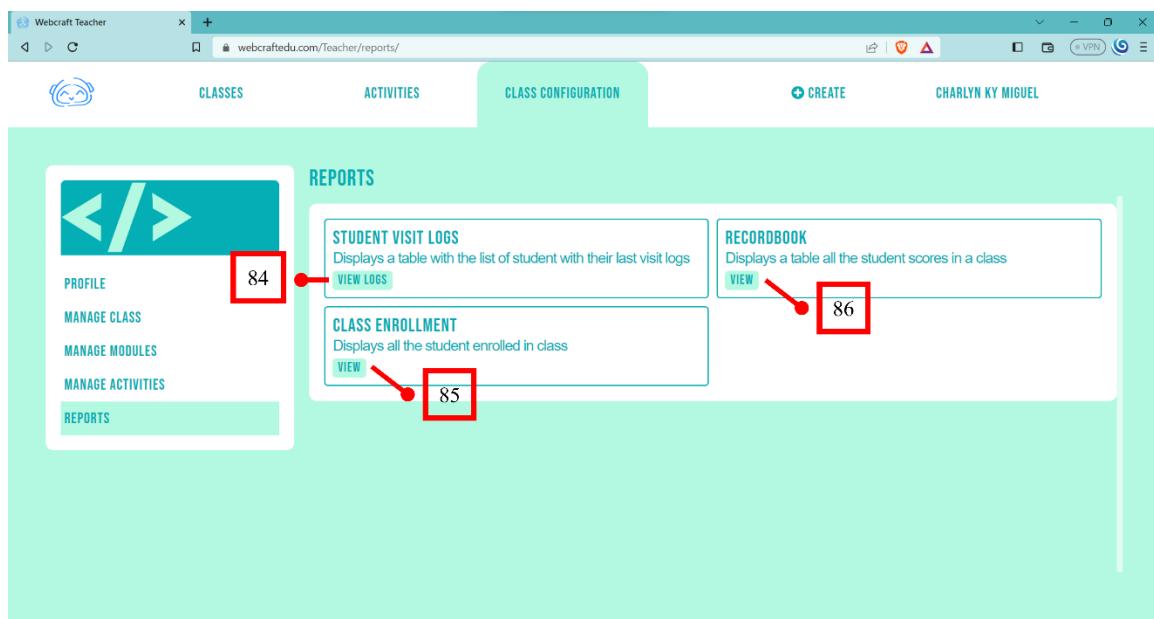


Figure 114: Reports Page

[84] When clicked, it will be redirected to the Student Visits Logs that display the last log visits of the student in a class.

[85] When clicked, it will be redirected to the Class Enrollment Logs that display the date when the student is enrolled to class.

[86] When clicked, it will be redirected to the Records book that display all the scores of the students.

If the **View Logs** button is clicked under the [84] tile. A page will load as shown below.

	STUDENT ID	NAME	LAST VISITED
1	USR2338	Davis, Ryan	Jun 2, 2023
2	USR8973	Dragon, Jane Abo	-
3	USR3584	Garcia, Kate	Jun 1, 2023
4	USR7526	Mercado, Blaise Angeles	1 day ago
5	USR3672	Panciang, Aliza Bunso	Jun 2, 2023
6	USR2987	Trap, Faye	Today
7	USR8266	Zilong, Hilda	

Figure 115: Student Visit Logs Page

[87] Generates a report for the selected class on the dropdown list.  
Displays a table with the list of students with their last visit logs. First is to select a class you wish to generate a report, the click **Generate** button. A table will be displayed containing the list of students with their last log in visits.

If the **View** button is clicked under the [85] tile. A page will load as shown below.

CLASS ENROLLMENT

CLASS FILTER  
SELECT A CLASS  88

BSCS 3-2AA | CSS

	STUDENT ID	NAME	ENROLLED
1	USR2338	Davis, Ryan	7 day ago
2	USR8973	Dragon, Jane Abo	-
3	USR3584	Garcia, Kate	May 30, 2023
4	USR7526	Mercado, Blaise Angeles	Jun 1, 2023
5	USR3672	Panciang, Aiza Bunso	Jun 2, 2023
6	USR2987	Trap, Faye	Jun 3, 2023
7	USR8266	Zilong, Hilda	Today

Figure 116: Class Enrollment Page

[88] Generates a report for the selected class on the dropdown list.  
Displays all the student enrolled in class. First is to select a class you wish to generate a report, the click **Generate** button. A table will be displayed containing the list of students enrolled in the class.

If the **View** button is clicked under the [86] tile. A page will load as shown below.

STUDENTS	MISSING	OVERALL	CSS BASIC					
			EXERCISE (FILL IN THE BLANK)	HEHEHE	UPLOAD1	COMBINATIONNN		
DAVIS, RYAN	2	43% 5.0 25	35	100	100	11		
GARCIA, KATE	1	25% 5.0 0		100	0			
MERCADO, BLAISE A	4	- 5.0						
PANGIANG, AIZA B	3	18% 5.0 26						
TRAP, FAYE	3	25% 5.0		100				
ZILONG, HILDA	4	- 5.0						

Figure 117: Record Book Page

[89] Generates a report for the selected class on the dropdown list. Displays a table with all the student scores in a class. First is to select a class you wish to generate a report, the click **Generate** button. A table will be displayed containing all the students' scores. On the **Analytics** button, a graph is displayed with the information of the overall scores and the missing activities for each student.

## Student's Account Manual

Navigate to the **Landing Page** of Webcraft website [www.webcraftedu.com](https://webcraftedu.com/)



Figure 118: Landing Page of webcraftedu.com (Student)

- [1] Click to Login an account.
- [2] Click to Sign up an account, you can either sign up as a student, sign up as a teacher or sign up as a guest.
- [3] This displays the information about the website.

To Login your account, click the **Login** button and you will be redirected to the Login Page, as shown below.

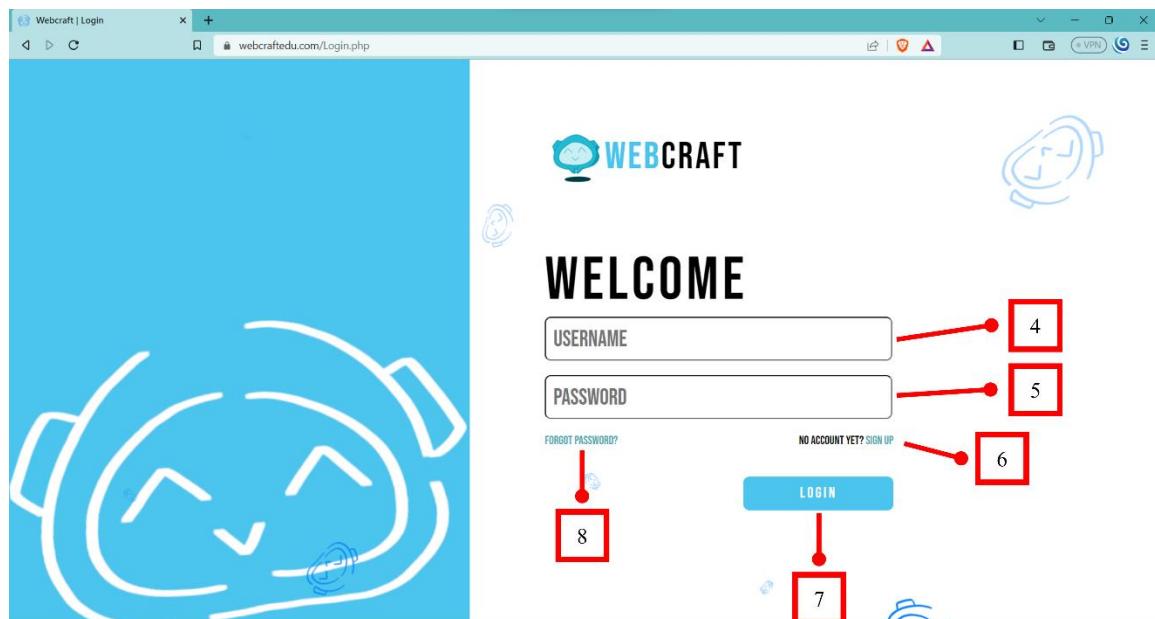


Figure 119: Login Page (Student)

- [4] Enter your **Username** for Student's account.
- [5] Enter your **Password** for Student's account.
- [6] If you don't have an account yet, click the **Sign up** to register an account.
- [7] To access student dashboard, click the **Login** to register an account.
- [8] If you forget your account password, click the **Forgot Password?** to register an account.

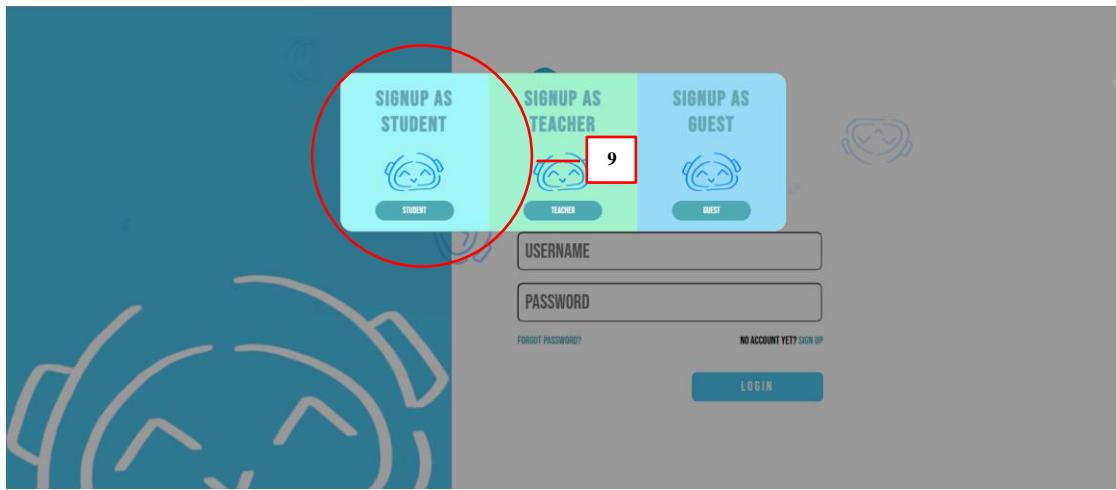


Figure 120: Signup as Student

- [5] Click **Student** button, to register as a student.

# ACCOUNT REGISTRATION

## PERSONAL INFORMATION

First Name\*

Blaise Pascal

Last Name\*

Angeles

Middle Name

Angeles

Suffix

Jr

Gender\*

MALE

Birthdate\*

11/28/2007

Contact Number\*

09451106077

Address\*

Lagao

Province\*

SOUTH COTABATO

City/Municipality\*

GENERAL SANTOS

10

## ACCOUNT INFORMATION

Email Address\*

shatapz@gmail.com

Username\*

Blazeer1

Password\*

•••••••

Password Strength: STRONG

- ✓ 1 LOWERCASE & 1 UPPERCASE
- ✓ 1 NUMBER (0-9)
- ✓ 1 SPECIAL CHARACTER (!@#\$%^&\*).
- ✓ ATLEAST 8 CHARACTER

Confirm Password\*

•••••••|

11

**CREATE ACCOUNT**

Figure 121: Student Registration

[10] A new page will load for Account Registration, displaying a form asking for personal information. (Red asterisks (\*) indicate that the fields are required to be filled out).

[11] Under Personal Information, the user should enter an active Email Address, as it will be used for the verification of the account. Password verification is also necessary to complete the registration process.

Upon finishing the registration process.

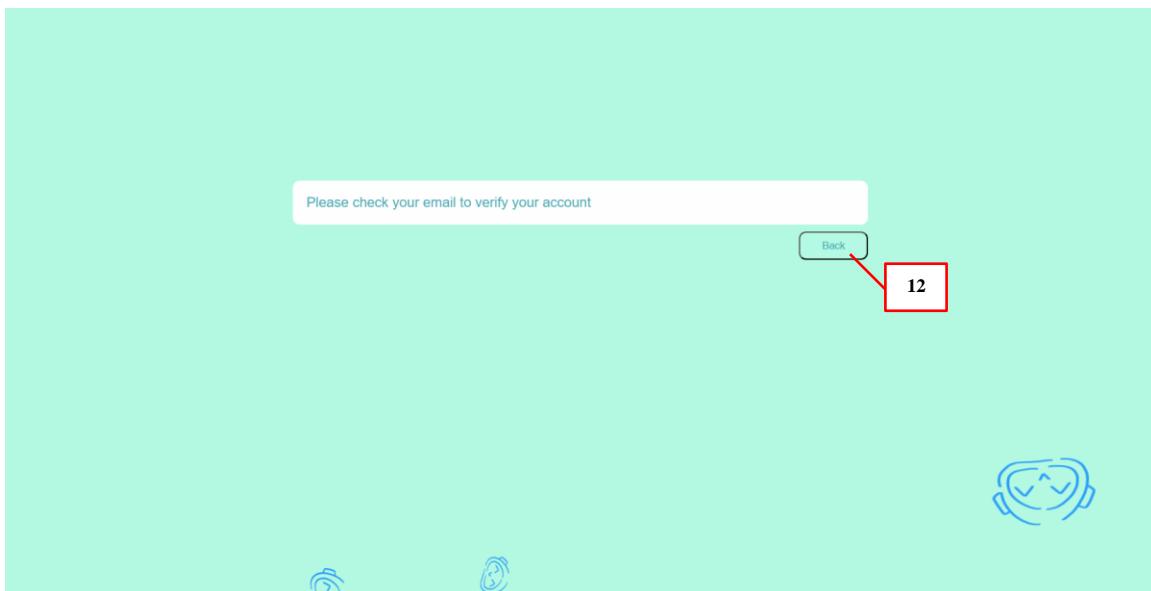


Figure 122: Email Verification Message (Student)

[12] When the Student wants to go back to the log in page of the website.

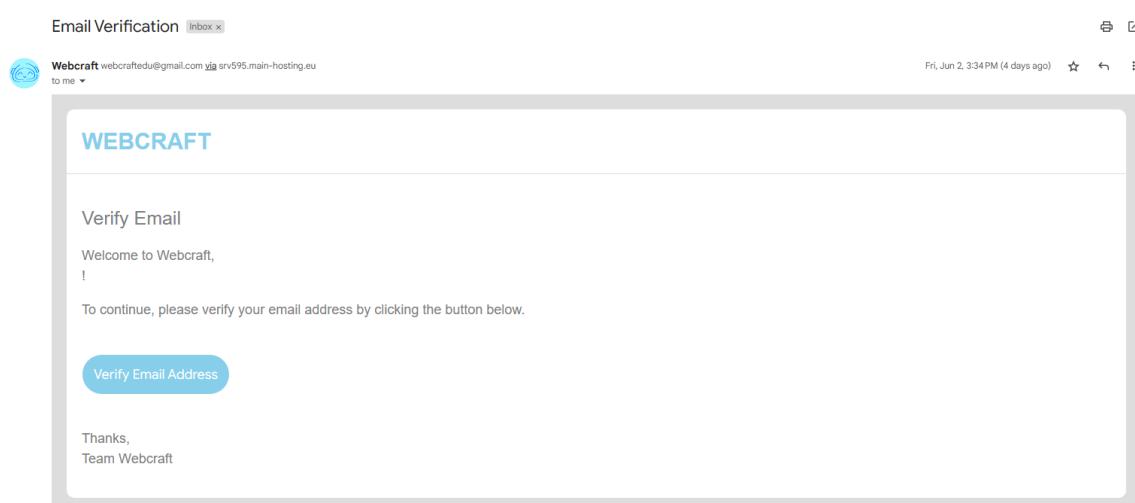


Figure 123: Email Verification (Student)

[13] After the student clicks the Password Reset button, the student will automatically be registered to the website.

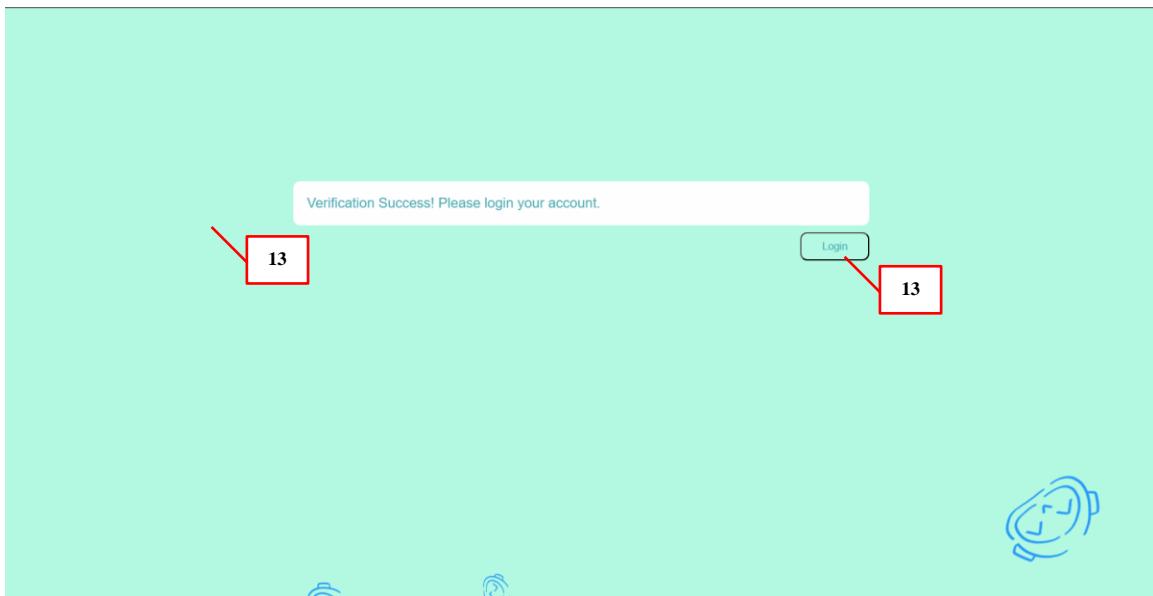


Figure 124: Verification Success (Student)

[13] When the student clicks the **Login** button, it will go directly to the Log in page of the website.

After you login you will redirect to the welcome page of the website.



Figure 125: Welcome Page for Student Account

[14] Click **Continue** to proceed to the Student Dashboard of the website.

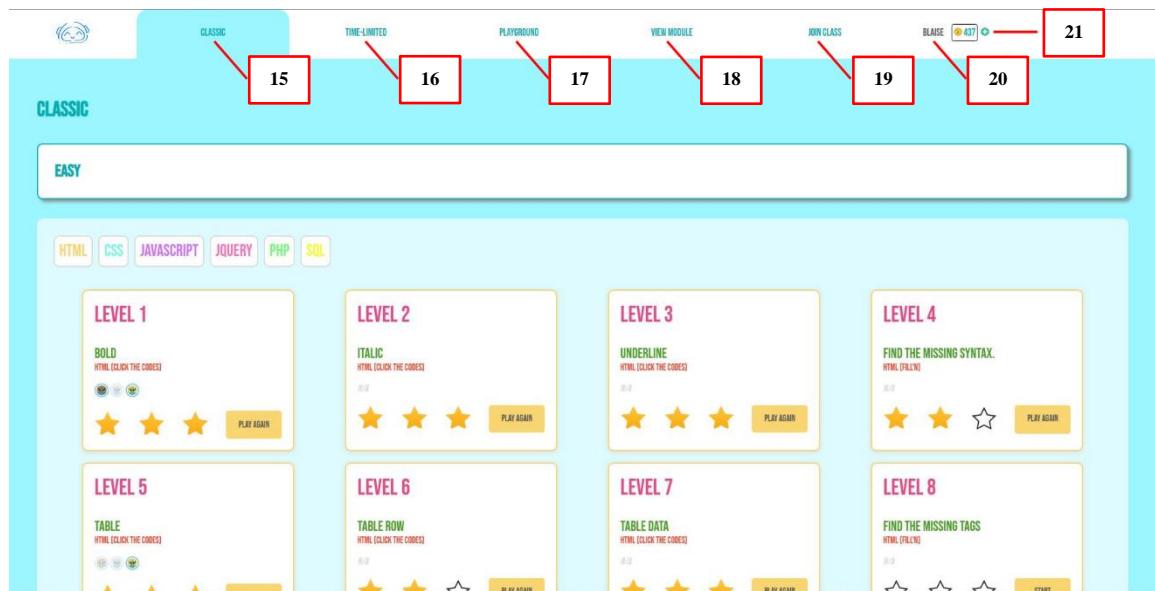


Figure 126: Student Dashboard

After clicking the **Continue** button, you will see the interface of the Student Dashboard.

[15] Click Classic to view and play classic game.

[16] Click Time-Limited Mode to view and play a game with time.

[17] Click Playground to test your skill in building your website.

[18] Click View Module to see different programming languages modules that are given by the admin.

[19] Click Join Class to join a different class with the use of class code.

[20] Click Profile to view the profile of the student

[21] Coins is a in-game coins where it can use by the student to buy time in time-limited mode.

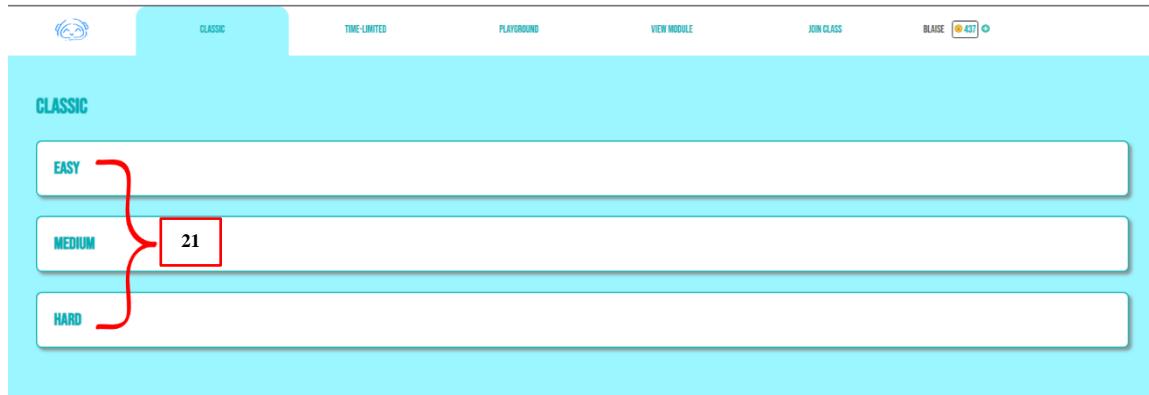


Figure 127: Classic Difficulties

[21] The game has three (3) types of difficulties which are the Easy, Medium, and Hard.

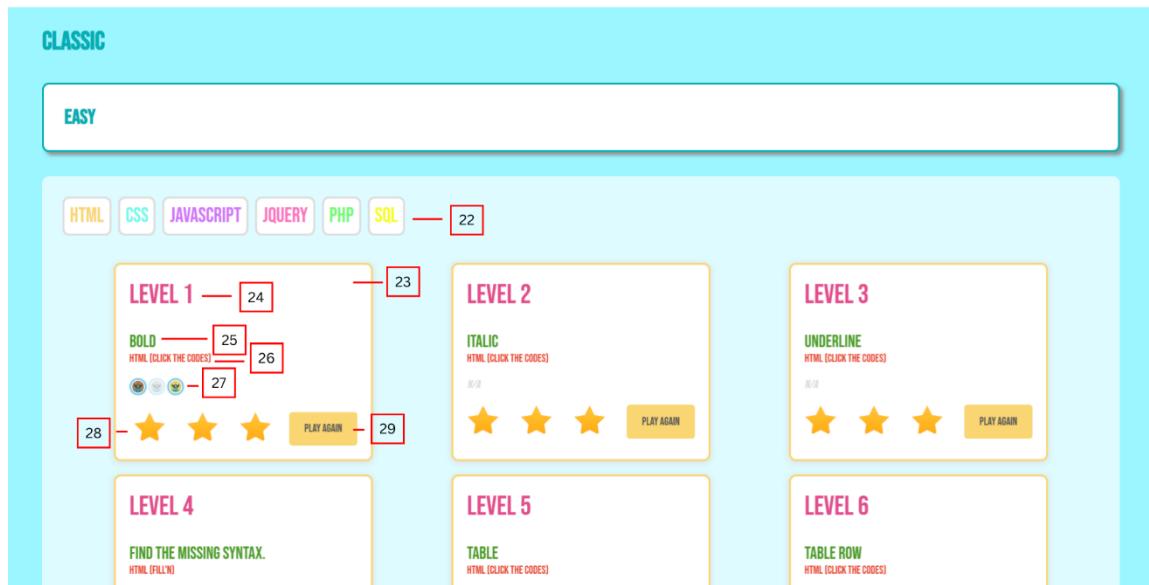


Figure 128: Classic (Easy)

[22] The game has 6 legends representing the web development languages HTML, CSS, JAVASCRIPT, JQUERY, PHP, and SQL.

[23] The levels of the game which holds information about the game level.

[14] Represent the level of the game.

[25] Represent the name of the game in each level.

[26] Represent the language and type of the game (Click the codes and Fill'n)

[27] Represent the achievement that you got by playing the game.

[28] Represent the stars will get depending on your score.

[29] A play button.

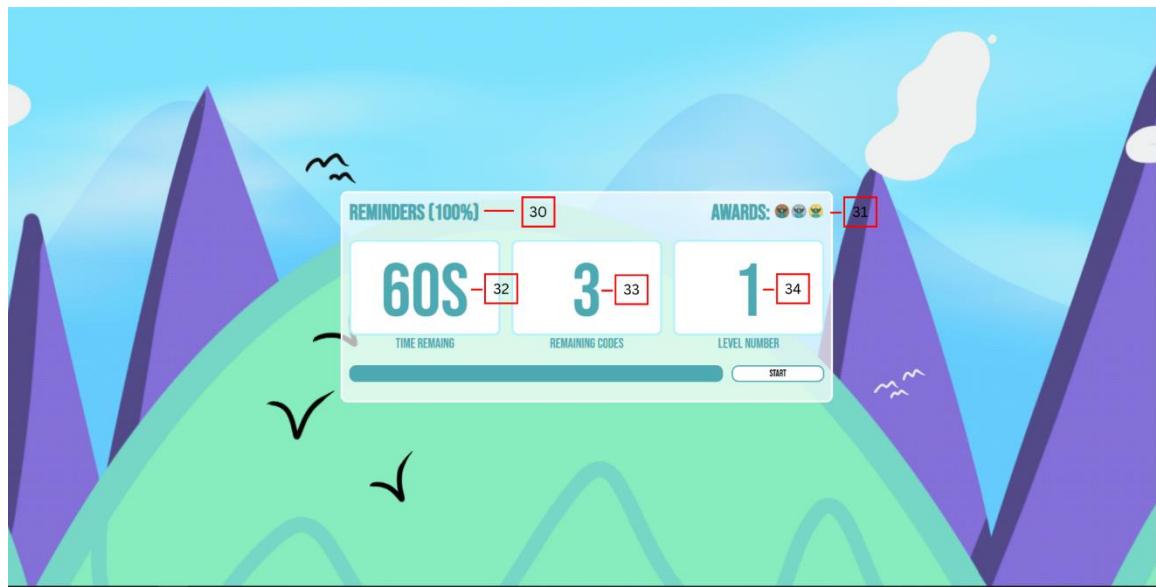


Figure 129: Game Reminders

[30] The percentage of the loading bar.

[31] Awards that will received get after the game (note: the awards will depend on your score).

[32] Time remaining – this will represent the number of seconds on how you will be going to beat or finishing the game.

[33] Remaining codes – the codes you will be going to click during the game.

[34] Level number – the level of the game.



Figure 130: Game Instruction

[35] The game tutorials or game guide.

[36] The game tutorials next and close button.

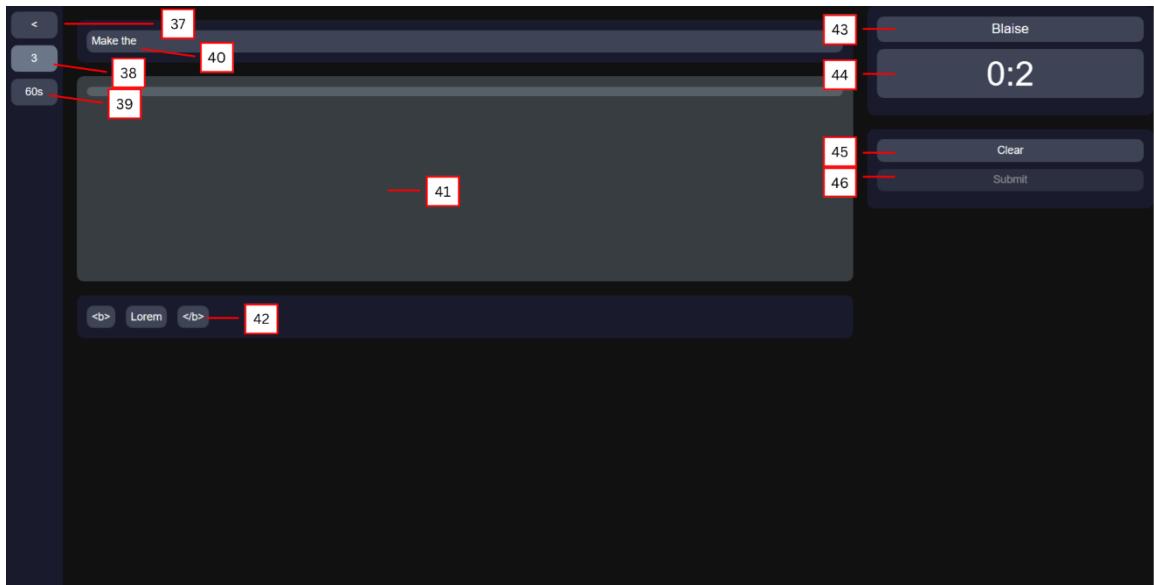


Figure 131: Classic Gameplay

[37] The back button – it will direct you to the game dashboard.

[38] The number of codes to click.

- [39] The number of seconds to beat the game or finishing the game.
- [40] The question of the game.
- [41] The game compiler – it will display all the codes that you have clicked below.
- [42] The clickable codes – these are the codes that are available to click.
- [43] The player's name or your name as when you play the game.
- [44] The timer – this timer will run continuously until you finish the game.
- [45] The clear button – this will clear all the buttons that you have been clicked on and displayed on the compiler.
- [46] The submit button – if you finish the game just click this button (It will only be activated if you finish all the required codes to click).

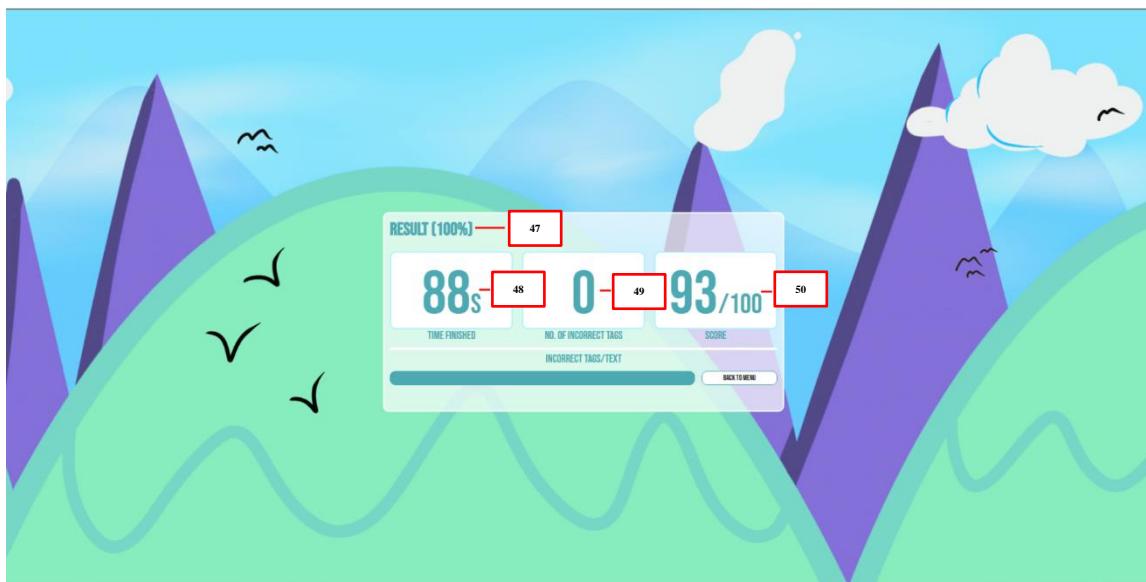


Figure 132: Game Result

- [47] The percentage of the progress bar.
- [48] The time you finish the game.
- [49] The numbers of incorrect tags/text.
- [50] The result of your score.

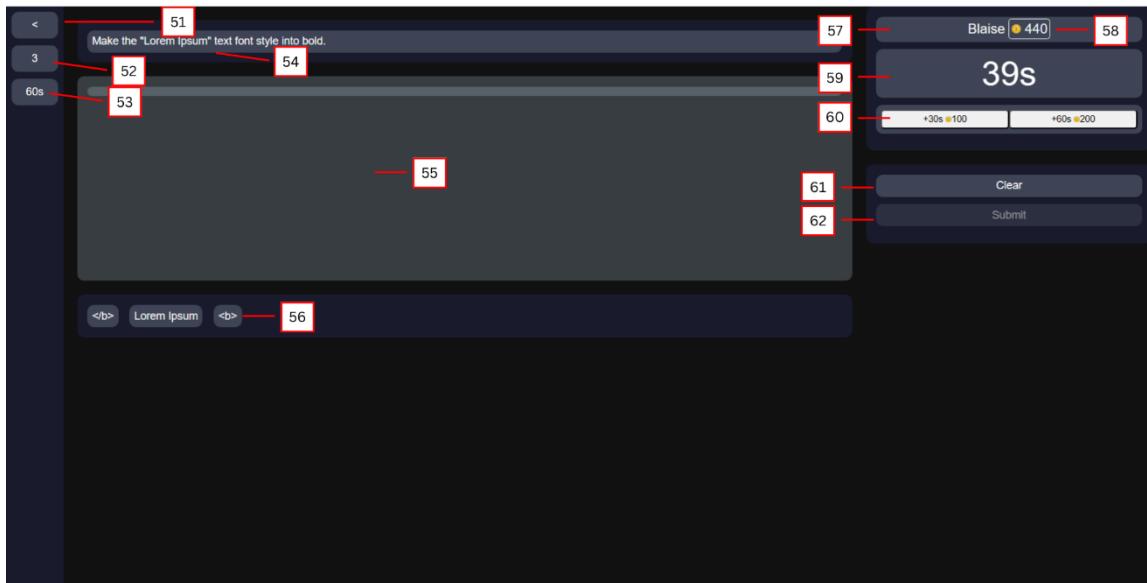


Figure 133: Time-limited Gameplay

- [51] The back button – it will direct you to the game dashboard.
- [52] The number of codes to click.
- [53] The number of seconds to beat the game or finishing the game.
- [54] The question of the game.
- [55] The game compiler – it will display all the codes that you have clicked below.
- [56] The clickable codes – these are the codes that are available to click.
- [57] The player's name or your name as when you play the game.
- [58] The player's available coins.
- [59] The game timer – but this time, the timer is not advanced but decreasing this game has limited of time to finish the time.
- [60] This are the consumable and buyable time for additional seconds to the game; one hundred (100) coins for additional thirty (30) seconds in the game and two hundred (200) coins for additional sixty (60) seconds in the game (note: you can only choose between the two game).
- [61] The clear button – this will clear all the buttons that you have been clicked and displayed on the compiler.
- [62] The submit button – if you finish the game just click this button (It will only be activated if you finish all the required codes to click).



Figure 134: Playground

- [63] Click the **Playground** tab if you want to practice or to build a website from scratch.
- [64] Tabs for web development languages – this part will show the web development languages that are need (note: the tabs will change on the web development languages accordingly)
- [65] The playground’s compiler – you can put your codes here and edit whenever you like on you desired web development language.
- [66] The file name on your code.
- [67] Create new file – the “NEW” button will make you a new file.
- [68] The programming languages – it will display all the available programming and web development languages to use in the playground.
- [69] The run button – it will run you codes you perform in the compiler.

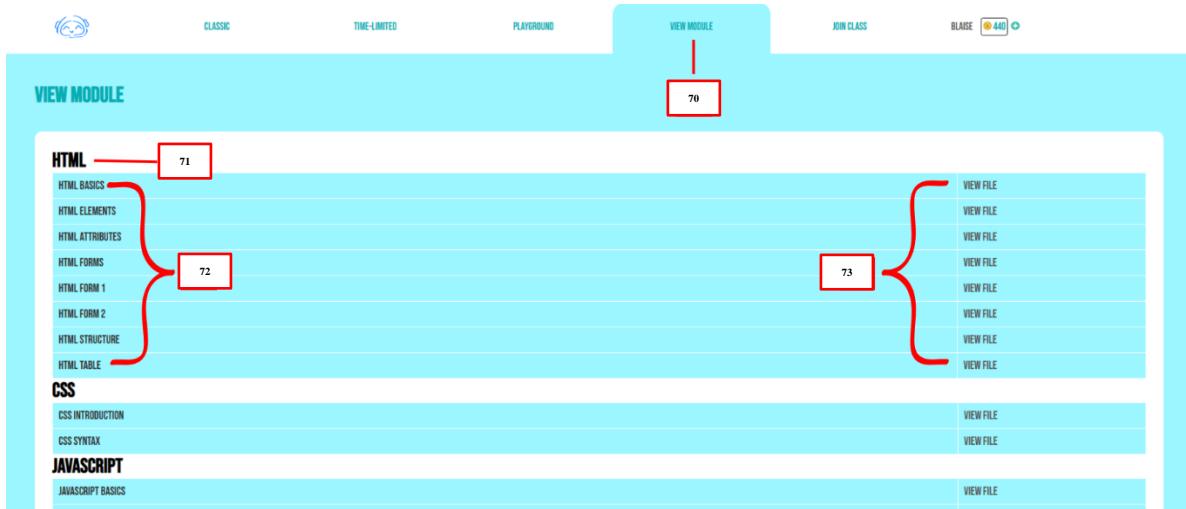


Figure 135: View Module

[70] Click the **View Module** Button to redirect to a new page.

[71] The name of the module.

[72] The name of the available handouts that can be viewed.

[73] Click the **View File** button to redirect to another page for viewing of content.

**HTML Basic**

HTML or HyperText Markup Language created by Tim Berners-Lee in 1990, is a code that organizes a web page's content. Content may be organized using paragraphs, a list of bulleted points, graphics, and data tables, among other options. This article will provide you with a fundamental grasp of HTML and its features, as the title indicates.

What does **HTML** or **HyperText Markup Language** stand for?

- **Hyper** refers to creating linked and nonlinear structures of information
- **Text** refers to the words on the computer screen that we are marking up
- **Markup** is the process of preparing the text to define how it displays when viewed as pages by marking them with "tags"
- **Language** is a system of signs used for communication, whether written or oral

In writing HTML pages, two methods are considered, writing using a text editor program and using What-You-See-Is-What-You-Get (WYSIWYG) HTML Editors.

**Basic Tags and Attributes**

There are six (6) web page elements associated with HTML pages:

1. **Titles** identify the subject or purpose of the page
2. **Body** contains information that displays in the browser window
3. **Normal** text is the text that makes up the main content of a Web page
4. **Headings** are used to set off different paragraphs of text or different sections of a page
5. **Links** are used to connect one element of a web page such as an icon, bullet, line, photo, illustration, or other picture
6. **Hyperlinks** serve as a primary way to navigate between pages

HTML Tags consists of a left angle bracket, a tag name, and a right-angle bracket. It is usually paired to start and end tag instruction. End tag names are preceded with forward slash.

Opening Tag      Closing Tag  
`<p>`      `</p>`  
 Tag Name

*Figure 1: Anatomy of an HTML Tag*

**Anatomy of an HTML document**

There are seven (7) basic individual tags that makes up an HTML document to form an entire HTML page. The `<!DOCTYPE>`, `<html>`, `<head>`, `<meta charset="utf-8">`, `<meta`

Figure 136: Handout

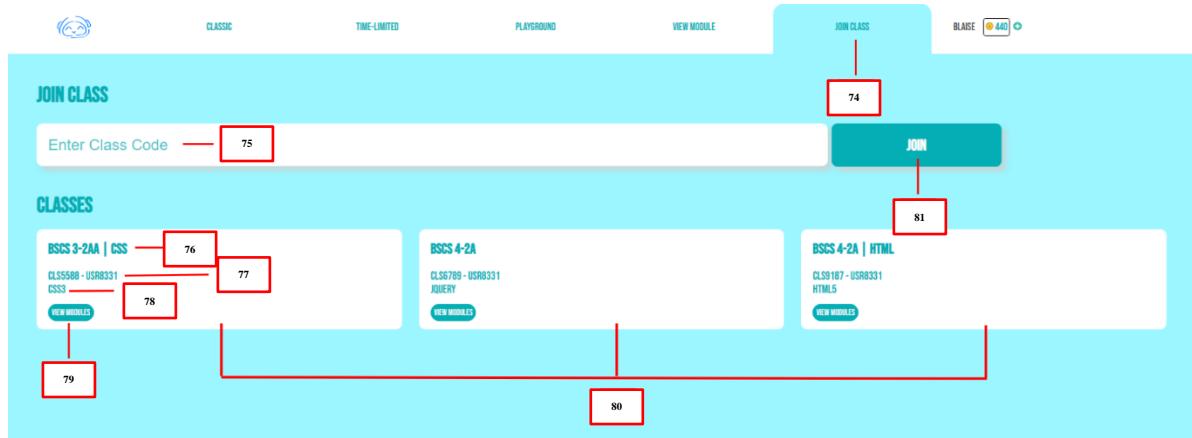


Figure 137: Join Class

- [74] Click the **Join Class** Button to redirect to a new page.
- [75] The field of inputting the class code that is given by the teacher.
- [76] Name of the class.
- [77] The class details ClassId and the UserId.
- [78] Click the **Join Class** Button to redirect to a new page.
- [79] Click the **View Module** Button to redirect to a new page where it can view the entire module of the class.
- [80] Available class that already joined by the student.
- [81] Click the **Join Class** Button, to request to join in class.



Figure 138: Student Class Interface

When the user clicks the **View Module** button it will redirect to the Student Class interface.

[82] Name of the module.

[83] Click the **View** Button to redirect to a new page which displays the handouts available and the list of activities of the module.

[84] The module that is available to access by the student.

[85] The progress of the student that depends on the module f and activities that a student finishes.

[86] The overall score of the student in the class.

[87] The grade of the student that depends on the overall score of the student in the class.

[88] The student leaderboard of the class.

The screenshot shows the 'Inside of the module' interface. At the top, there are tabs: CLASSIC, TIME-LIMITED, PLAYGROUND, VIEW MODULE (which is highlighted), and JOIN CLASS. A user profile 'BLAISE' is shown with a notification count of 440. The main area is divided into sections:

- MODULE CONTENTS:** Shows 'HTML BASICS' with three items: 89, 90, and 91. Item 90 has a red box around it. Item 91 is below item 90. Item 97 is labeled 'COMPLETED'. A bracket on the right groups items 97 and 100, with item 100 also having a red box around it.
- HTML BASICS:** Contains 'BASIC FORMATTING' and a 'DOWNLOAD HERE' button. It is labeled 'COMPLETED'.
- ACTIVITIES:** Contains 'HTML BASICS - QUIZ 1' with items 92, 93, 94, and 95. Item 93 has a red box around it. Item 95 is labeled 'END: MAY 27 SAT' and 'OVERALL SCORE: 20'. Below it is 'QUIZ 2' with items 96 and 97. Item 96 is labeled 'OVERALL SCORE: 15'. A bracket on the right groups items 98, 99, and 101, with item 101 also having a red box around it. Item 98 is labeled '0/20' and 'TAKE QUIZ'. Item 99 is labeled 'TAKE QUIZ'.

Figure 139: Inside of the module

When the student clicks the **View** button it will redirect to a new page where it contains the inside of the module.

[89] Name of the handout.

[90] Description of the handout.

[91] Click the **Download Here** Button to redirect to a new page which displays the content

of the handout, and it is available to download for students.

[92] Name of the activity.

[93] The start date of the activity.

[94] The available attempts that can a student take.

[95] The end date of the activity.

[96] Overall score of the activity.

[97] Indicator that the handouts are done reviewing.

[98] Score and the overall score of the activity.

[99] Click the **Take Quiz** Button to redirect to a new page which displays the content of the quiz/activity.

[100] The list of handouts that are available in the module.

[101] The list of the activities that are available in the module.

When the user clicks the **Download Here** button, it will redirect open new tab for the handout.

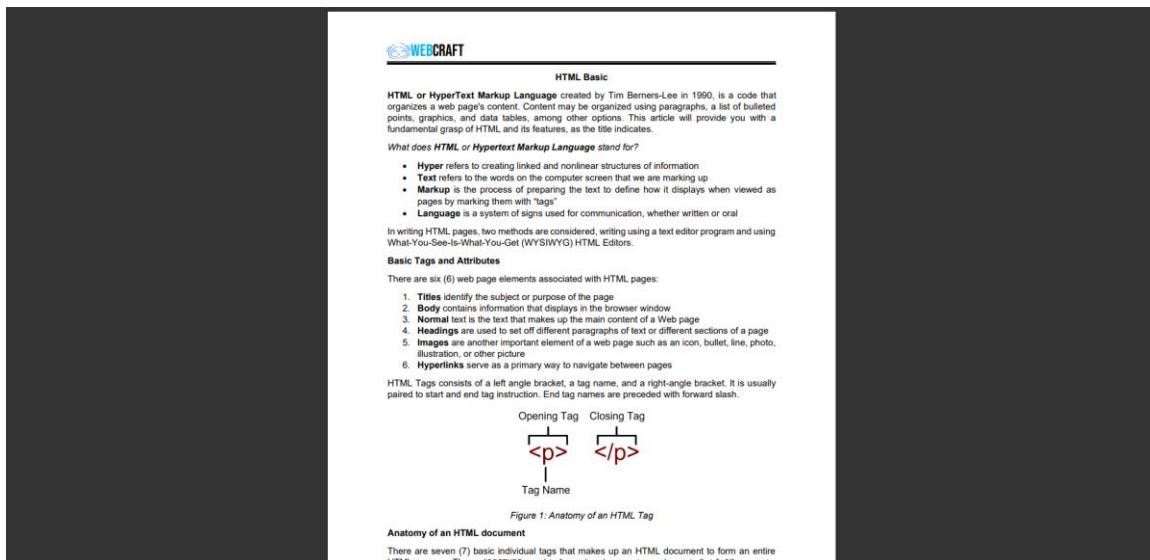


Figure 140: Module Handout

Figure 141: Class Activity

When the student clicks the Take Quiz button, it will automatically redirect to the activity page.

[102] The question number of the activity.

[103] The question description of the activity.

[104] The choices that can be chosen by the students.

[105] The time limit that a student has.

[106] Click the **Submit** Button to have a score based on the correct answer and to redirect back to the class module.

When the student clicks the Name, it will display a pop-up user profile.



Figure 142: Student Profile

[107] The achievement that is gained by the student.

[108] The Game performance of the student.

[109] The indicator for the graph.

[110] When the student clicks the **Edit Profile** button, it will redirect to a new page where the student can edit their profile.

[111] The student user information.

The screenshot shows the 'Edit Student Profile' page. At the top left is a 'BACK' button with a red box labeled [112]. The main area is titled 'PERSONAL INFORMATION' and features a large profile picture of a boy. To the right of the profile picture are input fields for 'FIRST NAME' (BLAISE), 'MIDDLE NAME' (ANGELES), 'LAST NAME' (MERCADO), 'SUFFIX' (SUFFIX), 'BIRTHDATE' (2000-04-25), 'GENDER' (MALE), 'ADDRESS' (PUROK 5 MLSA), 'CONTACT NUMBER' (09451106077), 'PROVINCE' (CAGAYAN), 'CITY/MUNICIPALITY' (ABULUS), and 'CITY/MUNICIPALITY' (ABULUS). A red box labeled [113] points to the 'GENDER' dropdown. At the bottom right are 'SAVE' and 'CANCEL' buttons, with a red box labeled [114] pointing to the 'SAVE' button.

Figure 143: Edit Student Profile

When the student clicks the **Edit Profile** button, it will redirect here in the Edit Student profile page.

[112] When the student clicks the **Back** button it will go back to the previous page.

[113] The personal information of the student.

[114] When the student clicks the **Save** button, it will save the data that the student inputted and will directly go back to the student dashboard.



Figure 144: Activity List

When the user clicks the Score or Grade in the Class module it will go directly in the Activity List.

[114] The activity name.

[115] Start date of the activity.

[116] Due date of the activity.

[117] Score and Total score of the student in the activity.

[118] When the student clicks the **Analytics** button, it will go directly to a new page.

[119] The overall activities of the module.



Figure 145: Activity Result

When the student clicks the **Analytics** button, it will go directly to the Activity Result.

[120] Name of the activity.

[121] The data of the activity.

[122] The grades category of the class where the category and the grade are based from the activity that is given by the teacher.

[123] The grading scale of the class, where it depends on the total score of the student.

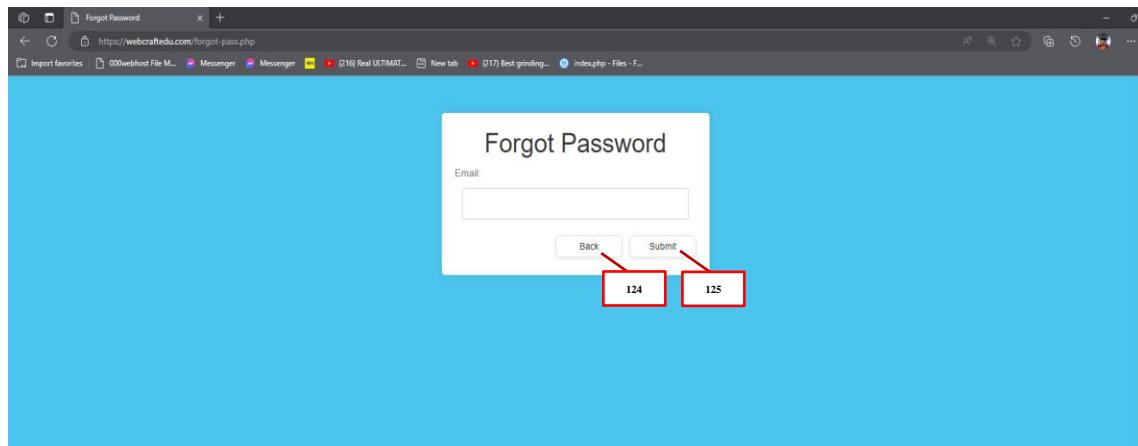


Figure 146: Forgot Password (Student)

[124] When the student clicks the **Back** button, it will go back to the login page of the website.

[125] When the student clicks the **Submit** button, and the user input data is correct or

existing. It will redirect to a new page.

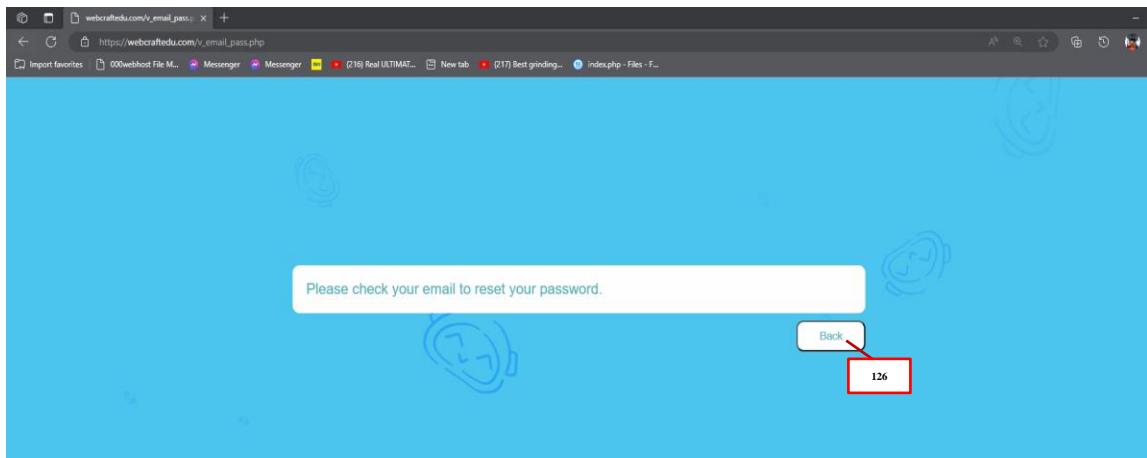


Figure 147: Email Reset Password (Student)

[126] When the student clicks the **Back** button, it will go back to the login page of the website.

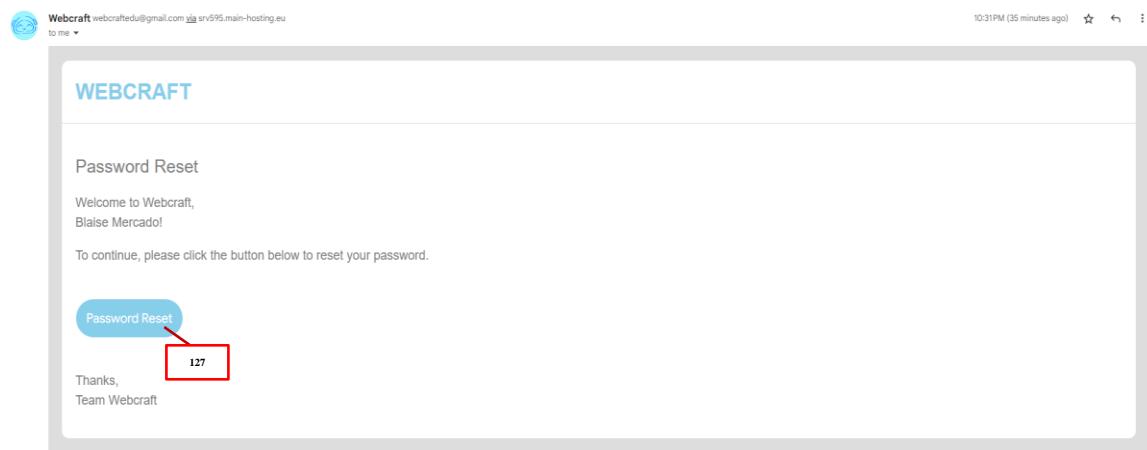


Figure 148: Email Password Reset (Student)

[127] When the student clicks the **Password reset** button, the webcraft will automatically send an email that will let you reset your password.

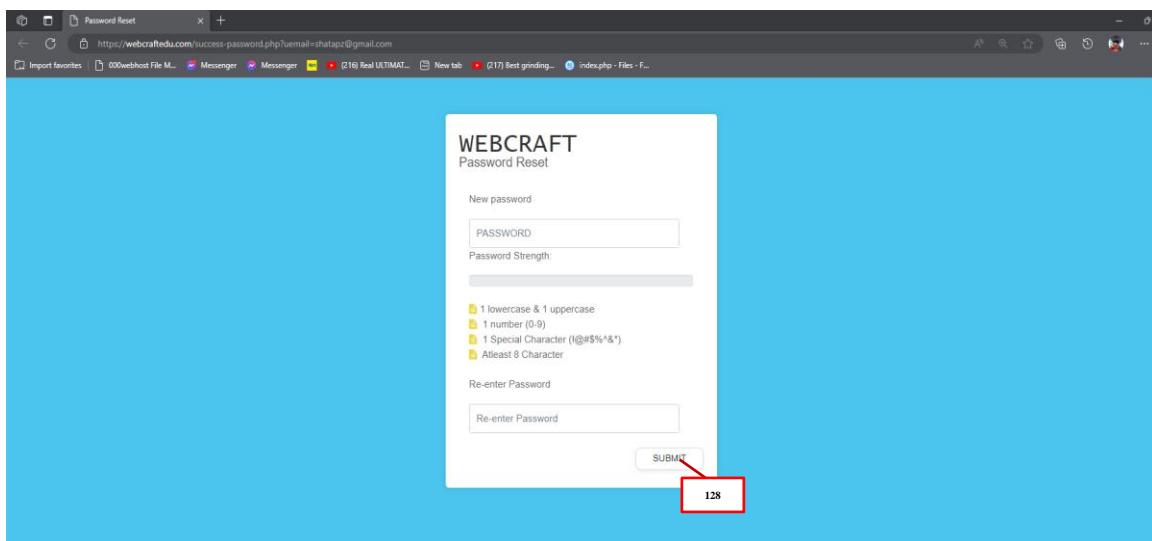


Figure 149: Password Reset (Student)

[128] When the student clicks the **Submit** button, webcraft will automatically change the password of the user.

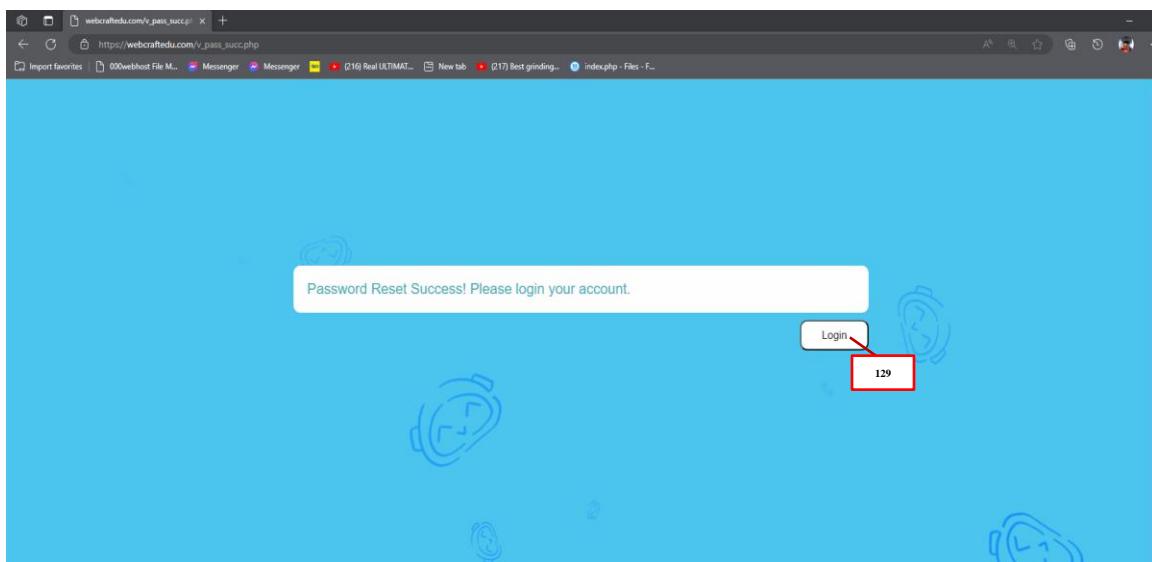


Figure 150: Password Reset Success (Student)

[129] When the student clicks the **Login** button, it will go directly to the login page of the website.

## Guest's Account Manual

Navigate to the **Landing Page** of Webcraft website [www.webcraftedu.com](http://www.webcraftedu.com)



Figure 151: Landing Page of webcraftedu.com (Guest)

- [1] Click to Login an existing account.
- [2] Click to know more about the website.
- [3] Click to Signup an account, you can choose from the choices of signing up as a student or a teacher or as a guest.



Figure 152: Signup Page (Guest)

- [4] Click to signup as a student.
- [5] Click to sign up as a teacher.

[6] Click to sign up as a guest.



Figure 153: Welcome Page of webcraftededu.com for guest user

[7] Once the user clicks on the signup button for the guest, they will be instantly logged in as a guest user. A unique identification number will be generated for the guest user, and it will be prominently displayed on the welcome page of the user interface for the user to easily view. Upon clicking the continue button located at the lower right side of the page, the user will be swiftly redirected to the dashboard specifically designed for guest users.

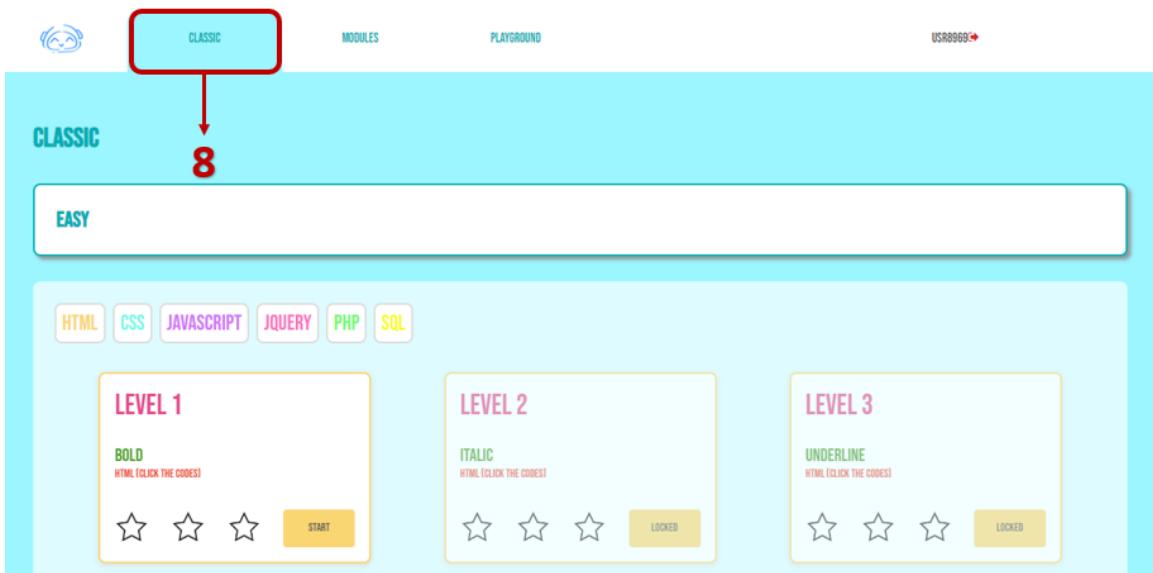


Figure 154: Dashboard of the Guest user (Guest)

[8] Upon selecting and clicking the mentioned button, the user will be directed to the

gameplay section.

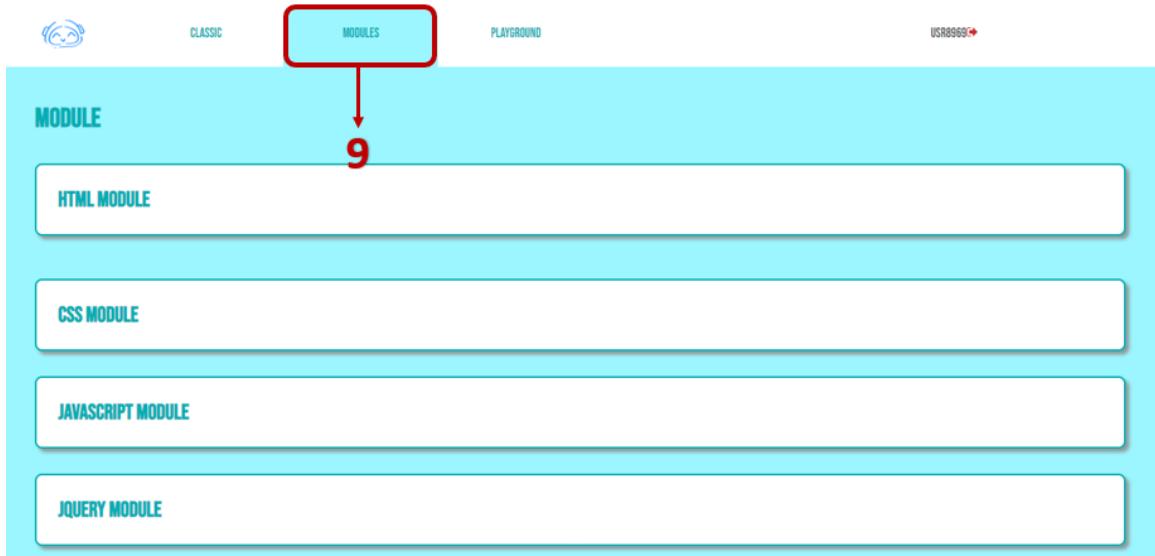


Figure 156: Dashboard of the Guest user (Modules)

[9] Upon clicking the button the user will then be redirected to the modules where it contains a comprehensive collection of handouts available for guest users. These handouts serve as valuable resources that guests can utilize as references to address the tasks presented on the gameplay page.

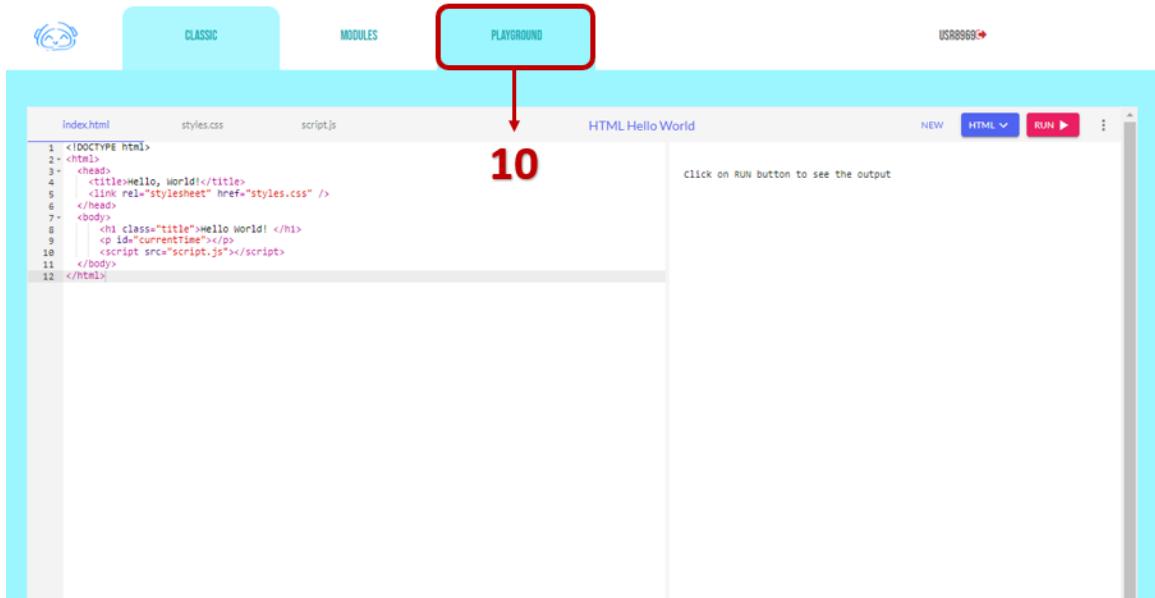


Figure 156: Dashboard of the Guest user (Playground)

[10] Upon clicking this the user will then be redirected to the playground. The playground serves as a platform specifically designed for guest users. Here, they have the opportunity

to apply and refine their acquired knowledge from the game or further develop their skills in a practical setting.

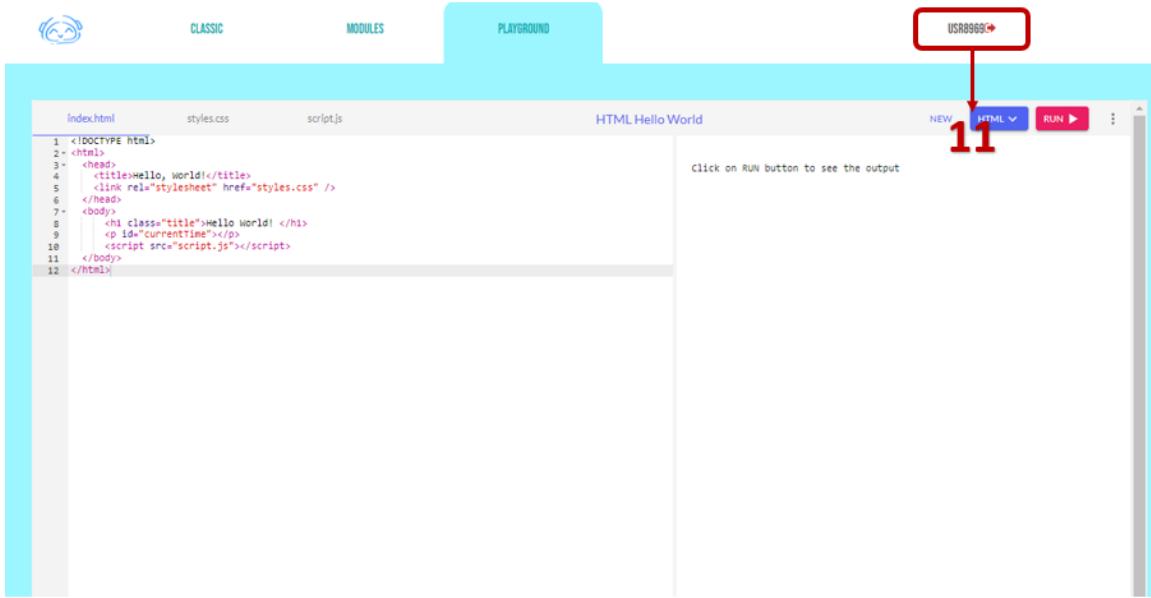


Figure 157: Dashboard of the Guest user (Guest User ID)

[11] The guest user is assigned a unique identification (ID), and by clicking on this ID, they will trigger the appearance of a logout button, enabling them to easily log out from their current session.

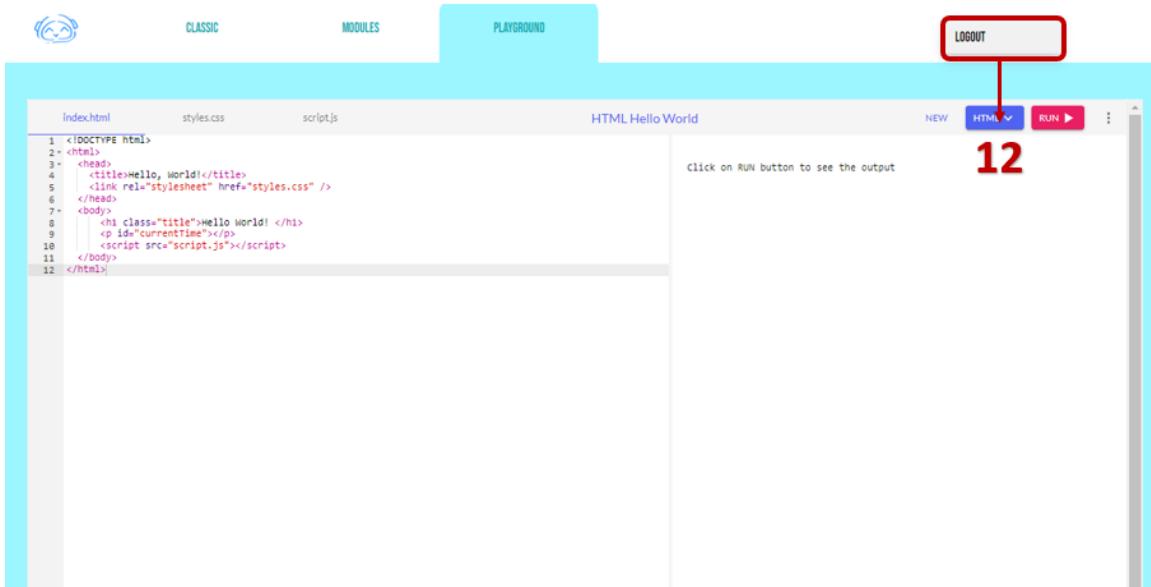


Figure 158: Dashboard of the Guest user (Logout Button)

[12] By clicking the logout button, the user will be instantly logged out from their current session and promptly redirected back to the login page of the system.

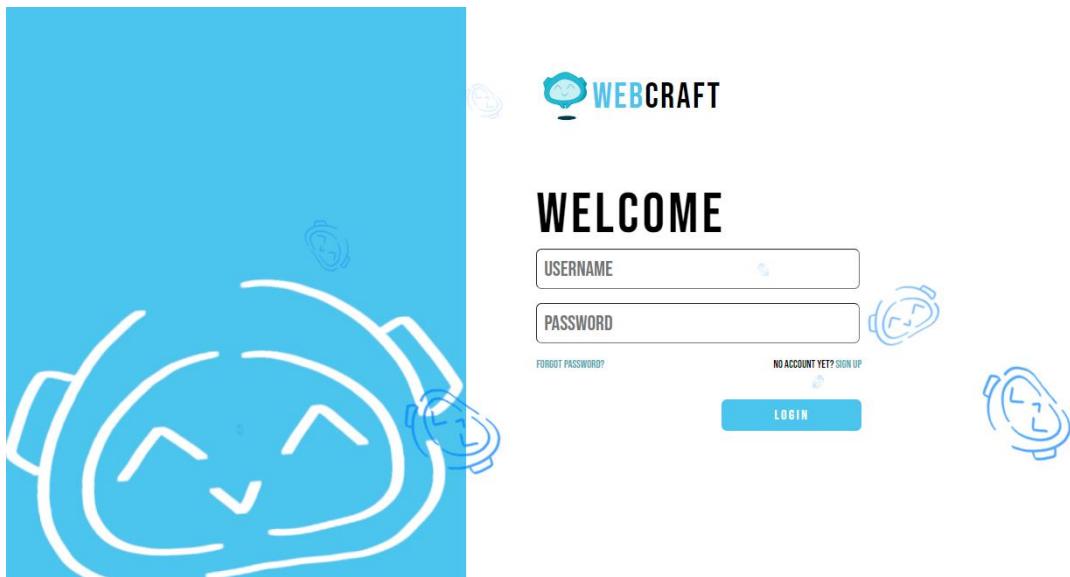


Figure 159: Login Page of Webcraft

The user will then be redirected here on the login page of the web.