Appendix E

PROPOSAL SHEET

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| **CAPSTONE PROPOSAL SHEET**  **SECOND SEMESTER 2020 - 2021** | |
| Title of the Project:    **Collaborative Code Learning Environment using**  **MERN stack** | Name of Proponents:  **Jerald Sayson**  **Ian Christopher Nellas**  **Eugene Mosqueda**  **Stephenson Nolasco** |
| **Rationale of the Study:**  In this pandemic year, there were a lot of students that divert the attention especially on the technology today which is spread globally and it is utilized in their studies such as mobile devices, computers, or laptops to create or research and surf on the internet about the lessons, activity, and assignments that are incomprehensible to the students. Searching for correct and reliable information of what the students need to find is quite hard sometimes and will never be accurate about what the students want to find on the internet. The researchers know how technology evolves, and it keeps evolving every few years but in the field of searching for correct ideas, information, and solutions are quite tricky and hard to find sometimes. That is why the researcher develop an easy way to make it more convenient for the students and lessen their burden in finding a solution and giving them correct information to fix their problem.  **The** researchers created a system that is a web platform for students and self-taught learners especially for those people who are in the field of programming who is looking for an immediate response, answer, and solution for their coding problems. It offers live video chat, text messaging, and a real-time code editor where users and teachers can modify one single editor and can communicate via text, audio, and video chat in one single browser. This will make learning and teaching more fun and easy experience.  Our objective is to provide a live solution for the students and self-taught learners especially to those people who are field of programming that are slowly learning in the field of programming that awaits oftentimes for many hours, days, weeks, and even months for an answer, response or solution online. In addition, the researchers make this kind of system to provide the students and programmers a platform where they can immediately find an answer or solution for coding-related problems via live communication through video chat, text messaging, and real-time code editor. Aside from that, the researchers also want to offer this platform for those people who are passionate about teaching (especially programming) and make money from it.  The researchers motivate this type of system to help the students, self-taught learners, and specifically those people that are in the field of programming. The researchers want to provide and build an environment where both users can collaborate with each other to solve their code-related issues instantly.  **Objectives of the System:**  Our main objective is to create a web-based application, where individuals especially the newbies in programming can approach a person or a teacher who has better knowledge in a certain topic that he/she wants to explore/learn through Web conferencing, Live code editor, and Chat-box. It can also help skilled individuals in their free time to earn extra income.  Especially, it aims to:  1. Appreciate the Basic Programming Topic;  2. User-friendly GUI;  3. Provide students a new and enjoyable way of learning online.  4. Improves the students or persons basic programming skills and;  5. Make the way of teaching more fun and interactive with the teacher and student;  **Scope and Limitation of the System:**  Teachers can earn money while they are in their home using the extra time they have. Provide a better-quality learning to all the students online who take up programming-related courses through live one on one style of teaching.   1. Manage the following: 2. Users 3. Process the following: 4. Register Users 5. Authenticate Users 6. Provide the following for the tutorial:    1. IDE    2. Chat box support 7. Compute payment and Commission 8. Plot schedule for tutorial 9. Reserve schedule for tutorial 10. Navigate webcam or microphone 11. Provide topics for the tutorial:   8.1 Basic Syntax  8.2 Data Types  8.3 Variables  8.4 Keywords  8.5 Basic Operations  8.6 Loops  8.7 Numbers  8.8 Characters  8.9 Arrays  0  8.10 Strings  8.11 Functions  9. Send email for notification   1. Generate the following:    1. Class Schedule    2. Payout Receipt   Limitations:   1. Accept payout online 2. IDE that supports Windows App 3. Connection of more than two (2) students   **Significance of the Study:**  This study will be helpful to the following:  1. Students  The study will provide a system to the students that having problems with their code that they want to fix without waiting. It will help them to easily understand and get the solution to their programming-related problems in no time and with less hassle.  2. Teachers  It will help the teacher who has free time that wants to earn extra income and also improve their mental and logic in teaching. In addition, it also makes them feel happy because their teaching helps a lot of students.  3. Academic Institution  It will help them to lessen their burden in making the student understand their lessons in regards to programming courses.  4. Researchers  This study will give a big help to future researchers on how to give alternate ways on helping the students who is struggling with their programming course they take up.  **Sources of Data:**  In order to develop the system, the researchers decided to gather a variety of information from different sources such as;   1. The researchers took research and studied different online articles that are relevant to our system from the internet. 2. The researchers also gathered JavaScript frameworks and libraries on the internet that is suitable for our desired system functionality.     **Methods and Techniques:**  1. Agile Software Development  To make our system reliable and sustainable, researchers choose agile development because it enhances the capability and improvement of our system. Each of the respondent’s answer or suggestions and users’ feedback will be analyzed and applied it to make improvements and meet the users' expectation on researchers’ system.  2.Design Technique and Object-Oriented Analysis.  It is used to employ to create a model of the system’s functional requirements that is independent of implementation constraints. The proponents will apply the implementation constrains to the conceptual model produced in object-oriented paralysis.  **Models:**  The researchers would apply the Unified Modeling Language (UML) diagrams or representation and notation to exhibit the analysis and corresponding models to our system. Researchers use UML to construct and visualize the processes of the system. It also describes and illustrates the structure designs or architectures of our system, and also exhibit the configuration of our system.  1. Class Diagram  The researchers, would also use this type of diagram to organize, give exact and direct insight into our systems. It focuses on the entities that need and required to develop our system; 2. Use Case  The researchers use this to easily see a graphical representation of a user's possible interactions with a system.  3. Gantt Chart  The researchers are aware that they have a finite amount of time to finish the system that is why the researchers decided to use the Gantt chart so the researchers can track their phasing, goals, and sub-task on every plan and schedule that we're going to make when developing this system.  **Tools:**  In developing the proposed system, the proponents used the following tools:  1. MongoDB  It is a cross-platform document-oriented database program and the researchers used this kind of database to store our corresponding users and also to our systems.  2. Express.js  The researchers decided to use this framework because it's much easier to create and manage complex routing, middleware and much easier in the handling of requests and responses. This framework makes it easier to organize our application into the MVC architecture.  3. React  This is a huge application that is why the researchers decided to use this library to have a better file organization and the researchers want to separate every functionality of this application into components for us to easily debug and find errors and bugs.  4. NodeJs  The researchers want to use JavaScript on the server-side to create an API in our application which is why the researchers choose to use NodeJS.  5. Postman  The researchers don't want to use browsers for handling API testing that is why the researchers choose Postman to simplify our API development.  6. Visual Studio Code  There's a lot of source-code editors available on the internet but the researchers decided to choose VS Code because it is a stable refund there's a ton of plugins and features that they can use to simplify their application development. | |
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