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Developing a Web-Based Student Activity and Automated Grading System with Performance Tracking for Camarines Sur Polytechnic Colleges

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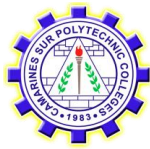
I. **Title of the Capstone**

Developing a Web-Based Student Activity and Automated Grading System with Performance Tracking for Camarines Sur Polytechnic Colleges

II. **Deployment** (Babila, John Rick)

The web-based system will be deployed to the school with a target audience of students and instructors. It will include several phases of deployment, including system setting up for the university server, instruction for instructors or demos, and user testing to assure functioning and usability before to the final launch.

III. **Project Context** (Viñas, Judah Paulo)

Currently, more schools are using online systems through which students can submit their work, homework, and projects. However, it is challenging to manually compute students' grades using spreadsheets, such as Excel, because there can also be errors. Most schools have difficulties in determining the performance of students due to scattered systems and a lot of manual grading, which leads to errors and wastes much time. This is because the new online Student Activity and Automated Grading System would combine the essential processes in an endeavor to make student information more accurate and easier to access. It would increase the grading rate at Camarines Sur Polytechnic Colleges and allow students to see their performance right away. Not only does the project solve crucial problems, but it also offers teachers how they help their students succeed. The system will make learning better and more supportive when it gives feedback on time and when the grading is clear. Besides, it encourages taking responsibility and getting involved in learning; it helps grow academically and to succeed overall.

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IV. **Background and purpose of the propose project** (Acbang, John Patrick)

Managing students' activities and grading, with the help of traditional management such as paperwork and manual calculations, will take a lot of time and effort. This project aims to design a web-based system which will make both processes much easier through task automation and a better way of tracking the performance of students. Ultimately, it aims at making the life of teachers easy and students' easy too, as teachers can prepare activities, assignments, and quizzes on that platform, and then the students can upload their work over the internet. The system will automatically grade submissions so that the teacher will not be wasting too much time and so that students will get instant feedback. The tool also includes some performance tracking tools, where progress over time by students and teachers can be easily viewed. Using dashboards and reports, everyone can easily spot areas for improvement or celebrate achievements. This will help in keeping students on top of their learning and support teachers in providing much better support. This would lead to a more organized, transparent, and engaging learning environment in which students and teachers can concentrate more on growth than on administration.

V. **Goals and Objectives** (Viñas, Judah Paulo)
1. Student Activity Submission - The system allows students to submit their assignments, projects, and other activities online, addressing the modern educational requirement for digital submissions.
2. Automated Grading - The project aims to automate the grading process, reducing the reliance on manual calculations and minimizing errors. This will streamline the evaluation process for instructors.
3. Real-Time Performance Tracking - The system not only grades assignments but also tracks student performance over time, providing immediate feedback to students and insights to instructors.
4. Enhanced Learning Environment - By automating these processes, the system will create a more organized and efficient learning environment, allowing instructors to focus on teaching rather than administrative tasks.

VI. **Project Strategy (7 SDLC Phases)** (Viñas, Judah Paulo)
1. Planning - This phase involves collaboration with key people who include instructors and the students themselves to find what the project needs and set clear goals. In fact, teamwork with all these people would ensure that their views are considered and incorporated into the system that ultimately will work well for its users. A tentative timeline and budget will

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also be created to assist in tracking and controlling the project's development, as well as managing its resources.

2. Analysis - The team will have detailed interviews and surveys with their stakeholders to get full details of the needed system features. This includes figuring out important functions like automated grading rules, performance tracking measures, and user management skills. The data will be taken down and written down in a requirements specification document that will serve as the foundation for the next phase of design.

3. Design - This is where the system architecture would be designed outlining the structure as a whole and how web-based platform elements would interact with each other. Prototypes of the user interface will be developed to show up the user experience so that users see exactly how things should work. This process shall be undertaken in collaboration with stakeholders to obtain feedback and allow design refinement based on users' expectations and institutional standards.

4. Development - The technical team will use the right technologies to create an online system, such as HTML, CSS, JavaScript, and a strong back-end framework. Their work will be in compliance with coding standards and best practice to ensure that the system is secure, scalable, and maintainable, and good teamwork and clean, high-quality code will be encouraged through code review and version control.

5. Testing - The testing phase will have comprehensive testing plans that include unit testing to check every part, integration testing to ensure that various modules work well within a system, and UAT with the aim of verifying that the system really meets what the stakeholders want. Critical feedback coming from the UAT will help point out any potential problems or areas of improvement before the launch of the system.

6. Deployment - The completely designed system will be deployed in an actual environment. This involves moving existing data and ensuring system compatibility with the current infrastructure. A complete training program will be provided to users, including teachers to familiarize them with the new system's features and functions. Users will receive ongoing support during the changeover.

7. Maintenance - The system establishment phase will establish a framework for continuous support, updates, and enhancements of the system. There will be a regularly scheduled maintenance schedule to review technical issues, apply security patches, and add user feedback for continued enhancement. This proactive approach will ensure the system's effectiveness, security, and responsiveness to the institution's needs as they evolve.

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VII. **Expected Results** (Babila, John Rick)

We are developing an online system that can drastically reduce the time it takes for faculty members to grade. We shall use high-end algorithms with greater accuracy and smaller human error rates while automation in grading procedures. Also, each student will get analytics of performances so as to track progress in real-time. This will feed students just the right type of feed and resources they need depending on how they are doing. This idea primarily makes life easier for teachers as active learning activities are now integrated into classes. The goal is more academic results with teaching having a more efficient experience, thus doing the entire process much more productively.

VIII. **Innovation** (Acbang, John Patrick)

The rest of them are combined with an integrated performance tracking system and automated grading. Instead of separating the two, we combined everything into one pot. This way, the educators can get a complete view of a student's progress and make informed decisions to help the student succeed. In return, our adaptive learning technologies will personalize the experience of learning for all students. Also, it will align grading and performance analytics with the new practice of education in creating a proactive and continuous environment.

IX. **Organizational Background** (Acbang, John Patrick)

CSPC has been able to successfully win many fronts in using the potency of educational technology, and we have completed some innovative projects in the past and aim to take this forward and change the education sector. Our team is made up of experienced IT professionals and trainers who keenly understand what project management and educational technology are all about. We have some experience in meeting different needs that students and faculty might have. Moreover, CSPC promotes teamwork; inputs are valuable. A solid foundation of support and growth towards professionalism has well geared CSPC for this project and prepared it to create something that will benefit students.

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X.   Estimation (Gantt Chart) (Viñas, Judah Paulo)
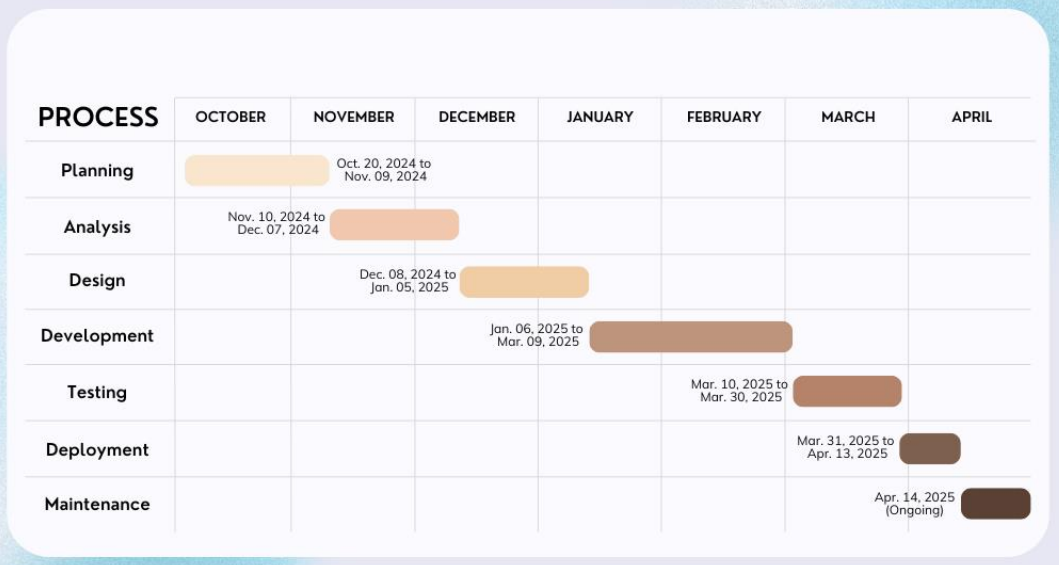
XI.   Functional Requirement (Viñas, Judah Paulo)
1. User Authentication and Roles
   - Different user roles (students & instructors) need to have distinct permission levels.
2. Activity Submission
   - Students must be able to submit various types of assignments (documents, presentations, projects).
3. Grading Management
   - All grades for activities, assignments, or projects are hand-entered by instructors.
   - The system should automatically post the combined marks/grades by using the weighted scores from individual activities submitted by the students.
   - Some performance metrics, such as participation and attendance, should be entered by the instructors and included in the total grade.
   - The system should allow instructors to view and alter, and edit individual grades if warranted.

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4. Performance Tracking Dashboard
   - A performance dashboard will allow instructors to see student performance metrics such as grades and submission status.
   - This requires the students to request permission from their instructors to view the grades dashboard.
   - After permission is given, students can see their performance scores, which will show their individual activity scores and overall grades.
5. Reporting Tools
   - The system should provide reports on individual and class performance that can be exported to different formats (PDF, Excel).
6. User Support and Help Resources
   - Should have a help section containing guides, FAQs, and technical contact information of support.

XII. **Non-Functional Requirement** (Babila, John Rick)
1. The system must be user-friendly and accessible on various devices.
2. It should ensure data security and compliance with privacy regulations.
3. Performance should be optimized to handle concurrent users without lag.
4. The system should have an uptime of at least 99.5%.

XIII. **Impact of the Project** (Acbang, John Patrick)

This project will develop an online system with functionality to track student activity along with automating grades and incorporating in-built performance monitoring functionalities. This is an effort toward addressing a necessity that an online platform would offer with regards to centralizing students' activities and the issue of automating grading, which saves time and eliminates human error. Real-time feedback on students' progression would be instantly provided in that educationists would track trends and make an early intervention thus leading to better learning outcomes. This tool can help automate some of the recurrent tasks hence giving room for the teachers to concentrate more on issues such as instruction and student support.

The outputs will, therefore, provide new knowledge to the industry as it will demonstrate the possibilities that automation and data-driven insights may present to education management. It will be scalable, affordable, and effective enough to attract academic institutions seeking a balancing point between efficiency in administration and student engagement with technology. Performance tracking will unearth actionable areas where teaching practices must improve continuously for improved student outcomes.

Suited to enhance the effectiveness of education through innovative and data-driven decision-making, it perfectly fits well in line with the strategic

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priorities of the founder. The outcomes of this project would empower teachers, students as well as the administrators by offering efficient effective and transparent learning environments. Ultimately, the system would enable educational institutions to have a much more responsive learning environment because it delivers help to students just when they need it while streamlining operations across educational institutions.