COMPUTER SCIENCE

CCS1410: System Analysis and Design

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Initial Analysis of a Company System

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Initial Analysis of a Company System

April 9, 2022

Abstract

This report will briefly describe the previous program that was used to manage student information, as well as the problems that users had with the previous version. It will outline the concept of the new version of the software in relation to the interview that was held, in addition to the old version and its difficulties.

Contents

1 Introduction

The goal of this project is to document the process of modifying the client's procedures for keeping track of student information. The current version of the program, as well as its issues, will be demonstrated during the report. Aside from that, there will be a description of how the customer wants the software to appear, as well as a brief explanation of all the functions that the new application may perform.

2 Brief Description

The university's role is to gather, manage and sort all student information for the specific department and only for the bachelor's program. The types of information they gather from the students are numerous, and all the information needs to be sorted somehow. Starting from the absences the users track them using Google Sheets. After absences, the users also track the grades of the students using a separate app. Moreover, for the general information, they sort them in a different database system. As a result, it takes time for users to navigate through the programs and enter all of the new information for each student. Taking this into consideration, the new application must be more user-friendly and useful.

3 Existing Program

As said by the interviewee the old version of the program is not wanted anymore by the company for various reasons. As previously said, users must browse through the applications in order to sort all of the information gathered. As can be observed, the current version is impractical due to the fact that the user needs a large number of apps to manage all of the data. Aside from the fact that everything is dispersed among multiple programs, the majority of data must be entered manually by the user. Unfortunately, all of the computations that may now be done by computers must be done by the user themselves, from calculating absences to comparing grades and sorting them in different orders.

For users, the existing system does not give the optimum functionality. Taking this into consideration, the new application must be more user-friendly and useful. The following are the issues that must be addressed in the new construction program. Because everything is

dispersed over many locations, it takes time to set up and switch between them. The new system will allow users to effortlessly browse between different parts, making it more user-friendly.For this type of issue, the user desires a completely new version of the program that bears no resemblance to the previous version.

4 Problem Definition

Nothing from the prior system will be maintained, as previously stated. Everything will be contained in a single software.

According to the client, staff and administration members of the University have the ability to access the program, but not all of them will have the same type of access.
There will be two types of access:

- Full Access: Head of Department, Course Administrator and Director Program
- Limited Access: Staff(Depending on the operation required)

Also as mentioned before the system only covers one program (bachelor's) and only one department.
Regardless of access, the program is visible to everyone. The system must be accessible via the internet. Although mobile access is possible, it is not a priority for the customer at this time. In order to log in, the person must have a valid username and password.

5 Student Information Management

Student Information Management is an efficient feature in which information as registration number, student's name, surname, father's name and country of origin are specifically stored. After the information is stored, it will be displayed at all times for everyone to view but only the administration staff is given access to change the information when necessary.

5.1 Student Modification

The information for the students can be stored anytime and it can also be deleted. The diagram in Fig.1 illustrates all the possible ways that a student can be modified.

Before being able to modify first the user needs to be confirmed that they are allowed to modify otherwise they will not be able to do so. After the user is confirmed that they can modify the students there will be two particular modifications.

First will be for new students where the program will auto generate a registration number and after that the student information will be inserted. After all of the data has been entered, the application will verify that the data has been entered correctly. If the information is invalid, the user will be requested to provide correct student information; otherwise, the program will proceed with the process and approve it.

Secondly, there will be two types of updates available for existing students: changing a student's information and removing an existing student. To alter a student's information, the user makes the changes, and the system verifies that the changes are correct. If they aren't, the user will be prompted to redo their adjustments. If the changes are valid, the user will have the option to approve the changes, at which point the changes will be recorded and the student information will be updated. If the user cancels the changes, nothing will be changed.

The final element of the update for current students is to delete a student. To do so, the user must first select the student or students to be removed, and then confirm the action. This confirmation is for security purposes in case the user unintentionally deletes another student.

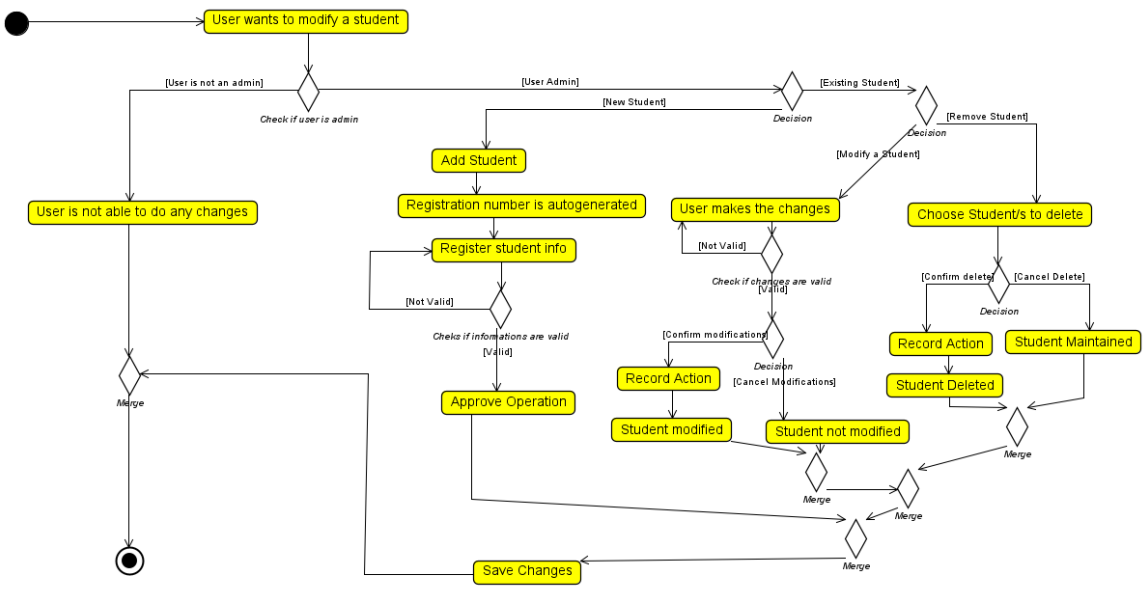

Figure 1: Modify a student

5.2 Filter and Sort Students

Except the regular view mode, there will also be an option to filter and to sort the students depending on the categories the user specifically desires. In the Fig.2 we can see the two possible outcomes.

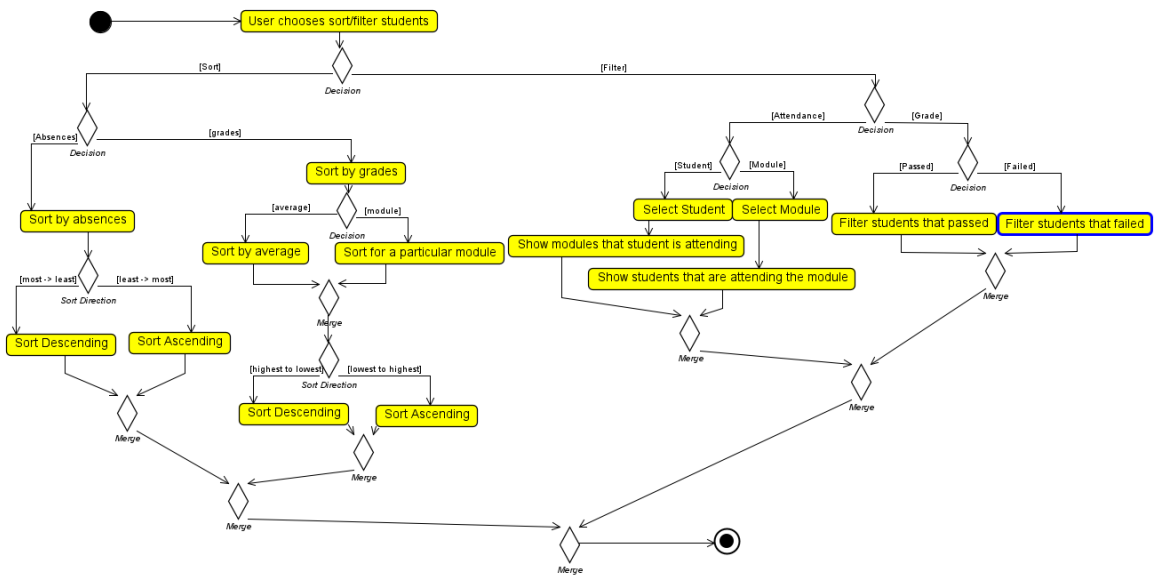

Figure 2: Filter/Sort Options

First there will be the sorting option from which the user can choose to sort the student by absences or by grades.

Sorting by absences will have two types of sorting: decreasing and increasing. For the decreasing sorting the student will be sorted from the ones with the most absences to the ones with the least absences. The opposite will be for the ascending sorting.

Sorting by grades will have two options before defining the order. The user can choose to sort students by the average grade or sort by the grade on a particular module. After this the sort order will be defined if it is ascending or descending.

For the filter option the student can be filter by the attendance or by grades. For the attendance filtering the user will have two options. Select the student and the program will show the modules that the student is attending or select the module the the program will show only the student that are attending the module. The grade option will be simple. Since there are no classifications for the students that have passed, the user will be able to choose if he wants to see only the students that have failed or the students that have passed.

6 Module Attendance Management

Module attendance management describes the exact attendance of every student for specific modules that the student is expected to attend every academic year. The attendance of all modules is necessary to be viewed, so that the academic staff can see which students are currently attending modules at any time period and the list of modules a student is currently attending.

7 Absences Management

This specific part of the program is entirely made for the number of absences the student has acquired during the modules in each semester. The absences limit is calculated using a formula, in which all of the lecture hours for a module inside a week, are multiplied by 12 which is the full amount of weeks the semester has. So in order for the student to pass the module, they needs to attend 25% of the whole module. When a student misses a lecture for an excused reason, the absence will still appear inside the data program since there is no category to excuse students for any specific reason. Course administrators will receive email notifications automatically by the system, informing them only when an individual student is approaching or going over the absence limit. Students will also be notified about their absences but not in an automatic way by the system but instead by the administrator who will manually have control over the absence report and when to send it. Absences can be changed at any point in time by the authorized individual. Marking the attendance is a responsibility of the staff member, as each one of them has access to enter the attendance of every individual student in the class. If the absence limit is exceeded, the information that the student has failed the module will be displayed, and the module will be failed with a 30 grade. This can also be clarified in the Fig.3 shown below.

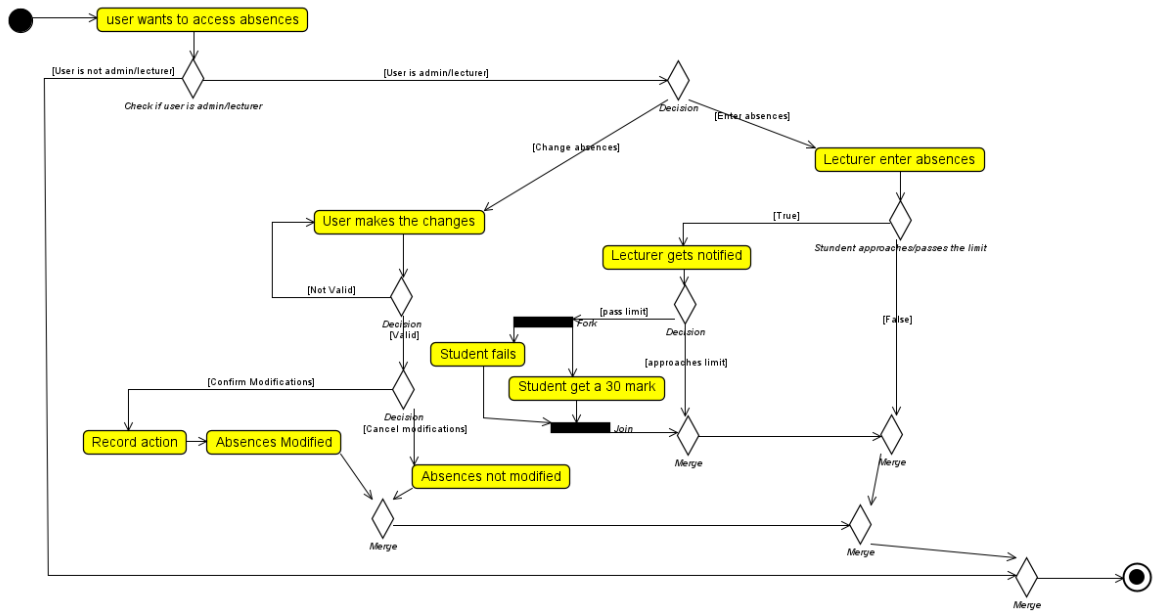

Figure 3: Absence Management

8 Grades Management

The system will be graded on a scale of 0 to 100, with a passing mark of 40. In the new program, there will be no categorization of passing grades, as stated by the respondent. The grade will be entered by the professor who teaches the module, with the option to modify it at any moment. Absences will play a significant role in the grading system. This is due to the fact that if a student exceeds the allowed absences, they will automatically fail and receive a grade of 30, Fig.4.

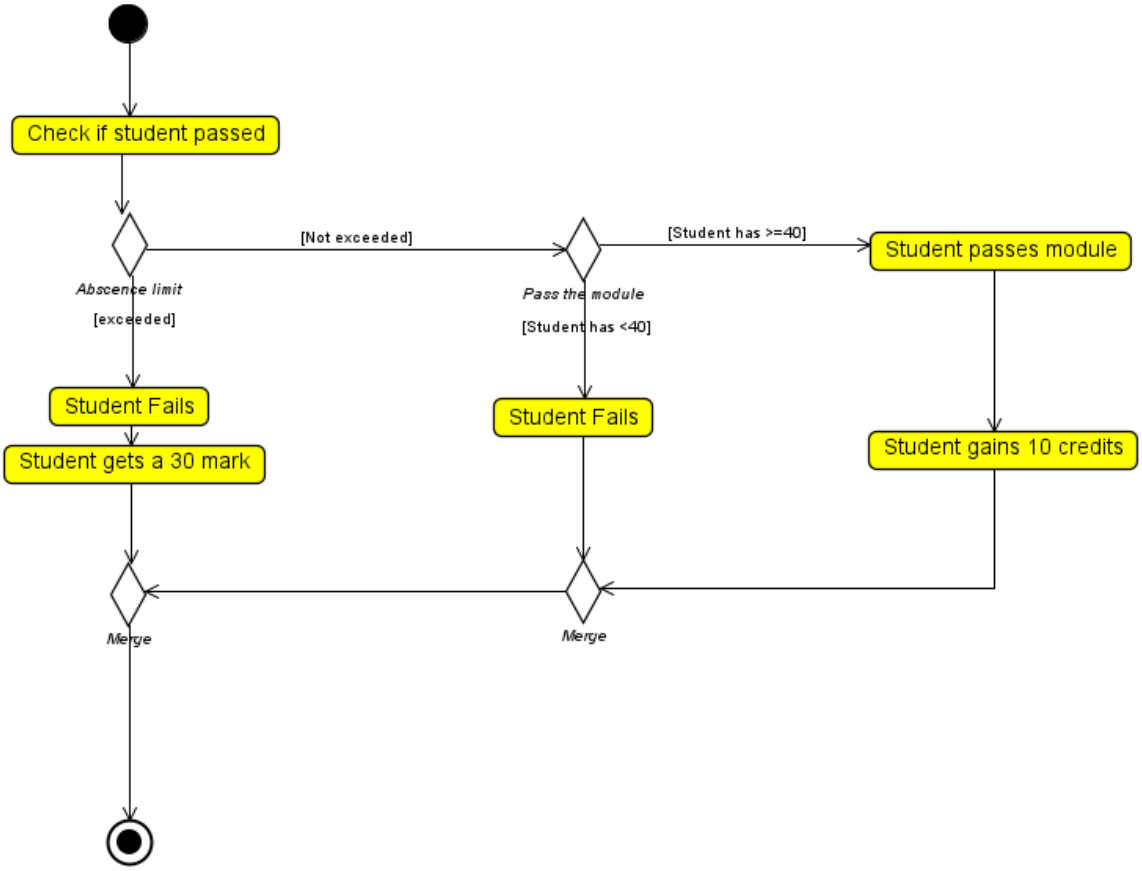

Figure 4: Passing a module

In addition, the application should be able to calculate the year's average grade. Furthermore, when students pass a module, the application will automatically award them 10 credits. The learner will proceed to the following stage if he or she achieves a minimum of 100 and a maximum of 120.

9 Student Stage Progression

Students must achieve the conditions outlined above to order to proceed from one stage to the next. The student will automatically advance to the next step if they meet the requirements. Credits are accumulated as students proceed to the next stage, and by the completion of their studies, they must have a minimum of 300 and a maximum of 360. There will be no reassess-

ment for failed modules, so they would be passed or failed. The student's information will never be erased from the program's databases, even after they have graduated.

10 New Program Concept

After each and every possible scenario has been discussed and clarified. The new program will be more user-friendly and will assist users in a variety of ways. Starting with going through different portions of student information in the new program, will be much easier because everything is contained in one program and the user will not waste time navigating through many programs.

Everything, starting with general student information, will be in one place and listed in the correct order, making everything plain to the user. The administration staff will also find it easy to alter the information for a specific student. Furthermore, depending on how the user wishes to sort the pupils, there will be the ability to sort them in a variety of ways. There will also be a simpler way to add, remove, or alter students. Moving on to attendance management, users will be able to view which students are present in the selected module, as well as a list of the modules in which the student is enrolled. The absence management system will be highly useful since it will compute if any of the students have exceeded their absence limit and promptly notify the administrator through email. This will alert you not just if a student has exceeded the limit, but also if any of them are approaching it. The system will not automatically notify the student, but it will notify the course administrator, who will then notify the student.

Furthermore, if the absence limit is exceeded, the student will be automatically failed in that module. The grade system will be simple to use because it will allow administrators to make numerous changes and will be related to the student's advancement from one stage to the next. This will be accomplished through a system that will automatically calculate the students' credits and determine whether they have passed or advanced to the next stage.

11 Conclusion

To summarize, the new program will be easier to use and will allow users to feel more at ease when using it. Aside from its ease of use, the program will assist the user with a variety of calculations that previously required a long time. Furthermore, when compared to the previous program, the new program will be more user friendly and will benefit not only the administration and lecturers, but will also be a great way for students to keep track of their absences, grades, and other important information.