VIA University
College

Project Description

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Software Technology Engineering

1st semester

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1. Background Description

VIA University College, located in the Central region of Denmark, educates future engineers, designers, teachers, education specialists, nurses among others. It offers more than 40 full degree programmes at eight campuses across the region. VIA's departments of further education have more than 20,000 annual participants in programmes on the diploma, academy profession and master's degree level. This means that it is the largest institution for further education in Northern Europe. Campus Horsens offers several programmes taught in English primarily within the fields of architecture, engineering, marketing, management and business. In Danish, Campus Horsens additionally offers programmes in nursing and social education. Approximately half of the students are international, either exchange students or full degree students. With all these programmes offered in both languages, it is only natural that many students come from other countries than Denmark. (Study in Denmark, 2019)

Despite the well-structured system working system, with so many students and faculty, the university faces challenges scheduling exams and examiners without conflict. Students and faculty, the stakeholders, are unable to efficiently access information about when, where and who will be administering an exam. The exam planning currently maintained manually in a static excel spreadsheet, would require some improvements to avoid creating unnecessary stress for both students and teachers due to the difficulty of planning ahead.

Firstly, in the current system, it is difficult to keep track of the room availability, size and available equipment resulting in ad-hoc room changes leading to lost exam time and potentially inadequate presentation equipment in the room. Room overlapping is one of the major problems occurring every exam period, therefore causing a lot of stress on examiners and students alike. Examiners need to find a new empty room for their exam and the students need to be informed of the made changes, which in some cases may take a lot of time. On the other hand, the exam that was currently taking place in the overlapping room may be interrupted and disturbed.

Secondly, if a teacher or external examiner is assigned to multiple rooms at the same time, they need to postpone their exams and take up only one of them. This postponing process may take a lot of time, it is necessary to find a room, a date and a second and third examiner for the other postponed exam.

At the same time, students may have the same problem as aforementioned, but in their case, if there is no way to postpone one of the exams, for example if both exams are written, they might have to miss one of them in order to go to the other. This causes unnecessary stress for the students to take up the exam in the next exam period.

Thirdly, the equipment in every room on the campus may vary, depending on the usual usage of said room. For example, an oral exam may take place in a room with no projector and/or no available connection types for the projector. In this case the examiners or students must find a room or cables from other rooms to be able to start their exam and it takes time.

Every other problem considered is as follows – the schedule is preliminary, which means it can be updated at all times, sometimes without the knowledge of the students and examiners, the janitors, who assemble the rooms, may need to do it the night before, because the rooms may be very far away from each other, which causes extra work. Students may feel uncomfortable in unfamiliar rooms, causing them to be nervous or to be anxious, which reflects poorly on their performance. Information such as co-examiners exists in a separately managed list, creating extra work and upkeep and it also does not facilitate informing students of who will be present during their exam. While not a necessity, this information could be helpful for students during their preparation for an exam.

Currently there are solutions for such challenges available in form of team calendars and office scheduling solutions (e.g. MS Office Outlook). However, these systems cannot implement the various requirements regarding maximum exams administered by a teacher and taken by a respective student and moreover, softer requirements such as information about co-examiners would be difficult to input and make available to students. The end schedule which is shared with the teachers and students as a pdf no later than December 1st for the winter exams and no later than May 1st for the summer exams on Studienet isn't easily readable and that's mostly a limitation of what can be done with just using a table or a calendar to show a large schedule. In order to update the schedule, it has to be redownloaded from the studienet.via.dk (Studienet VIA, 2016).

For the international student, the assurance of certainty regarding the exam period leads to the avoidance of unnecessary and unwanted costs, delays, and myriad other issues arising from a poorly executed schedule. This also creates unnecessary workload and loss in time for the secretaries.

Newcomers, who are not acquainted with the scheduling system of VIA are not accustomed to said system and are in a disadvantageous situation regarding keeping track the amount of incoming information and thus become increased likelihood of failing. It is difficult for said students to access detailed information regarding classes, examiners as well as dates of exams and get notified in case of any changes. To acquire the necessary information regarding examination rooms and further still to identify the time that one should be present on such an exam is overall a challenging endeavour due to the uncomfortable schedule system.

2. Problem Statement

The main problem is creating an exam scheduling system for scheduling exams for 1st-4th semester software engineering students.

In order to solve this problem these questions are to be answered in the process:

- How do we prevent overlapping data in the schedule?
- In what way do we make the schedule accessible to the students and teachers?
- Should the user be able to update the schedule later?
- What number of examiners will need to be assigned for each exam?
- In what way will the students and teachers be notified of changes in the schedule?
- What can be done to make the system more intuitive to the secretaries?
- What options can be included to make the rooms easier to assemble for the janitors?
- In what way is it possible to know which classroom is the most comfortable for a certain class?

3. Definition of purpose

The purpose is to create an exam scheduling system which would ease the workload of both secretaries, students and teachers, which have to find a room by themselves in case of conflict, also avoid room conflicts in general by creating a constructive scheduling system which would be easier to both edit, navigate and use.

4. Delimitations

Due to the scope of the project some problems will not be solved:

- The system will only include a single user (the secretary).
- The system will only be for Software Engineering students.
- The 5-7st semesters will not be included.
- The system will not send any type of notifications.

5. Methodology

The method that the group chose to use to fulfil the tasks of the project is the Waterfall method. The students will set goals which are going to be accomplished one by one to keep a constant flow for the project. The waterfall method is a project activity divided into sequential phases. This means that any phase in the development process begins only if the previous phase is complete. It is therefore stringent and requires timing discipline from the team members. In this waterfall model, the phases do not overlap. The advantages of waterfall development are that it allows for departmentalization and control. A schedule can be set with deadlines for each stage of development and a product can proceed through the development process model phases one by one. (MAYBE A BETTER-QUALITY PICTURE HERE)
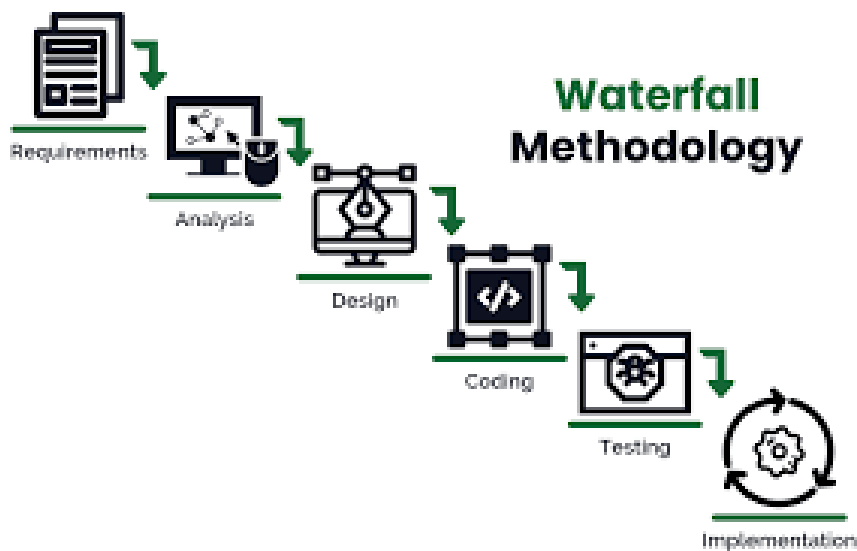
6. Time schedule

In order to have a successful project, a lot of planning ahead will be needed so that the process will go smoothly from one point to another. The group will need to make an exact schedule for the working plans so that the project will be ready until the deadline which is on Friday 20/12/2019 1pm. The time spent on the project is planned to be 137.5 hours per student, so the expected time investment for the project is 550 hours over a 14-week period. Therefore, each student is expected to work 7 hours a week and 37 hours the last two weeks. There are multiple milestones to be achieved during the project:

(HERE WE SHOULD CHOSE WHICH OF THE TABLES/DIAGRAMS IS THE BEST OUT OF THE 3)

TASK NAME	START	FINISH
PROJECT DESCRIPTION WORK HAND IN DEADLINE	25/09/2019	02/10/2019
PROJECT DESCRIPTION REVIEW AND MAKING ADJUSTMENTS RIGHT AFTER	02/10/2019	23/10/2019
ANALYSIS START	23/10/2019	30/10/2019
REQUIREMENTS AND USE CASE FEEDBACK	30/10/2019	06/11/2019
ACTIVITY DIAGRAMS AND DOMAIN MODEL	06/11/2019	13/11/2019
CUSTOMER SESSION: FOR ANALYSIS DOCUMENT	13/11/2019	20/11/2019
DESIGN START: CLASS DIAGRAMS AND SEQUENCE DIAGRAMS	20/11/2019	27/11/2019
DESIGN WORK	27/11/2019	04/12/2019
IMPLEMENTATION START	04/12/2019	20/12/2019
DEADLINE	20/12/2019 13:00	-

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7. Risk assessment

Risks	Likelihood Scale: 1-5 5 = high risk	Severity Scale: 1-5 5 = high risk	Product of likelihood and severity	Risk mitigation e.g. Preventive- & Responsive actions	Identifiers	Responsible
Mistakes in the code	4	2	8	Check the code again, debug, analyse, difficulty level	Errors when running the code	Pál Jámbor
Bad communication between students	5	3	15	Brainstorming, finding common opinions, figuring out the communication issues	Unfriendly or rude words from one student to another	Gabriela Melania Poteras
Students becoming disengaged with the project	3	5	15	Encourage group members to keep on working	Difficulty, monotonous atmosphere, loss of interest	Audrius Sauciunas
Lack of time before deadline	4	5	20	Allocate more time for working for the project	Revision of deadlines	Pál Jámbor

8. Sources of Information

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Microsoft.2010. Microsoft Outlook [online] Available at:<https://www.office.com/?omkt=da-dk> [Accessed 23 September 2019].

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Jon Duckett, 2011. HTML & CSS: design and build websites. Indianapolis: Wiley.

Jon Duckett, 2014. JavaScript & jQuery: interactive front-end web development. Indianapolis: Wiley.

Benjamin LaGrone, 2013. HTML5 and CSS3 Responsive Web Design Cookbook: learn the secrets of interfacing with today's mobile Internet devices.