

Assignment Guide: Problem Analysis and Solution Development

Module: Analysing & Solving Problems (ACCA4019)

This guide provides a template and tips to help you complete your 2,000-word written assessment.

1. Structure of Your Report

Please use these headings to organize your work. This will help you stay on track with the word count and make sure you cover all the marking criteria.

Cover Page

- **Assignment Title:** Component 2: Written assessment: Problem Analysis and Solution Development
 - **Student Name:** [Your Name]
 - **Student ID:** [Your ID Number]

INTRODUCTION

In the modern academic environment, effective time management poses a significant challenge for students. Throughout a semester, students must juggle numerous responsibilities such as attending classes, completing individual or group projects, preparing for exams, and balancing personal life with academic activities. Due to the heavy workload, project deadlines may be overlooked or poorly managed, potentially leading to delays and suboptimal results.

To address this issue, the development of a student project management application is proposed. This solution enables the centralization of all project information, the setting of deadlines, the assignment of responsibilities to team members, and the automatic sending of notifications prior to deadlines. Implementing this solution can improve organization and reduce the risk of students missing important deadlines.

Developing the solution will involve problem analysis and resolution methods, such as the MoSCoW technique for requirement prioritization, the identification of key variables, the development of an algorithm represented by a flowchart, and a critical evaluation of the proposed solution's limitations.

Section 1: Problem Deconstruction (Approx. 500 words)

Think of this as the "What is the problem?" section.

- **1.1 Requirements and Constraints:**

The MoSCoW method is used to classify and prioritize the features required for a software solution. This method establishes which functionalities must be implemented, which are recommended, and which can be developed in the future.

Requirement (What it must do)	Constraint (The limits or rules)
Requirement	The system must allow users to create an account and authenticate securely to access personal information.
Requirement	The system must allow the addition of projects, including the entry of a title, description, and deadline.
Requirement	The system must allow the creation and management of a task list for each project.
Constraint	The solution must adhere to a limited budget, as developing a complex application requires financial resources.
Constraint	The system must be developed within a limited timeframe, as the project must be completed before the established academic deadline.
Constraint	The application must be compatible with common devices such as laptops, tablets, and mobile phones.

1.2 MoSCoW Analysis: The MoSCoW method is used to classify and prioritize the features required for a software solution. This method establishes which functionalities must be implemented, which are recommended, and which can be developed in the future.

MUST HAVE	User account creation; adding projects; entering deadlines; displaying the task list; automated notifications before deadlines; option to mark a task as completed.
SHOULD HAVE	Integrated calendar for project visualization; team collaboration capabilities; task delegation; synchronization with Google Calendar or Microsoft Outlook.
COULD HAVE	Automated task prioritization recommendations; project progress statistics; reward system for task completion; dark mode for the app
WON'T HAVE	Fully autonomous AI for project execution; integration with all existing educational platforms; analysis of personal user behavior; complex features that do not impact the app's primary purpose.

- **1.3 Key Variables:** List the things that change, like "student schedules" or "meeting time." Briefly explain why these variables are important to your solution.

Project Deadlines

Allows the system to determine when notifications should be sent.

Project Priority

Helps establish the order in which tasks should be completed.

Number of teams members

Determines the level of collaboration required for group projects.

Project Progress

Allows for monitoring completed and remaining stages.

User Availability

Influences when tasks can be performed.

User Notifications

Ensures timely information regarding important activities.

Section 2: Proposed Solution

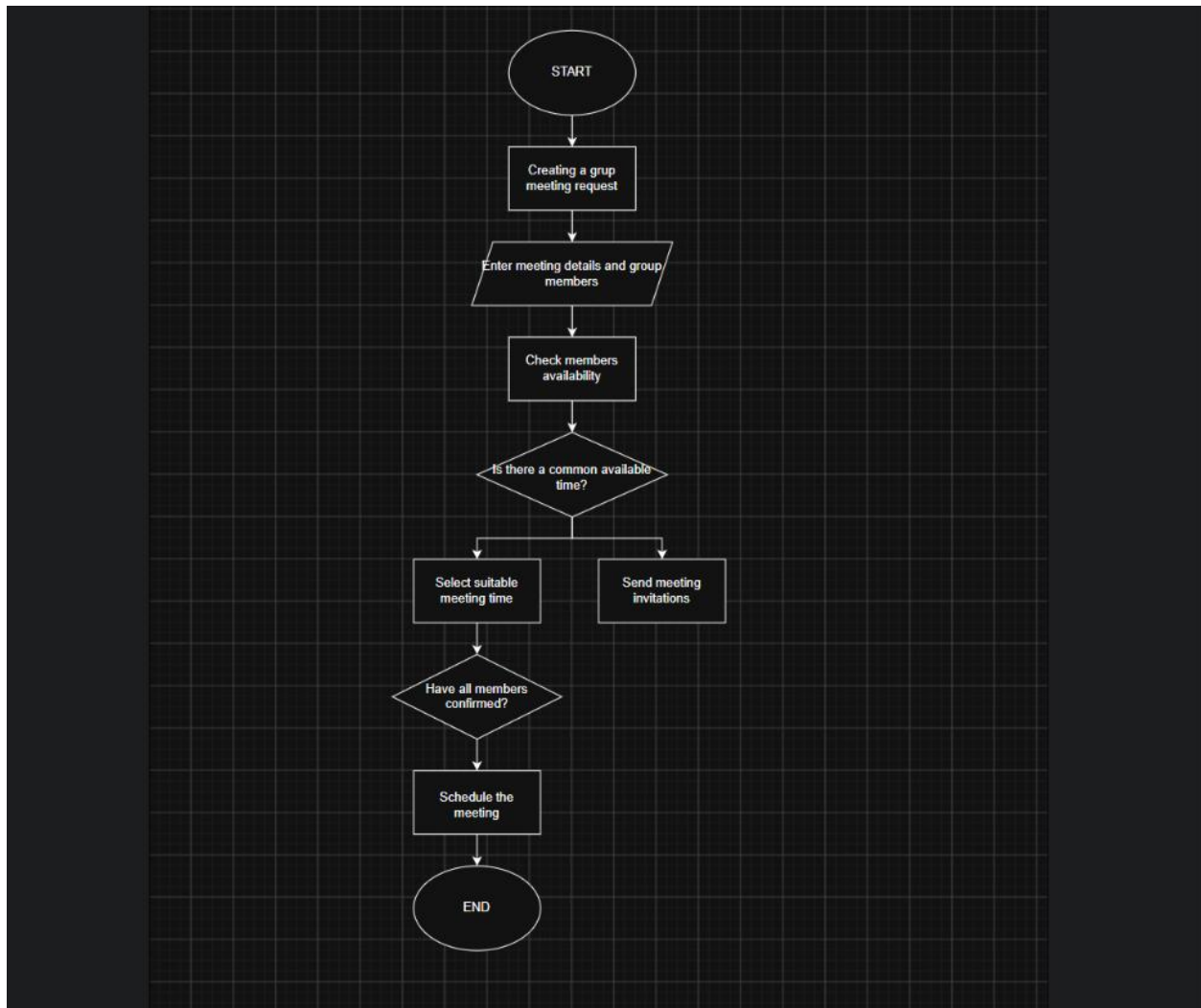
The proposed solution is the development of a digital system that allows students to schedule group meetings more efficiently. The main purpose of this solution is to reduce the time required to find a suitable meeting time and to improve communication between group members. The system is designed to collect information about each member's availability, analyse possible meeting times, and suggest the most appropriate option. required information, such as the meeting purpose, preferred date, meeting duration, and group members, is entered into the system.

After the availability data has been collected, the system analyses the schedules of all group members. The main decision point in the flowchart is whether a common available time exists. If a suitable time is found where all members are available, the system selects the best option based on the provided information. The selected time is then suggested to the group members.

Following the selection of a suitable meeting time, notifications are sent to all participants. Each member is given the option to confirm their attendance. If all members confirm the meeting, the event is automatically scheduled and saved in the digital calendar. This reduces the possibility of forgetting the meeting and ensures that all participants have access to the same information.

The solution assumes that every student has access to the internet and owns a device capable of running the application. It is also assumed that users provide accurate availability information and update their schedules when changes occur. Another assumption is that *students are familiar with basic digital applications and can interact with the system without requiring advanced technical knowledge.*

- **2.1 The Flowchart:** Insert your flowchart here. This should show the logical steps for scheduling a group meeting.



- **2.2 Explanation:** Write a clear explanation of how your flowchart works.
 - Explain how the solution finds a time that works for everyone.
 - Explain what happens if there is a conflict.
 - List any assumptions you made (e.g., "I assumed every student has access to the internet").

The flowchart represents the logical steps followed by the proposed solution for scheduling a group meeting. The main purpose of the system is to automatically identify a suitable meeting time when all group members are available. This reduces the time spent on manual communication and improves the organisation of group activities.

After a meeting time has been selected, confirmation is requested from all group members. If all participants confirm their attendance, the meeting will be automatically scheduled and saved in the calendar system. If one or more members do not confirm, a reminder notification will be sent to ensure that responses are received.

The following assumptions have been made during the development of this solution:

- It has been assumed that every student has access to the internet and a device capable of running the application.
- It has been assumed that all users provide accurate information about their availability.
- It has been assumed that students are able to use basic digital applications without requiring advanced technical knowledge.
- It has been assumed that users update their availability when changes occur in their personal schedules.
- It has been assumed that the system has access to secure data storage for saving meeting details and user information.

By following these steps, the flowchart demonstrates how the system can automate the meeting scheduling process and reduce problems caused by different student schedules.

- **2.3 Justification:** Explain *why* your approach is the best way to solve this problem.

The proposed approach is considered an effective solution for solving the problem of scheduling group meetings because it reduces the difficulties caused by different student schedules. In many cases, arranging a meeting manually requires multiple messages between group members, which can be time-consuming and inefficient. By introducing an automated scheduling system, the process of finding a suitable meeting time can be completed faster and with fewer communication problems.

The main advantage of this solution is that the availability of all group members can be analysed automatically. Instead of each student comparing their own schedule with other members, the system performs this task and identifies possible meeting times. This reduces the amount of effort required from users and increases the efficiency of the planning process.

Another reason why this approach is suitable is that it improves communication and collaboration between team members. All meeting information, including the date, time,

participants, and notifications, is stored in one centralised system. This ensures that all members receive the same information and reduces the possibility of misunderstandings or missed meetings.

Overall, the proposed approach is considered the best solution because it combines automation, efficiency, and ease of use. By reducing manual communication, identifying suitable meeting times, and improving collaboration, the system provides a practical method for solving the problem of organising group meetings.

Section 3: Reflection and Justification

During the development of this solution, several problem-solving techniques were used to analyse the problem and create an effective approach. These techniques helped to simplify the problem, identify the important requirements, and develop a logical solution for scheduling group meetings.

One of the main techniques used was **Abstract Thinking**. This technique was applied by removing unnecessary details and focusing only on the essential aspects of the problem. For example, instead of considering every personal activity of each student, the solution focused on the main information required for scheduling a meeting, such as availability, meeting duration, and the number of participants. By ignoring irrelevant information, the problem became easier to understand and manage.

Algorithmic Thinking was also applied during the design of the solution. The process was organised into a sequence of clear instructions that could be followed by the system. Decisions were included in the flowchart, such as checking whether a common available time exists or whether all members have confirmed the meeting. This allowed possible problems to be considered before implementation.

The **MoSCoW prioritisation technique** was used to identify the most important features of the proposed system. Essential functions, such as checking availability and scheduling meetings, were classified as “Must Have” requirements, while additional features were placed into lower priority categories. This ensured that the main problem could be solved before adding optional improvements.

- **3.2 Critical Evaluation:** Although the proposed solution provides an effective method for scheduling group meetings, some limitations must be considered. The system is not a perfect solution because it depends on accurate information being provided by users. If students enter incorrect availability details or fail to update their schedules, the system may suggest an unsuitable meeting time.

The current solution also does not consider personal preferences or unexpected situations. For example, some students may prefer meetings at specific times, or emergencies may occur that prevent attendance. A basic scheduling system may not always be able to handle these situations effectively.

If more time was available, several improvements could be implemented. One possible improvement would be integration with existing calendar applications, such as Google Calendar or Microsoft Outlook. This would allow the system to automatically collect availability information and reduce the need for manual input.

Another improvement could involve the use of artificial intelligence. An AI-based system could analyse previous meeting patterns and suggest the most suitable times based on user behaviour. It could also prioritise meetings depending on project deadlines and importance.

CONCLUSION

In conclusion, the problem of scheduling group meetings among students has been analysed and a suitable digital solution has been proposed. The main issue identified was the difficulty of finding a common available time for all group members due to different academic schedules, personal responsibilities, and other commitments. This problem can negatively affect communication, teamwork, and the successful completion of projects within required deadlines.

Although the solution provides an effective method for improving group meeting organisation, some limitations were identified. The system depends on accurate user information, internet access, and active participation from all members. However, future improvements, such as calendar integration, artificial intelligence recommendations, and additional collaboration features, could make the system more advanced and reliable.

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