**Term Project - Decision Support Tool**

**First Milestone - Problem Analysis**

**Course:** MSCI 100

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**Overview of the Project**

Our group has elected to design and build a Project Task Allocation tool to support decision-making processes related to assigning the right resources to a project based on the availability of resources and the personal characteristics (e.g., skills, experience) of each team member. This document will provide a summary of the analysis of the problem that will be solved and project approach that will used to develop and test the Project Task Allocation tool. The objective is to create a decision support tool that will help groups similar to ours to plan and execute their group projects. The scope of the project is building the tool using Visual Basic and Microsoft Excel and creating an algorithm that will match project needs to available resources.

**Description of Our Project Plan**

We have decided to model our project in a modified GANTT chart (please find attached in Excel format). We did not use the traditional timeline form of a GANTT chart because our team prefered a more simple table format to organize our details. Our table presents all of the necessary details needed for an effective project plan. We were provided with an excellent term project outline in terms of how to organize our plan. We used the given information to determine the subtasks that need to be completed for each “Milestone” while staying within the given deadlines. The priority column will be constantly updated as we progress throughout the term. 1 represents the highest priority and 3 represents the lowest priority for items with later due dates. The check-in date column reminds us of when we should complete our tasks so that we have content to present and compile during the meetings will also occur on these dates. As we complete the tasks, we will be updating the "Status" column and our goal is to colour the entire column green and "Complete". If need be, an extra column for any notes, comments or concerns is also provided.

**Basic Components of Final Product**

There are two parts to our Decision Support Tool – what the user will experience and what the administrator will input.

**User Interface**

Our Decision Support Tool will have three main user interface components:

1. A *survey* will be used to create profiles about each team member, which will include their skills, availability, general interests, personality traits, and working styles.

2. An *Individual Progress Page* will display the tasks assigned to the user and a progress status report will identify upcoming deadlines and expected progress for each task.

3. A *Group Hub* will be accessible for all users to see upcoming group meetings, a timeline for the project, and group progress statistics.

**Administrator Interface**

In order for the program to assign accurate tasks to each group member, there are two critical components of the administrator interface:

1. The *Task Database* will be a list of all the tasks that need to be completed for the project, the resources, and skills that would be useful to complete the task.

2. The *Algorithm* will effectively match a team member to tasks that need to be completed for the project. It will take into account the characteristics of each Team Member’s Profile and the resources available for the project to find the best team member for each task.

**Problem Analysis and Mitigated Solutions**

Groups working on projects can face several different issues with respect to communication, unclear goals, time management, leadership, and different learning styles. The table below lists these sections along with specific problems that could arise and mitigated solutions that our Decision Support Tool would offer to its users.

|  |  |
| --- | --- |
| **Problem** | **Mitigated Solution** |
| Ineffective communication between project members can lead to deadlines being missed, confusion regarding responsibilities, etc. | GANTT chart on *The Hub* that organizes and presents all key details regarding the group project, the assigned tasks to each member, and preferred section deadlines. |
| Members are not aware of each other’s strengths and weaknesses, can lead to members being assigned tasks that are not suitable to their skillset. | Profile survey that surveys each member’s strengths and weaknesses and tasks are assigned according to the skillset of the particular user. |
| Inability to identify and properly set goals results in time being spent inefficiently and ineffectively. | The GANTT chart on *The Hub* will assist users in creating SMART goals by prompting users to enter specific information about the goal, how the goal will be measured, the respective task deadlines, etc. |
| Focusing on a specific task for a long time may cause members to feel as if their task is irrelevant, resulting in frustration and procrastination. | The GANTT chart on *The Hub* will show how each member’s tasks relate to the milestones and how the milestones contribute to the final goal. |
| Not prioritizing the work needed to be completed on time, causes the groups to further face difficulties with determining a meeting time for everyone. | The GANTT chart will analyze the available times for each member and suggest realistic meeting times creating efficiency. |
| Procrastination can lead to time loss which will eventually lead to incomplete tasks → not meeting the deadlines. | *The Hub* will show the tasks and preferred deadlines for each member making them prioritize their work and finish before the preferred deadline, leaving flexibility room before the actual milestone deadline. |
| No leadership and authority. This can result in unproductivity, unclear direction, and low motivation. | Anonymous poll utilized to delegate a suitable candidate/member to take charge and conclusively encourage that member to lead the group. |
| The learning style/type of group members are not addressed during task operation, which may lead to unproductivity and overall objective difficulty. | *The Hub* will include colours to segment different sections and ask users to kinesthetically identify completed tasks to address visual and kinesthetic learners. |

**Challenges that Our Group Might Face/Conclusion**

There are two main types of challenges that our group may experience in the planning, development and testing of the decision support tool. These include: team dynamics to ensure the team members works together efficiently and effectively to complete the necessary work, and development and testing processes to ensure a viable and effective solution is developed.

**Team Based Dynamic Challenges**

The potential team dynamic challenges our team may experience include:

* *Efficiently using the skills of the team members and resources.* A clear understanding of people’s strengths and weaknesses can help to assign specific tasks to certain team members.
* *Team members completing their work on time by the deadlines.* Developing a project schedule, having all team members sign the project schedule, and following this schedule can help to ensure all members have their tasks done by a specified date.
* *Clear and effective communication amongst all team members*. Team members will agree upfront the media and approach for all communication to ensure team members can voice their opinion (i.e. Online Group Chats, Weekly Meetings)
* *Clear understanding of the problem and solution.* Creating the project plan as a group will ensure that everyone agrees on a common approach and will also reduce the likeliness of group conflict.

**Product Development and Testing Challenges**

The potential product development challenges our team may experience include:

* *Lack of knowledge in Microsoft Excel and Visual Basic.* A lack of technical skills will limit the functionality we can create. This issue will be mitigated by working together to teach each other and build our individual Excel and Visual basic skills.
* *Technical glitches and unstable systems can result in lost work.* Backing up all work and working on the same Operating System (Mac vs. PC) will reduce the chance of technical glitches and safeguard us in the case of an unstable system.
* *Inadequate testing of the prototypes.* Using multiple different test groups and test scripts to simulate a wide range of situations will create the most stable solution.