Microsoft Project assignment
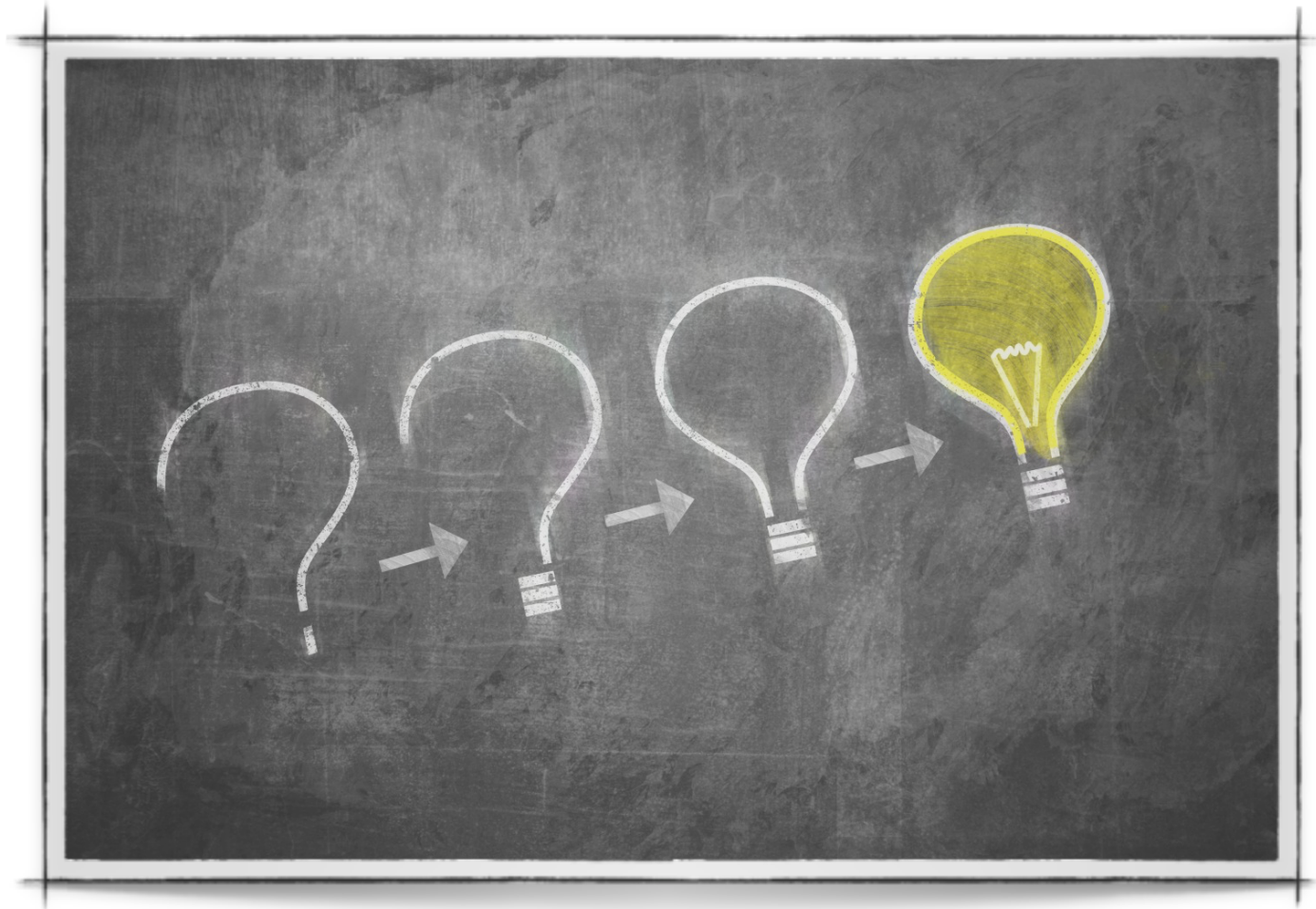
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Introduction

Planning is one of the most crucial parts of the project. It is something that is done at the start of every project and has to be adjusted throughout the project and used daily by everyone involved. Thus making it paramount for meeting deadlines and having effective workflow.

To have a better insight in planning a larger project in more detail, we were given an assignment that had to be carried out in Microsoft Project. It gives perspective of how planning is done in larger projects and gives us a chance to have some practical experience with Microsoft Project.
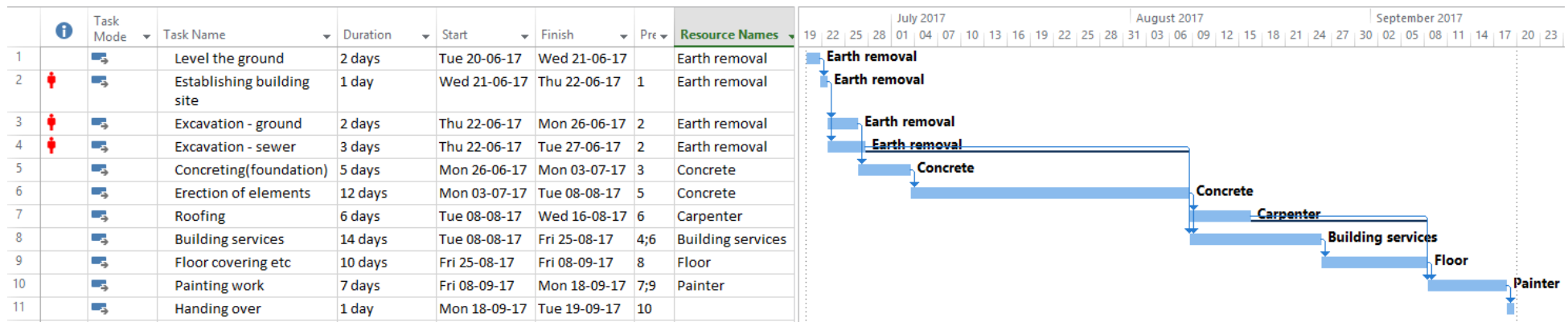
The task

Given materials

The task was based on the table given below with a few set rules:
- Building starts on 20th of June, 2017 and must be completed no later than 16th of September, 2017
- No working on weekends
- No working on bank or summer holidays incl. industrial holiday

No.	Activity	Prior activity	Time (days)	Resource identification
1	Levelling the ground	-	2	Ea (Earth moving)
2	Establishing building site	1	1	Ea
3	Excavation - ground	2	2	Ea
4	Excavation - sewer	2	3	Ea
5	Concreting (foundation)	3	5	Co (concrete)
6	Erection of elements	5	12	Co
7	Roofing	6	6	Ca(Carpenter)
8	Building services	4 / 6	14	Bs (Building services)
9	Floor covering etc	8	10	Fl (Floor)
10	Painting work	7 / 9	7	Pa (Painter)
11	Handing over	10	1	-

Gantt chart

With Microsoft Project set up for Danish standards and given information and industrial holiday(week 28-30) put in. The Gantt chart looks like this:

		Task Mode	Task Name	Duration	Start	Finish	Pre	Resource Names
1			Level the ground	2 days	Tue 20-06-17	Wed 21-06-17		Earth removal
2			Establishing building site	1 day	Wed 21-06-17	Thu 22-06-17	1	Earth removal
3			Excavation - ground	2 days	Thu 22-06-17	Mon 26-06-17	2	Earth removal
4			Excavation - sewer	3 days	Thu 22-06-17	Tue 27-06-17	2	Earth removal
5			Concreting(foundation)	5 days	Mon 26-06-17	Mon 03-07-17	3	Concrete
6			Erection of elements	12 days	Mon 03-07-17	Tue 08-08-17	5	Concrete
7			Roofing	6 days	Tue 08-08-17	Wed 16-08-17	6	Carpenter
8			Building services	14 days	Tue 08-08-17	Fri 25-08-17	4;6	Building services
9			Floor covering etc	10 days	Fri 25-08-17	Fri 08-09-17	8	Floor
10			Painting work	7 days	Fri 08-09-17	Mon 18-09-17	7;9	Painter
11			Handing over	1 day	Mon 18-09-17	Tue 19-09-17	10	

Immediately you notice that there is a problem with predecessors. Task number 5 should depend on task number 3 and 4, otherwise we have excessive slack that, in reality, is not there. That changes task 3 slack to 1 day.

Task number 8 predecessor should be changed to task 6 only, because previous tasks already are dependant on each other.
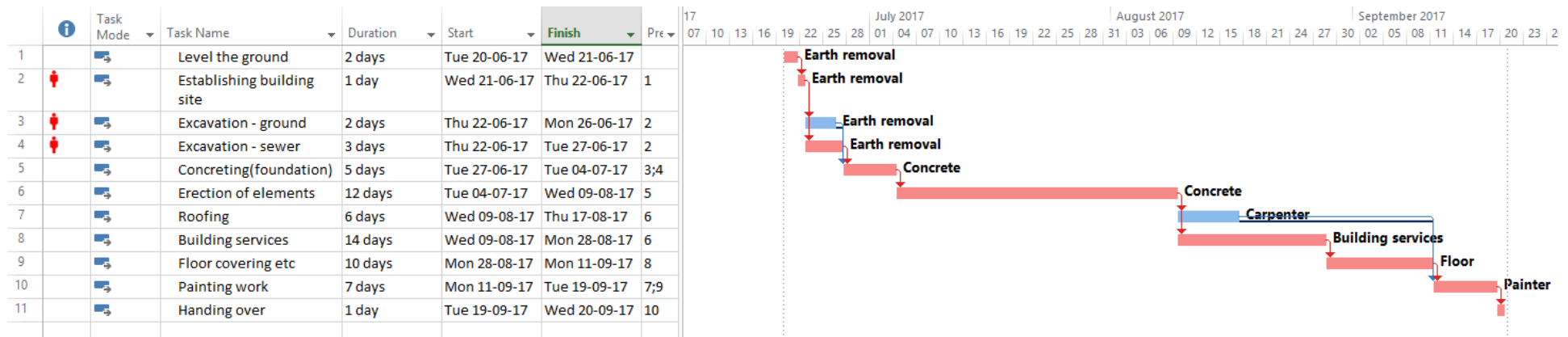
As for contractors, both, a prime contractor and subcontractors, have their own advantages and disadvantages.
Prime contractor's main advantage is that you don't have to be involved in the construction management process, thus reducing responsibility and potential headaches that could arise. Downside is that you have no flexibility in who does what and how and it is more expensive.
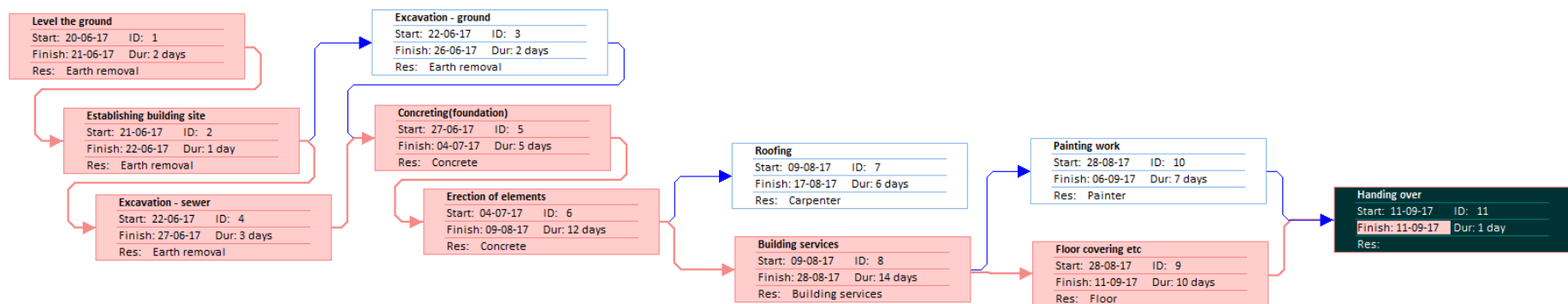**Subcontractor's** main advantage is that you have complete control over the construction process. You can choose contractors, you can discuss details with them and argue a better price as well. But that comes at a cost - everything has to be managed(contracts, site, planning etc). And if something isn't on time - you have to deal with that.

Revised Gantt chart

After doing the previously mentioned changes to tasks, it gives us a better look at the project, including critical path. Critical path is the tasks that have no slack, therefore have to be on time otherwise project will be delayed. Next thing to look at is the fact that this project misses the deadline by 3 days. That means tasks have to be adjusted to fit the deadline.

		Task Mode	Task Name	Duration	Start	Finish	Pre
1			Level the ground	2 days	Tue 20-06-17	Wed 21-06-17	
2			Establishing building site	1 day	Wed 21-06-17	Thu 22-06-17	1
3			Excavation - ground	2 days	Thu 22-06-17	Mon 26-06-17	2
4			Excavation - sewer	3 days	Thu 22-06-17	Tue 27-06-17	2
5			Concreting(foundation)	5 days	Tue 27-06-17	Tue 04-07-17	3;4
6			Erection of elements	12 days	Tue 04-07-17	Wed 09-08-17	5
7			Roofing	6 days	Wed 09-08-17	Thu 17-08-17	6
8			Building services	14 days	Wed 09-08-17	Mon 28-08-17	6
9			Floor covering etc	10 days	Mon 28-08-17	Mon 11-09-17	8
10			Painting work	7 days	Mon 11-09-17	Tue 19-09-17	7;9
11			Handing over	1 day	Tue 19-09-17	Wed 20-09-17	10

CPM for the revised Gantt chart

Solutions

Solution nr. 1

First solution that comes to mind is the three week period that is used as holiday. The industrial holiday for those working in "Erection of elements" phase, could be 2 weeks instead of 3 weeks and have the 3rd week of the holiday after their part is done, because they would be finished sooner, that would result in carpenters and building services contractors being able to do their job sooner. This would result in meeting the deadline.

Solution nr. 2

Another solution to the problem, could be that painter can work at the same time as floor covering is done, each doing their job in different rooms. This would allow everything to be finished in 11th of September. In case of room overlapping issues, painter would have 3 day slack to work with, if he needs to adjust.

Solution nr. 3

Last solution I can thing of, would be employing extra workforce to help, so that each task can be done faster. Even few helping hands could reduce the process enough to meet the deadline but this is only speculation and would depend on whether contractors could physically use more hands or not.

Conclusion

As mentioned in introduction, this assignment was aimed to introduce us to Microsoft Project software as well as check whether we have understanding of what is taught in Planning and Management.

The issues that I found were that predecessors were specified incorrectly and the deadline was not met. Because of this I had to search for a solution, I came up with 3 solutions from which to choose. Which one is the best for the project in hand should be discussed with more people, but my opinion is that 2nd solution would be the best and most rational. But coming to 3(or even more) solutions were fairly hard, because there are only few tasks thus making it hard to have any kind possibility to adjust tasks in more ways.

I got at least introduced to Microsoft Project, that has been something I wanted to use for long time now. And I am satisfied with what I have done in Microsoft project, even though that was very little.