ANALYSIS

	Start date	End date
Assign 1	9/7/2018	11/26/2019
Assign 2	10/15/2018	8/12/2019
Assign 3	11/7/2018	7/9/2019

If you infer from the above table, Assign 1 started first then came assign 2 and assign 3 at the last. But the order of the finish was reverse. As the assign 3 got finished first then assign 2 and at last assign 1. This can be explained by the availability of resources.

At the start of the assign1 there were 'X' resources and there were 'M1' amount of task. So the number of days to finish the task can be calculated by D1=M/X. When the Assign 2 was started there were few more resources added to the pool. Let's consider the resources that are newly added to be Y. Then there are X+Y resources available now with amount of work be 'M2'. Then the number of days be D2=M2/(X+Y).

If the Task amount is relatively same for the assign 1 and assign 2 then the D2 will be less than D1. (D2<d1). For assign 3 there are few more resources of amount 'Z' is added. And the for the task amount of M3 the number of days D3 can be calculated then D3=M3/(X+Y+Z). If the M1, M2 and M3 are somewhat similar or equal thee the D3 will be lesser than D1 and D2.

This shows that assign 3 will get finished soon if there are more resources even though it starts late.

Possible to finish within 2 months from the start of the project for assign 3?

It is not feasible to finish the project within 2 months from the start of the project. Because out of all the available resources more than 75% of the resources are shared by all 3 projects. So the resources have to divide their working hours for the each project. Let's say suppose the task T1 can be finished by a resource in 1 day. If the particular resource is shared by 3 projects then it takes about thrice the original number of days to finish the task. So the resource can finish the task T1 in 3 days instead of 1.

Since most of the resources are shared among the other projects it is not feasible to complete the project in 2 months.

Demand for System engineer.

The assign 2 and assign 3 has lot of demand for the system Engineers due to the setup of the lab environment, hardware and software. Since this is the case then most of the system engineers are shared between the projects. Even after adding new resources of System engineers there occurred clashes in few places. To resolve these clashes the resources have to be leveled.

Certain tasks are executed simultaneously or you can say that they have the same predecessor. In such cases you might need unique resources whom are not currently busy or allocated in any other tasks to be used.