In this class we started looking at project planning, how we can accommodate things going wrong at various stages of projects, what tasks are, and how good tasks are defined.

There are different stages to a project:

1. Irrational Exuberance
2. Knowledgeable Realization
3. Desperation and Panic
4. Fateful Resignation
5. Realistic Reassessment
6. Grim Determination
7. Completion Relief

Let’s consider where you might be in your project – probably stage 1. Why the exuberance? Probably all projects share a certain amount of optimism. After all, before you start nothing has had a chance to go wrong yet. The essential thing we should strive for is to avoid the irrational optimism. We need to develop a plan based on our awareness of the way things really are – this is pragmatism.

At any given stage of a project we might be able to intervene in order to get the project in a position to succeed. These interventions are:

- Adjustment
- Realignment
- Stop-gap
- Partial salvage
- Complete salvage

However, our ability to intervene, and in what manner, are determined by the stage of the project. I use the standard waterfall method to illustrate. An interesting question is how the interventions might vary in other methodologies?
We need to develop a framework under which we can talk about project status. A good rule of thumb is to:

A) Consider any task at less than 100% completion as simply not completed.
B) Think of the completion day required for a task, and how missing the deadline affects the other tasks.
C) Always know the tasks that are outstanding, and their status.
D) Everyone with a task assigned should understand the context of their task – what else relies upon their output?
E) Everyone should have a task they are working on.

Given tasks A and B, they can be related in the following ways:

- FS: When A finishes, B may start
- FF: When A finishes, B may finish
- SS: When A starts, B may start
- SF: When A starts, B may finish

If we consider a complete project schedule, we need to develop knowledge about:

- ES – Earliest start date for a task
- LS – Latest start date for a task that does not impact the finish date of the project
- EF – Earliest finish date for a task
- LF – Latest finish date for a task that does not impact the finish date of the project
  - E – Effort in Hours, days, minutes, etc.

Here is the practice simple project plan we used in class:

<table>
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<tr>
<th>Task</th>
<th>Precedent</th>
<th>Effort (days)</th>
<th>ES</th>
<th>EF</th>
<th>LS</th>
<th>LF</th>
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For practice try the following:

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<th>Task</th>
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You should be able to answer the following questions about any project:

1) When will it be completed?
2) Can we add resources to the project to get it done sooner?
3) Can we remove resources from the project and still get it completed on schedule?
4) What is the impact of a task being finished earlier than expected?
5) What is the impact of a task being finished later than expected?

We probably are not very good at estimating, but in terms of precision, most estimates are wrong. Look at the following graphic:

```
| Early | Late |
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There’s only one point in time that an estimate is accurate, so what should we be estimating? Maybe we should have a little bit different image in mind:

```
| Early | Late |
```

This will give us a little bit of elbow-room to accommodate inaccuracies in estimation. The challenge is how wide of a band should be allowed.

Fred Brooks wrote an important paper (“The Mythical Man Month”) that pointed out the discrepancy between calendar time and work time. Why it is mythical basically translates back to assumptions about how people work, and the costs associated with
collaboration. Only the simplest, most trivial task can be assumed to be completed with any accuracy – and even these tasks have risk associated with them.

Perfectly partitionable tasks can always be divided into subcomponents (down to a fixed minimum), such that adding more people will complete the task in less calendar time. Here is a graph that illustrates the relationship:

Some tasks cannot be partitioned:
Other tasks that require communication, or some form of coordination with others look like this:

![Graph]

Sometimes, tasks require so much coordination that adding people only makes it worse:

![Graph]