第一次作业题： Movie Scheduling Probelm

A great deal of preparation must take place before a movie can be filmed. Important sets and scenes need to be identified, resource needs must be calculated, and schedules must be arranged. The issue of the schedule is the focus of the modeling activities. A large studio has contacted your firm, and they wish to have a model to allow for scheduling a movie. You are asked to answer the questions below. You should provide examples and test cases to convince the movie executives that your model is effective and robust.

Question 1:

Develop a model that will produce a filming schedule given the following constraints:

\* The availability dates of the stars of the film. \* The time required to film at a list of specific sites. \* The time required to construct and film on a list of sets. \* The availability dates for specific resources. For example a war movie might require helicopters which are available only at specific times. \* Some scenes cannot be shot until after certain computer generated content is defined and other physical items are constructed.

Your schedule must include extra time to allow for redoing some shots if they turn out to be inadequate after editing and review.

Question 2:

Develop a model that will take the information and schedule generated from the first question and can adjust them in the event that some delay in one aspect or the availability of some asset changes. For example, if one of the stars has an accident and cannot film for a certain period of time, you should be able to adjust the schedule.

Question 3:

Use the model developed in the first question to develop a way to determine the most important constraints. That is, identify the constraints that will cause the longest delays if a problem occurs.

在拍摄电影之前必须做大量的准备。需要确定重要的集合和场景，计算资源需求，安排日程。进度问题是建模活动的重点。一家大制片厂已经联系了你的公司，他们希望有一个模型来安排一部电影。你被要求回答下面的问题。您应该提供示例和测试用例，以使电影主管相信您的模型是有效和健壮的。

问题1：

开发一个模型，在满足以下限制条件的情况下生成拍摄时间表：

\*这部电影明星的出演日期

\*在特定地点拍摄所需的时间。

\*在布景列表上制作和拍摄所需的时间。

\*特定资源的可用日期。例如，一部战争电影可能需要直升飞机，而直升飞机只在特定时间可用。

\*在定义了某些计算机生成的内容并构造了其他物理项之前，无法拍摄某些场景。您的计划必须包括额外的时间，以便在编辑和审阅后发现某些镜头不足时可以重拍。

问题2：

开发一个模型，该模型将获取从第一个问题生成的信息和时间表，并在某个方面出现延迟或某些资产的可用性发生变化时对其进行调整。例如，如果其中一位明星出了事故，在一段时间内无法拍摄，你应该能够调整日程安排。

问题3：

使用在第一个问题中开发的模型来开发一种确定最重要约束的方法。也就是说，如果出现问题，确定将导致最长延迟的约束。