hw13

**Question 18.1**  
Describe analytics models and data that could be used to make good recommendations to the power  
company.  
Here are some questions to consider:

• The bottom-line question is which shutoffs should be done each month, given the capacity  
constraints. One consideration is that some of the capacity – the workers’ time – is taken up by  
travel, so maybe the shutoffs can be scheduled in a way that increases the number of them that  
can be done.  
• Not every shutoff is equal. Some shutoffs shouldn’t be done at all, because if the power is left  
on, those people are likely to pay the bill eventually. How can you identify which shutoffs  
should or shouldn’t be done? And among the ones to shut off, how should they be prioritized?

Think about the problem and your approach. Then talk about it with other learners, and share and  
combine your ideas. And then, put your approaches up on the discussion forum, and give feedback and  
suggestions to each other.  
You can use the {given, use, to} format to guide the discussions: Given {data}, use {model} to {result}.  
Have fun! Taking a real problem, and thinking through the modeling and data process to build a good  
solution framework, is my favorite part of analytics.

**Power Case Problem:**

A power company is facing an issue where they have some customers that continually miss payments, which loses profit for the business. While the company doesn’t have an issue for customers who cannot afford basic power needs or customers who are behind on their power payments, the company does have an issue with customers who can pay their bills but chose not to pay. They want to turn off power from the people who are not ever going to pay. Therefore the 1st problem is to identify the customers that are not going to pay and turn off their power. Once the customers have been identified, the company needs to go to the physical locations to turn off the power. Unfortunately, there were more people each month whose power should be shut-off than the company had capacity to handle. The 2nd problem seems to be route optimization problem in order to maximize the number of power shut offs in a single month.

**Data:**

In order to determine whose power needs to go off, we can collect data on customers we’ve reached out to, when we’ve reached out to, and also their responses. If customers continue to ignore us or indicate that will not make the electric bill payment, then we will consider them as customers to have their power cancelled. However, reaching out to customers takes time and effort – to reduce