

## WEEK 9 HOMEWORK

### INSTRUCTIONS

- Every learner should submit his/her own homework solutions. However, you are allowed to discuss the homework with each other (in fact, I encourage you to form groups and/or use the forums) – but everyone must submit his/her own solution; you may not copy someone else's solution.
- The homework will be peer-graded. In analytics modeling, there are often lots of different approaches that work well, and I want you to see not just your own, but also others.
- The homework grading scale reflects the fact that the primary purpose of homework is learning:

Rating	Meaning	Point value (out of 100)
4	All correct (perhaps except a few details) <u>with</u> a deeper solution than expected	100
3	Most or all correct	90
2	Not correct, but a reasonable attempt	75
1	Not correct, insufficient effort	50
0	Not submitted	0

### Question 19.1

Describe analytics models and data that could be used to make good recommendations to the retailer. How much shelf space should the company have, to maximize their sales or their profit?

Of course, there are some restrictions – for each product type, the retailer imposed a minimum amount of shelf space required, and a maximum amount that can be devoted; and of course, the physical size of each store means there's a total amount of shelf space that has to be used. But the key is the division of that shelf space among the product types.

For the purposes of this case, I want you to ignore other factors – for example, don't worry about promotions for certain products, and don't consider the fact that some companies pay stores to get more shelf space. Just think about the basic question asked by the retailer, and how you could use analytics to address it.

As part of your answer, I'd like you to think about how to *measure* the effects. How will you estimate the extra sales the company might get with different amounts of shelf space – and, for that matter, how will you determine whether the effect really exists at all? Maybe the retailer's hypotheses are not all true – can you use analytics to check?

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}.

One of the key issues in this case will be data – in this case, thinking about the data might be harder than thinking about the models.