1. In order to evaluate which product is best to feature in the advertising campaign I would follow this methodology

1. Look over the raw data of website activity, pageviews, purchases and conversion to familiarize myself with the data
2. Create a data frame that has the numeric values of each of the variables under consideration including cost and price.
3. Take a careful analysis of conversion rate – which product has the highest, which has the lowest, which are in the middle? The conversion rate tells me that people are not just looking but are interested in purchasing the item.
4. Compare the conversion rates with website activity. Do items with high conversion rate also have high levels of website activity?
5. Take price into consideration. Is the product with the highest level of conversion affordable? Will it be a product that will have wide appeal or is does its expense limit its appeal to a wide audience?

2. To figure out why signups have slowed I would employ the following steps:

1) Critical evaluation of the onboarding funnel. Looking at each step compare completion rate of each step over the past 3 years. Which steps are being completed and which steps are not? How long is it taking for the step to be completed? When did signups begin to slow? Is there a correlation between slowing sign ups and a reduction in the number of steps completed? Which step has the lowest completion rate? Which step has the highest completion rate?

2) Evaluate marketing spend. Has the marketing spend fluctuated over time? Is there a correlation between marketing spend and a spike in completion rate? Does the marketing seem to influence the higher completion rate?

3. Proposing a better ranking system for a hotel website

1) I begin with the assumption that a better ranking system will take multiple variables into account – perhaps combining price with availability

2) Create price ranges for the hotels – evaluate each price range to find out which price range has the highest and lowest availability. To do this I would create a scatterplot with price as the x-axis and availability as the y axis.

3) Evaluate - Is there a correlation between price and availability? What is the relationship between these two variables?

4) From that information I would begin to determine what type of ranking system might allow users to make better decisions about hotels that are affordable and generally have some availability.

4. Is Churn atypical?

1) Break down user data by month for each year.

2)Evaluate length of session and frequency of use

3)See if there is a pattern among users - is there a trend towards greater use or reduced usage? Are there certain months when users used the product more? Less? Do these time periods correlate with certain marketing strategies, holidays, other events?