CAPSTONE PROJECT PROPOSAL

1. I would like to work on predicting production outcomes based on our sales at the food retail company of which I am currently employed. There are many factors at play such as sales launches or promotions, weather and depending on days of the week (weekdays and weekends) that affect customer visitation. We approximately have a conversion rate of around 46% and factors to consider such as cannibalisation from another one of our stores that have recently opened (around 3%). We also have a way of measuring customer satisfaction and return customers as we have a rewards system in place, therefore we can probably predict if most of our sales base is from returning customers and see if customer satisfaction plays more or less a major/minor role for affecting sales outcomes. As to the sales itself I can access our store point and corresponding production lists for the year. I also want to see if the production lists do correspond with sales forecasts and balance it out with the documented wastage as a means of checking accuracy. I think it’ll be a useful project as we can use the following information to determine minimal and maximal quotas for the day according to probability models (and thus minimise wastage by controlling the flow of production as well), but also it’s a means to put a measure on the minimum and maximum labour hours we can allocate. Again I can probably extend this further and thus use this to analyse our system’s efficiency and employee competencies and see where we can bridge the gap in their training.
2. Second proposal is probably an extension of the first- we would probably like to see how much customers have responded to previous marketing campaigns and come up with predictions so we have a leaner estimate on how much stock we need to order for the upcoming events, and see the profitability outcomes based on measuring customer receptivity. I can perhaps measure this by seeing if we have increased profits/visitation, increased rewards memberships/returning customers immediately after the PR event/campaign. I feel this could interest the client as we can finally find a way to predict the cost-benefit ratio of introducing a campaign. As to measuring the efficacy of a marketing campaign, it might all boil down to doing some qualitative analysis but I could probably measure market relevance if I can find out the demographics (chances little to none in terms of gathering the data for it as we didn’t account for the customers who attended the events, though we could still track if any rewards members made special purchases that day or signed up), or in terms of how to measure advertising efforts we could track social media views/likes for example as well, or any costs they spent on media advertising and a general estimate of the viewer conversions for that.
3. Third idea I have in mind is based on a hobby of mine. I would like to see if some punches/combinations in boxing are more efficient than others, and investigate the extent by which effective combinations convert to connecting punches. I don’t think this will be very challenging at all and I won’t probably be overwhelmed too much by huge numbers as there are only around 8 effective punches in the ring and around 3 vertical body positions you can be in, and range is very limited. Of course there are many external factors that could determine the results of a match (e.g. physical limitations, experience) though in most cases players usually don’t have great discrepancies in weight. Since it is more a mental sport in nature I believe, I think the decider eventually is how well a player is able to exploit tactical advantages such as openings thereby intercepting compromising situations. A general rule in boxing is, every punch thrown leaves one open to an opponent and the only advantages one can have is the speed by which they can recognise the opponent’s intent and setup the upcoming punch, and accuracy of timing of one’s punch. So to save myself the trouble I would be looking at matches with high-punch frequencies, looking at interception solely, recording the combos used (offensive and defensive) and players body positions and distancing in the ring and mark them within a time-frame possibly generating a rhythm signature for each player. Hopefully I can come up with specific sequences that I can experiment with to stream-line my training regimen, though I can take this further as well by being able to further investigate each player’s rhythm in the ring and use this reference for predicting a player’s style and adjusting training accordingly for upcoming matches. (This could also even help predict who wins matches if you can crunch the data into a simulation but I think that’s beyond my scope.) The only con is it’s probably exhaustive to generate the data needed as I would have to watch hour long boxing matches. Perhaps I can scale it down and just focus on one boxer instead such as Mayweather or Pacquiao.

(by Louise Revalde)