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E-Commerce **Assignment 3 Dry**

PART 2 :

We quickly noticed that the auction behavior is very different when we have more competitors than insurances and when we have more insurances than competitors. Hence, we separated the two cases : case 1 when we have more insurances available than competitors and case 2 otherwise. In the initialization of the class, we predict duration and values according to the corresponding distributions. We determine in which case we are and compute our default utility. At each round, we delete the closest duration prediction and value prediction from the duration and price respectively. We then adjust our value predictions such that the last higher price is the highest estimations in our predictions. Now, we will explain our strategy to decide our bids. We always do not play the first round in order to know what is the highest value among all competitors. Then we compute the mean of the future duration predictions as 'future_profits'. If we are in case 1, we will wait until only one competitor remains. If the duration is interesting and our current profit is higher than the mean of the future profits, we bid, otherwise we wait until there is no more competitors. If there is no more competitors, it means we are alone and we have one or more rounds ahead of us and we can exploit them to reach the highest profit. We compare our current profit with our estimations of the future profits and take decision according to it. If we have more than 2 rounds ahead, we are able to demand more and wait until a better duration shows up, otherwise we are less picky. At last round we choose between our default utility and the proposition. If we are in case 2, we compute the highest competitor's predicted value and decide to bid or not depending on the potential profit it allows us. If our value is at least a little bit higher than the highest one in the predictions, we estimate our profit. If our profit is higher than the default utility and the mean of the future profits, we bid our value. Otherwise we wait until a better round shows up. Each time we involve a probabilistic behavior we define coefficients in order to adjust the values we obtain or the thresholds we define. We then optimize these coefficients.