I’d like to continue with my part which is about Statistical Tests Between DR Estimators & Non-DR Estimators.

From the requirement of the email, we performed two main statistical tests to evaluate the differences in rewards between the DR and non-DR estimators. The paired t-test was used to compare the mean rewards and determine if any significant differences existed. Additionally, the bootstrap test, a non-parametric approach, was conducted using 10,000 bootstrap samples to validate the significance of the observed mean differences.

The tests were applied to four reward functions lin1, lin2, lin3, and lin4, with varying alpha values. Here are the key observations the average rewards for both DR and non-DR estimators showed minimal differences across all functions. The paired t-test results were non-significant (p-values < 0.1) in all but one case, indicating no significant difference in most scenarios. The bootstrap test results supported this conclusion, with p-values close to 0.5 or above, confirming that observed differences were not significant.

Overall, the statistical tests demonstrated that both DR and non-DR estimators performed similarly across the different reward functions tested. These findings suggest robustness in the performance of both methods, with neither showing a distinct advantage.