This folder contains the codes for one time point treatment simulation.

Before running the codes, set the fault directory to where the codes folder is located by using setwd("path").

This simulation study considers these factors: a) linear vs nonlinear outcome; b) level of confounding-high, moderate and low; c) sample size-200, 500, 1000; d) model specification-both propensity and prediction models correct, misspecified prediction, and misspecified propensity models; e) methods-AIPTW, G Computation, IPTW, and PENCOMP.

Inside the oneTimePointSimulation folder, there are subfolders that store the simulation results from each specification. For example sampleSize200 > LinearOutcome (NonLinearOutcome) > AIPTW_Results (IPTW_Results, gcompute_Results, PENCOMP_Results). These folders store simulation results from pencompRun.R, IPTWRun.R, AIPTWRun.R and gcomputeRun.R.

The **Functions** folder contains all the functions used for this simulation.

1) simulateData.R--simulate a dataset for each specification
2) truth.R—estimate the true treatment effect by simulating a large population with both potentials outcomes observed for each subject.
3) pencompRun.R—obtain the estimates for PENCOMP for each specification; results are stored in the subfolder PENCOMP_Results.
4) IPTWRun.R—obtain the estimates for IPTW for each specification; results are stored in the subfolder IPTW_Results.
5) AIPTWRun.R—obtain the estimates for AIPTW for each specification; results are stored in the subfolder AIPTW_Results.
6) gcomputeRun.R—obtain the estimates for g computation for each specification; results are stored in the gcompute_Results.
7) After obtaining all the estimates, see the **FiguresandTables** folder for the codes that we used to combine the simulation results to generate tables and figures in our paper.
   a) combineResult_step1.R and combineResult_step2.R to combine the simulation results
   b) use the following scripts to reproduce the figures and tables for the one-time point simulation:
      a. coverage_Figure4.R for Figure 4;
      b. relativeRMSE_Figure3.R for Figure 3;
      c. coverageTables_Table7-11-15.R for Tables 7,11,15;
      d. relativeBiasTables_Table5-9-13.R for Tables 5, 9, 13;
      e. relativeRMSETables_Table6-10-14.R for Tables 6, 10, 14;
      f. relativeWidthTables_Table8-12-16.R for Tables 8, 12, 16 ;

   Note inside the **FiguresandTables** folder, there are subfolders: AIPTW_Results, gcompute_Results, IPTW_Results, and PENCOMP_Results which contain the results from combineResult_step2.R; and the subfolders paperPlots and paperTables contain figures and tables we created for our paper (see scripts in 7b).