

I solved exercise 1 by implementing two methods plus the main method. The first (non-main) method is used for computing the integral using the sampling method. The second method computes the integral by the hit-or-miss (short “hOm” in the code) method.

The main method is just for computing the integrals with different numbers of samples and writing the results into files. Each computation for a certain number of samples is repeated 10 times to get a value for the variance which is simply represented by the minimum and maximum value of the integral for this method and number of samples.

The graph then shows that the integral computed by both methods approaches the exact value of 0.326543 with increasing number of samples, which is no surprise. The difference between minimum (or maximum) value computed by one method and exact value, i.e. the variance, goes down roughly exponentially.