main.R

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```r
 # This is the main simulator file

# Delete any plots that were previously created
if(!is.null(dev.list())){
     dev.off()
}
```

```
## null device
##           1
```

```r
# Clear any previously stored variables, functions, etc.
rm(list=ls())

library(simulator) # this file was created under simulator version 0.2.5
library(ggplot2)

source("model_functions.R")
source("method_functions.R")
source("eval_functions.R")

# Set seed for reproducibility
set.seed(236)
```

```r
name_of_simulation <- "mean_sim"
```

```r
mean_sim <- new_simulation(name="name_of_simulation", label="Sample Mean")

mean_sim <- generate_model(mean_sim, make_model=sample_mean_model, n=50, mu=0)
```

```
## ..Created model and saved in samp_mean_mod/mu_0/n_50/model.Rdata
```

```r
mean_sim <- simulate_from_model(mean_sim, nsim=20)
```

```
## ..Simulated 20 draws in 0.01 sec and saved in samp_mean_mod/mu_0/n_50/r1.Rdata
```

```r
mean_sim <- run_method(mean_sim, methods=list(sample_mean_meth))
```

```
## ..Performed Sample Mean in 0 seconds (on average over 20 sims)
```

```r
mean_sim <- evaluate(mean_sim, metrics=list(se_metric))
```

```
## ..Evaluated Sample Mean in terms of Squared Error, Computing time (sec)
```

```r
save_simulation(mean_sim)
```

```r
# The added function "scale_y_log10" makes the plot on a log scale. This is
# optional.
```

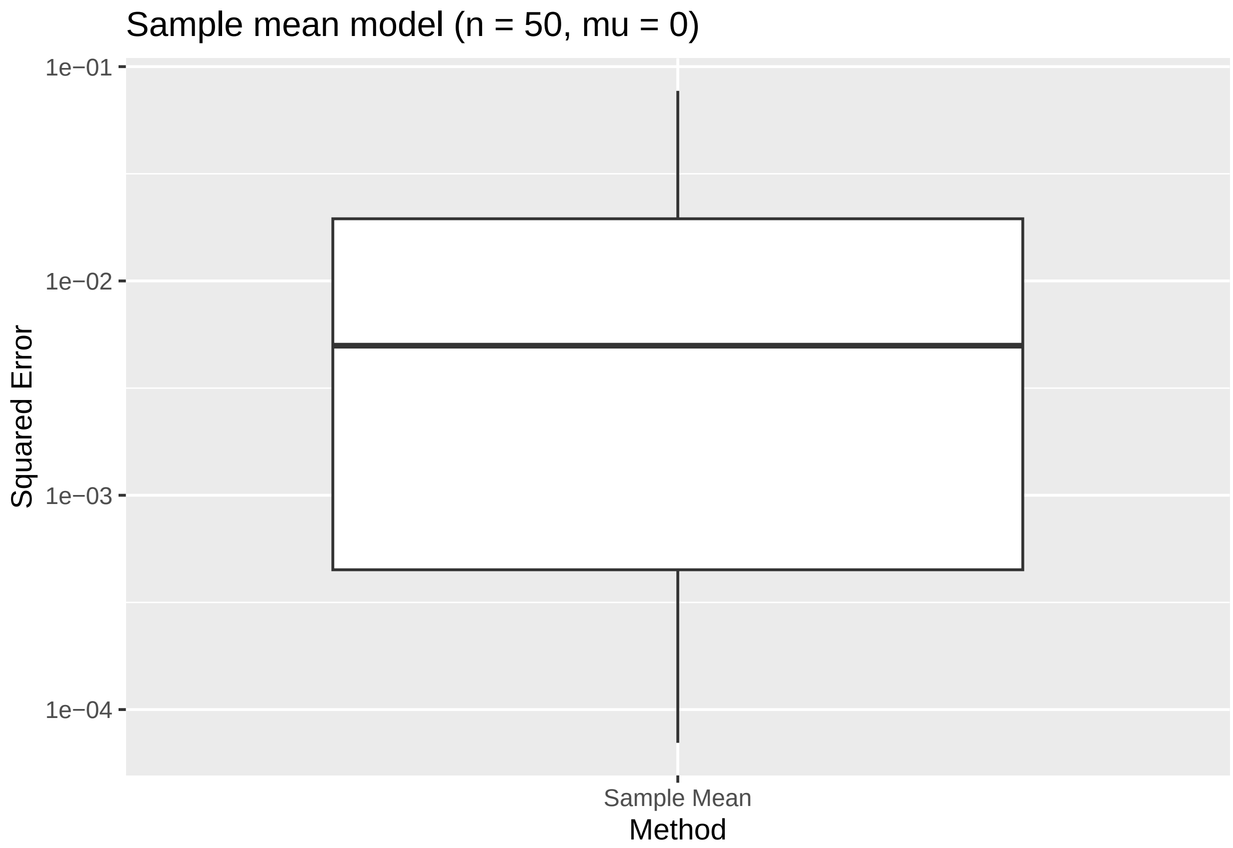
Table 1: A comparison of Mean Squared Error (averaged over 20 replicates).

	Sample Mean
Sample mean model (n = 50, mu = 0)	0.01219441 (0.004088059)

```
plot <- plot_eval(mean_sim, metric_name="se_metric") + scale_y_log10()
```

```
## Scale for y is already present.
## Adding another scale for y, which will replace the existing scale.
```

```
print(plot)
```



```
# Create a table
tabulate_eval(mean_sim, metric_name="se_metric")
```

```
## % generated by simulator on Fri Jun 30 17:33:47 2023.
```

```
# Create a dataframe of metrics for further processing (calculating mean and
# standard deviation, statistical inference, etc.)
results_df <- as.data.frame(evals(mean_sim))

print("Results data.frame:")
```

```
## [1] "Results data.frame:"
```

```
print(results_df)
```

```
##                       Model          Method  Draw    se_metric  time
## 1  samp_mean_mod/mu_0/n_50 sample_mean_meth  r1.1 2.280214e-02 0.000
## 2  samp_mean_mod/mu_0/n_50 sample_mean_meth  r1.2 7.710411e-02 0.003
## 3  samp_mean_mod/mu_0/n_50 sample_mean_meth  r1.3 2.718175e-04 0.000
## 4  samp_mean_mod/mu_0/n_50 sample_mean_meth  r1.4 1.471110e-02 0.000
## 5  samp_mean_mod/mu_0/n_50 sample_mean_meth  r1.5 3.043416e-02 0.000
## 6  samp_mean_mod/mu_0/n_50 sample_mean_meth  r1.6 8.305322e-03 0.000
## 7  samp_mean_mod/mu_0/n_50 sample_mean_meth  r1.7 6.468685e-03 0.000
## 8  samp_mean_mod/mu_0/n_50 sample_mean_meth  r1.8 4.654931e-03 0.000
## 9  samp_mean_mod/mu_0/n_50 sample_mean_meth  r1.9 2.208715e-02 0.000
## 10 samp_mean_mod/mu_0/n_50 sample_mean_meth r1.10 2.659279e-02 0.000
## 11 samp_mean_mod/mu_0/n_50 sample_mean_meth r1.11 2.222777e-03 0.000
## 12 samp_mean_mod/mu_0/n_50 sample_mean_meth r1.12 8.315450e-05 0.000
## 13 samp_mean_mod/mu_0/n_50 sample_mean_meth r1.13 5.345945e-03 0.001
## 14 samp_mean_mod/mu_0/n_50 sample_mean_meth r1.14 5.308264e-04 0.000
## 15 samp_mean_mod/mu_0/n_50 sample_mean_meth r1.15 9.112280e-05 0.000
## 16 samp_mean_mod/mu_0/n_50 sample_mean_meth r1.16 1.616942e-04 0.000
## 17 samp_mean_mod/mu_0/n_50 sample_mean_meth r1.17 1.961176e-03 0.000
## 18 samp_mean_mod/mu_0/n_50 sample_mean_meth r1.18 6.994518e-05 0.000
## 19 samp_mean_mod/mu_0/n_50 sample_mean_meth r1.19 1.871306e-02 0.000
## 20 samp_mean_mod/mu_0/n_50 sample_mean_meth r1.20 1.276389e-03 0.000
```