

First, we'll define the Big-O functions:

```
> exponential_time = function(n) {2^n}
> cubic_time = function(n) {n^3}
> quadratic_time = function(n) {n^2}
> loglinear_time = function(n) {n * log(base = 2, n)}
> linear_time = function(n) {n}
> logarithmic_time = function(n) {log(base = 2, n)}
> constant_time = function(n) {1}
```

We need to capture these functions in an ordered-list so we can iterate over them:

```
> big_o_functions = c("constant_time", "logarithmic_time", "linear_time", "loglinear_time",
```

Next, we add the linear-regression function:

```
> linear_regression <- function(n, actual) {
+   seMatrix = cbind(big_o_functions[], array(data = 0, dim = length(big_o_functions)))
+   for(i in {1:length(seMatrix[,1])}) {
+     predictor <- get(seMatrix[i,1])
+     seMatrix[i,2] = sum(sapply({1:n}, function(x)(actual(x) - predictor(x))^2))
+   }
+   seMatrix
+ }
```