```
> # Example dataset: weight loss (in kg) of 15 people after program
> weight_loss <- c(2.5, 1.8, 3.0, 2.2, 2.9, 3.5, 1.5, 2.7, 2.1, 3.2, 1.9, 2.4, 2.8, 3.1, 2.0)
>

> # Step c) Null and Alternative Hypothesis
> # H0: mean weight loss = 0 (program has no effect)
> # H1: mean weight loss > 0 (program helps reduce weight)

> # Step d & e) Perform one-sample one-sided t-test
> result <- t.test(weight_loss, mu = 0, alternative = "greater")

> # Step f) Print results
> print(result)

        One Sample t-test

data:  weight_loss
t = 16.668, df = 14, p-value = 6.257e-11
alternative hypothesis: true mean is greater than 0
95 percent confidence interval:
 2.241791      Inf
sample estimates:
mean of x
 2.506667

>
> # Extract key values
> cat("Sample mean:", mean(weight_loss), "\n")
Sample mean: 2.506667
> cat("Test statistic (t):", result$statistic, "\n")
Test statistic (t): 16.66825
> cat("p-value:", result$p.value, "\n")
p-value: 6.257435e-11
>
> # Decision at 1%, 5%, 10%
> if (result$p.value < 0.01) {
+   cat("Reject H0 at 1% level: Program is effective.\n")
+ } else {
+   cat("Fail to reject H0 at 1% level.\n")
+ }
Reject H0 at 1% level: Program is effective.
>
> if (result$p.value < 0.05) {
+   cat("Reject H0 at 5% level: Program is effective.\n")
+ } else {
+   cat("Fail to reject H0 at 5% level.\n")
+ }
Reject H0 at 5% level: Program is effective.
>
> if (result$p.value < 0.10) {
+   cat("Reject H0 at 10% level: Program is effective.\n")
+ } else {
+   cat("Fail to reject H0 at 10% level.\n")
+ }
Reject H0 at 10% level: Program is effective.
>
```