# **Exercise 8.5**

Recall that in Exercise 8.4, a two-tailed test was undertaken of whether the population mean impurity differs between the two filtration agents in Data Set G.

Suppose instead a one-tailed test had been conducted to determine whether Filter Agent 1 was the more effective. What would your conclusions have been?

## **Results**

|  |  |  |
| --- | --- | --- |
|  | **Agent 1** | **Agent 2** |
| Mean | 8.25 | 8.683333333 |
| Variance | 1.059090909 | 1.077878788 |
| Pearson Correlation | 0.901055812 |  |
| Hypothesized Mean Difference | 0 |  |
| P(T<=t) two-tail | 0.007545995 |  |
| P(T<=t) one-tail | 0.003772997 |  |
| Diff | 0.433333333 |  |

## A brief interpretation of the findings:

We would have found the difference in sample means consistent with the *null hypothesis* that the population mean impurity for Agent 2 was no more significant than that for Agent 1. Therefore, we would thus have declared the result insignificant without inspecting the p-value.