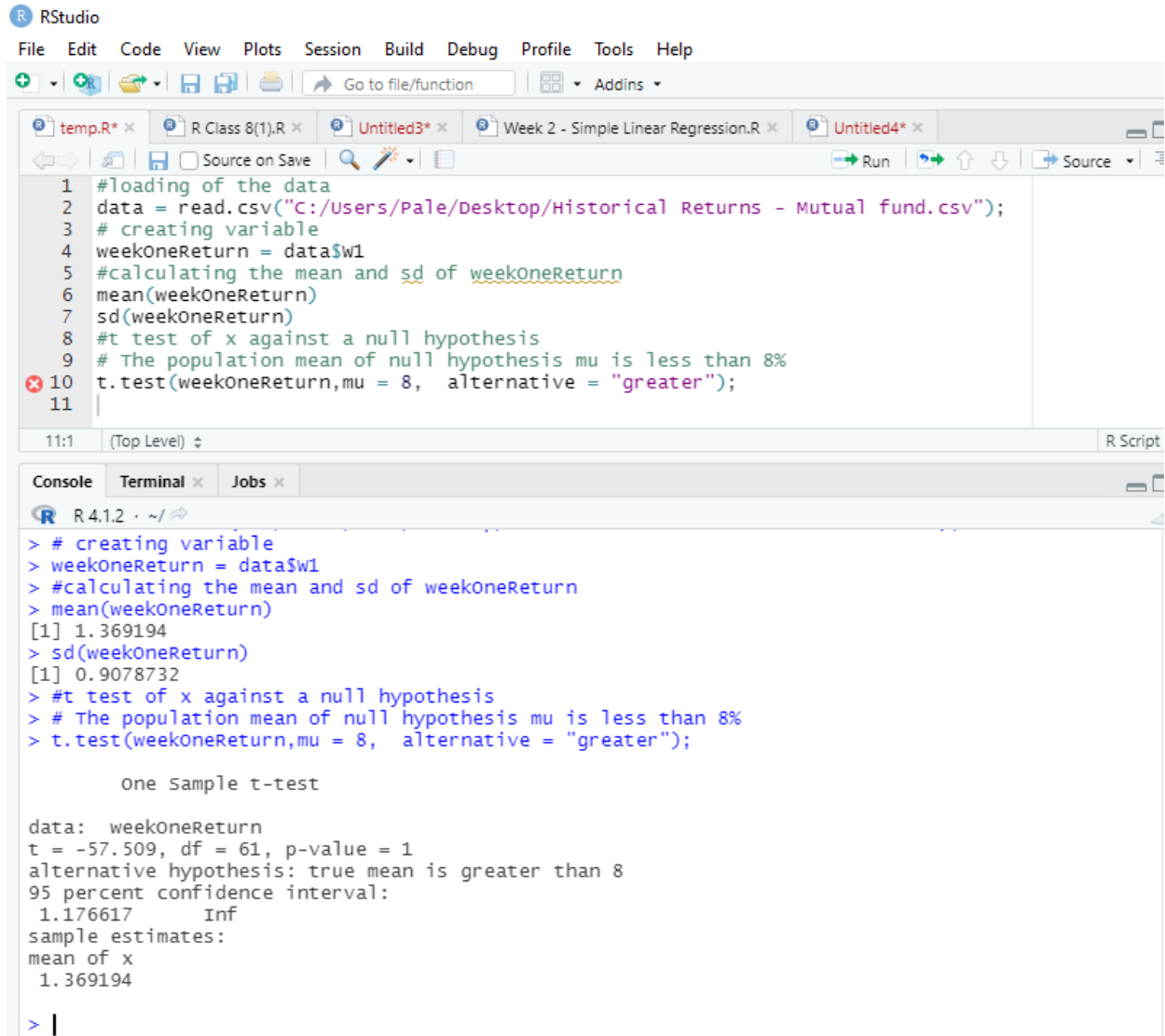


Mutual Fund in India: CODE (R)

Code for one week Return



The screenshot displays the RStudio environment. The top pane shows the R script editor with the following code:

```
1 #loading of the data
2 data = read.csv("C:/Users/Pale/Desktop/Historical Returns - Mutual fund.csv");
3 # creating variable
4 weekOneReturn = data$w1
5 #calculating the mean and sd of weekOneReturn
6 mean(weekOneReturn)
7 sd(weekOneReturn)
8 #t test of x against a null hypothesis
9 # The population mean of null hypothesis mu is less than 8%
10 t.test(weekOneReturn,mu = 8, alternative = "greater");
11
```

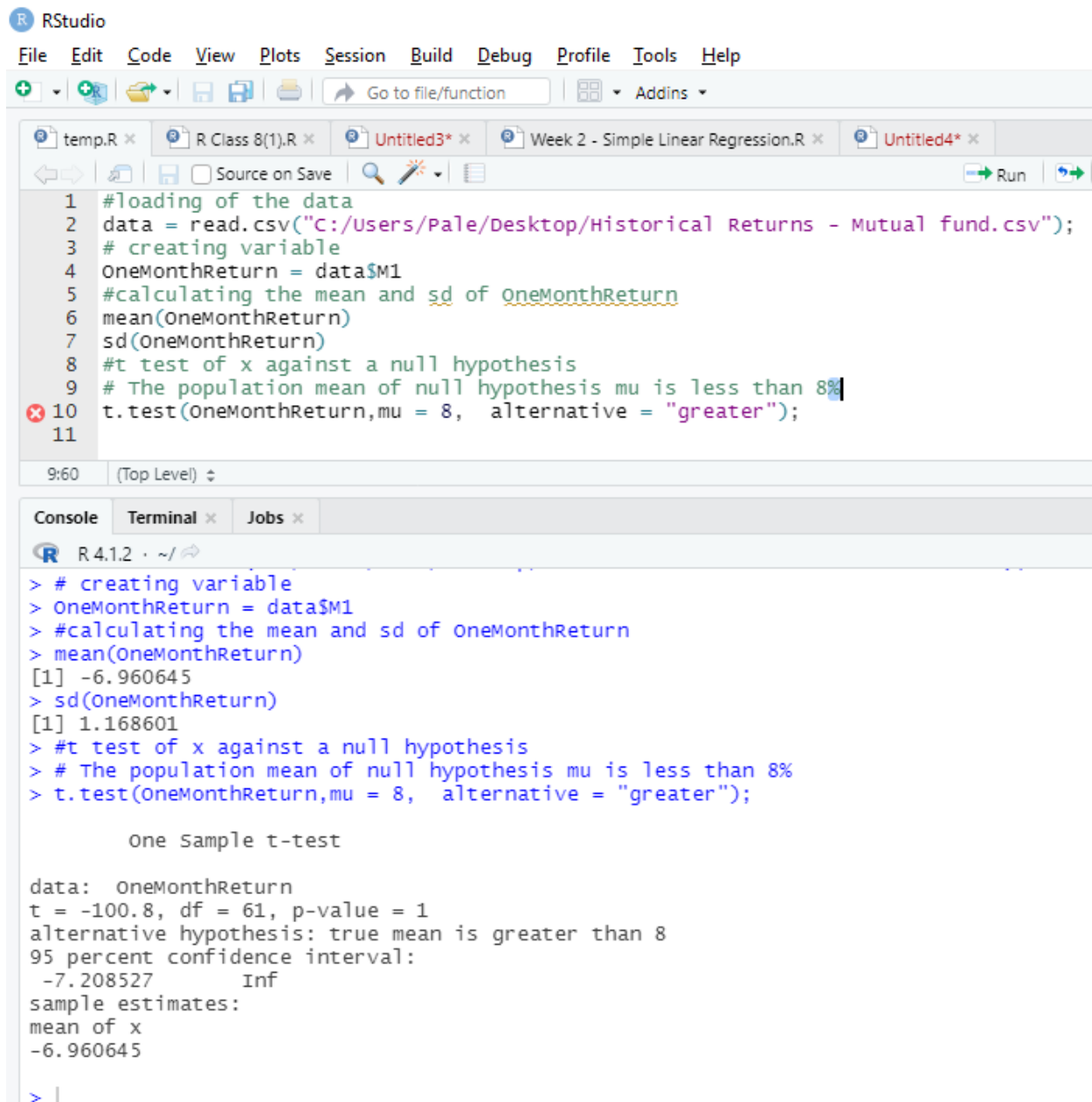
The bottom pane shows the R console output for the executed code:

```
> # creating variable
> weekOneReturn = data$w1
> #calculating the mean and sd of weekOneReturn
> mean(weekOneReturn)
[1] 1.369194
> sd(weekOneReturn)
[1] 0.9078732
> #t test of x against a null hypothesis
> # The population mean of null hypothesis mu is less than 8%
> t.test(weekOneReturn,mu = 8, alternative = "greater");

      One Sample t-test

data:  weekOneReturn
t = -57.509, df = 61, p-value = 1
alternative hypothesis: true mean is greater than 8
95 percent confidence interval:
 1.176617      Inf
sample estimates:
mean of x
 1.369194
> |
```

Code for one month Return



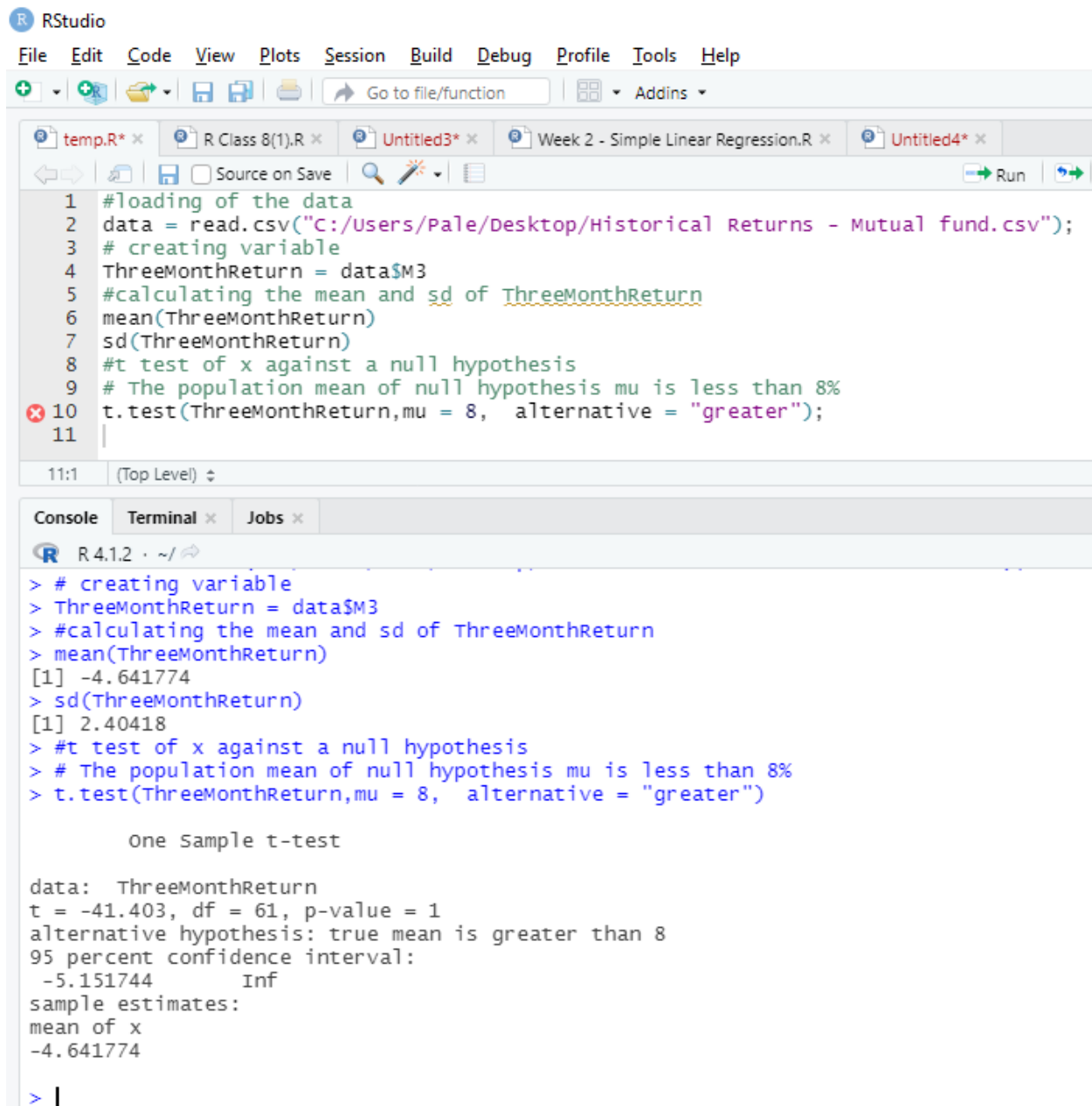
```
RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
temp.R x R Class 8(1).R x Untitled3* x Week 2 - Simple Linear Regression.R x Untitled4* x
Source on Save Run
1 #loading of the data
2 data = read.csv("C:/Users/Pale/Desktop/Historical Returns - Mutual fund.csv");
3 # creating variable
4 OneMonthReturn = data$M1
5 #calculating the mean and sd of OneMonthReturn
6 mean(OneMonthReturn)
7 sd(OneMonthReturn)
8 #t test of x against a null hypothesis
9 # The population mean of null hypothesis mu is less than 8%
10 t.test(OneMonthReturn,mu = 8, alternative = "greater");
11

9:60 (Top Level)
Console Terminal x Jobs x
R 4.1.2 ~|
> # creating variable
> OneMonthReturn = data$M1
> #calculating the mean and sd of OneMonthReturn
> mean(OneMonthReturn)
[1] -6.960645
> sd(OneMonthReturn)
[1] 1.168601
> #t test of x against a null hypothesis
> # The population mean of null hypothesis mu is less than 8%
> t.test(OneMonthReturn,mu = 8, alternative = "greater");

One sample t-test

data: OneMonthReturn
t = -100.8, df = 61, p-value = 1
alternative hypothesis: true mean is greater than 8
95 percent confidence interval:
 -7.208527 Inf
sample estimates:
mean of x
-6.960645
> |
```

Code for three month Return



The screenshot shows the RStudio interface with a script editor and a console. The script editor contains R code for loading data, creating a variable, calculating mean and standard deviation, and performing a t-test. The console shows the output of the code, including the results of the mean, standard deviation, and the t-test output.

```
1 #loading of the data
2 data = read.csv("C:/Users/Pale/Desktop/Historical Returns - Mutual fund.csv");
3 # creating variable
4 ThreeMonthReturn = data$M3
5 #calculating the mean and sd of ThreeMonthReturn
6 mean(ThreeMonthReturn)
7 sd(ThreeMonthReturn)
8 #t test of x against a null hypothesis
9 # The population mean of null hypothesis mu is less than 8%
10 t.test(ThreeMonthReturn,mu = 8, alternative = "greater");
11
```

11:1 (Top Level) ↕

Console Terminal x Jobs x

R 4.1.2 · ~/

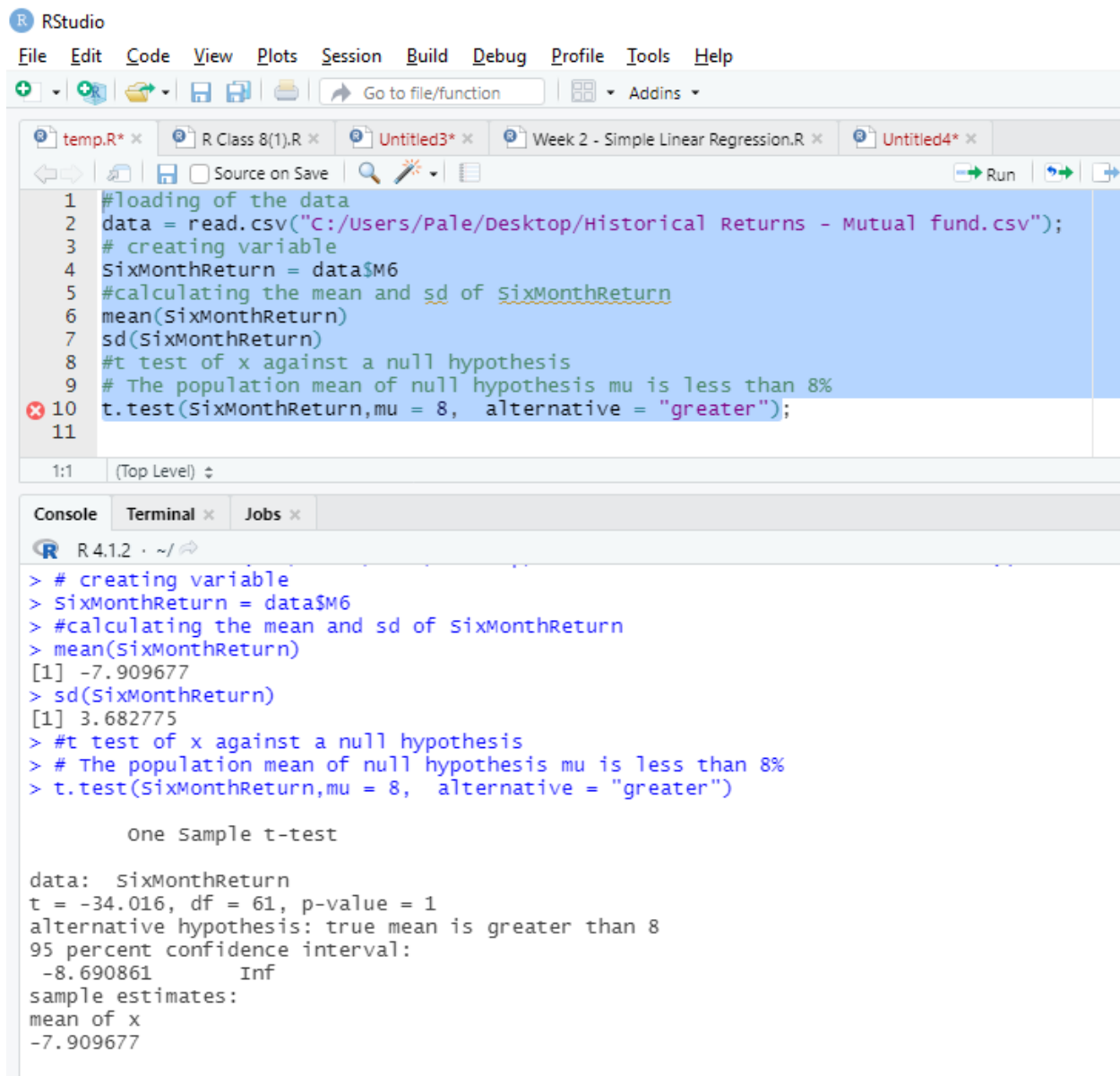
```
> # creating variable
> ThreeMonthReturn = data$M3
> #calculating the mean and sd of ThreeMonthReturn
> mean(ThreeMonthReturn)
[1] -4.641774
> sd(ThreeMonthReturn)
[1] 2.40418
> #t test of x against a null hypothesis
> # The population mean of null hypothesis mu is less than 8%
> t.test(ThreeMonthReturn,mu = 8, alternative = "greater")

      One Sample t-test

data:  ThreeMonthReturn
t = -41.403, df = 61, p-value = 1
alternative hypothesis: true mean is greater than 8
95 percent confidence interval:
 -5.151744      Inf
sample estimates:
mean of x
-4.641774

> |
```

Code for six month Return



The screenshot displays the RStudio environment. The top menu bar includes File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, and Help. Below the menu is a toolbar with icons for file operations and a search bar. The script editor shows a file named 'temp.R' with the following R code:

```
1 #loading of the data
2 data = read.csv("C:/Users/Pale/Desktop/Historical Returns - Mutual fund.csv");
3 # creating variable
4 SixMonthReturn = data$M6
5 #calculating the mean and sd of SixMonthReturn
6 mean(SixMonthReturn)
7 sd(SixMonthReturn)
8 #t test of x against a null hypothesis
9 # The population mean of null hypothesis mu is less than 8%
10 t.test(SixMonthReturn,mu = 8, alternative = "greater");
11
```

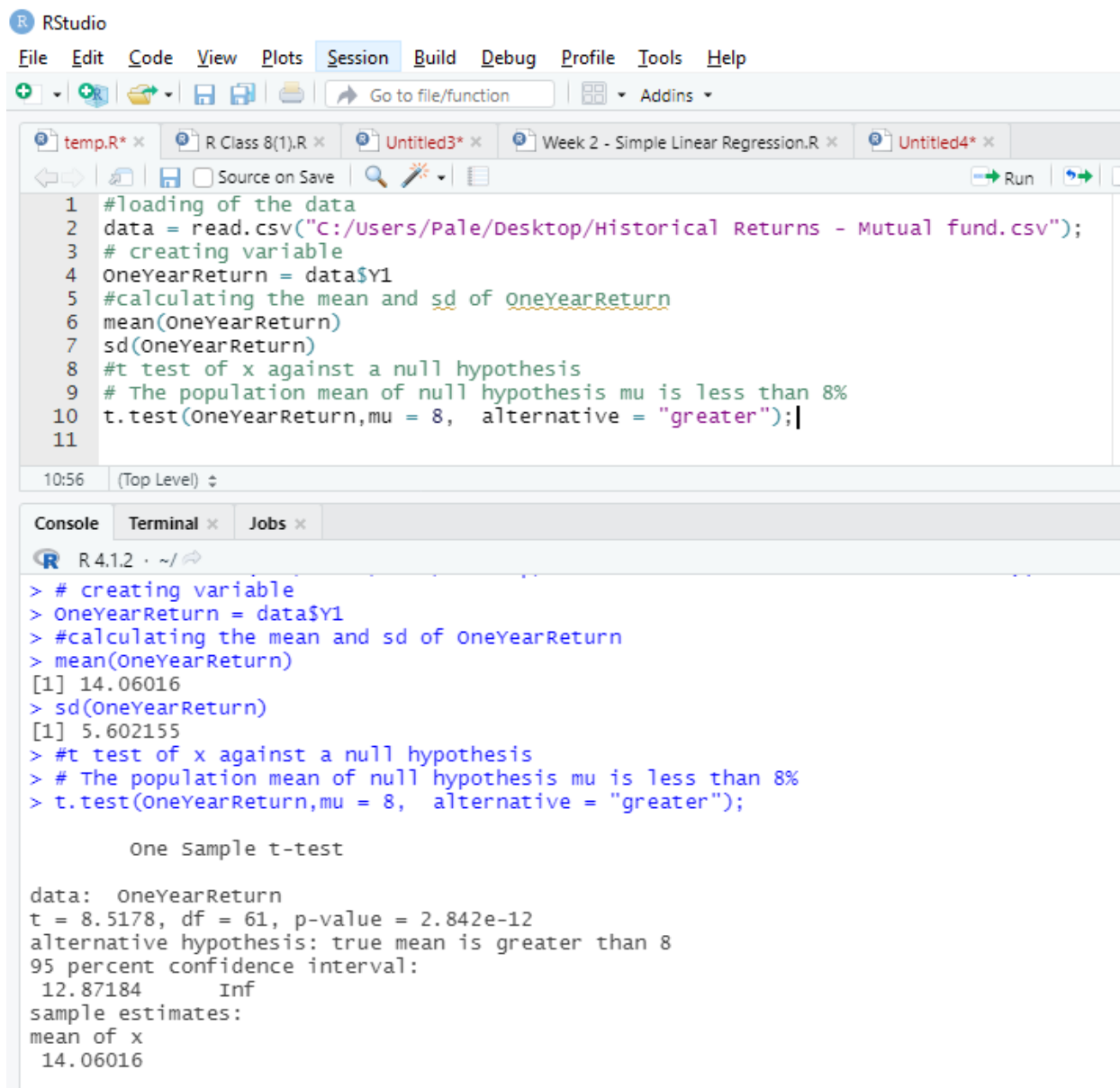
The console window at the bottom shows the execution of the code:

```
> # creating variable
> SixMonthReturn = data$M6
> #calculating the mean and sd of SixMonthReturn
> mean(SixMonthReturn)
[1] -7.909677
> sd(SixMonthReturn)
[1] 3.682775
> #t test of x against a null hypothesis
> # The population mean of null hypothesis mu is less than 8%
> t.test(SixMonthReturn,mu = 8, alternative = "greater")

One sample t-test

data: SixMonthReturn
t = -34.016, df = 61, p-value = 1
alternative hypothesis: true mean is greater than 8
95 percent confidence interval:
 -8.690861      Inf
sample estimates:
mean of x
-7.909677
```

Code for 1 Year return



The screenshot displays the RStudio environment. The top menu bar includes File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, and Help. The toolbar contains icons for file operations and a search bar. The script editor shows a file named 'temp.R*' with the following R code:

```
1 #loading of the data
2 data = read.csv("C:/Users/Pale/Desktop/Historical Returns - Mutual fund.csv");
3 # creating variable
4 OneYearReturn = data$Y1
5 #calculating the mean and sd of OneYearReturn
6 mean(OneYearReturn)
7 sd(OneYearReturn)
8 #t test of x against a null hypothesis
9 # The population mean of null hypothesis mu is less than 8%
10 t.test(OneYearReturn,mu = 8, alternative = "greater");
11
```

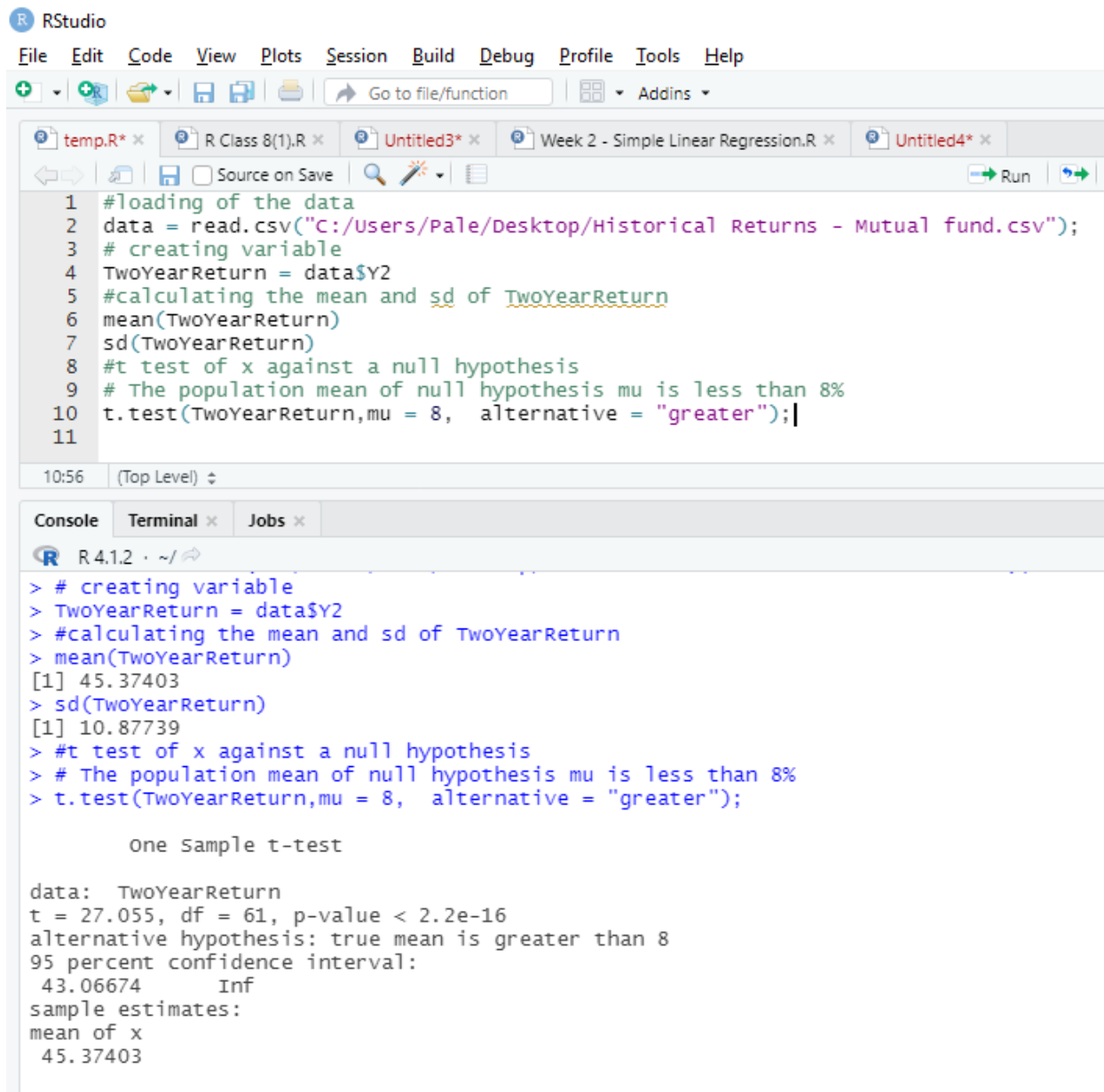
The console output shows the execution of the code:

```
> # creating variable
> OneYearReturn = data$Y1
> #calculating the mean and sd of OneYearReturn
> mean(OneYearReturn)
[1] 14.06016
> sd(OneYearReturn)
[1] 5.602155
> #t test of x against a null hypothesis
> # The population mean of null hypothesis mu is less than 8%
> t.test(OneYearReturn,mu = 8, alternative = "greater");

One sample t-test

data: OneYearReturn
t = 8.5178, df = 61, p-value = 2.842e-12
alternative hypothesis: true mean is greater than 8
95 percent confidence interval:
 12.87184      Inf
sample estimates:
mean of x
 14.06016
```

Code for 2 Years return



The screenshot displays the RStudio environment. The top menu bar includes File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, and Help. Below the menu is a toolbar with icons for saving, running, and other functions. The main editor window shows a script with the following R code:

```
1 #loading of the data
2 data = read.csv("C:/Users/Pale/Desktop/Historical Returns - Mutual fund.csv");
3 # creating variable
4 TwoYearReturn = data$Y2
5 #calculating the mean and sd of TwoYearReturn
6 mean(TwoYearReturn)
7 sd(TwoYearReturn)
8 #t test of x against a null hypothesis
9 # The population mean of null hypothesis mu is less than 8%
10 t.test(TwoYearReturn,mu = 8, alternative = "greater");|
11
```

The status bar at the bottom indicates the time is 10:56 and the cursor is at the top level.

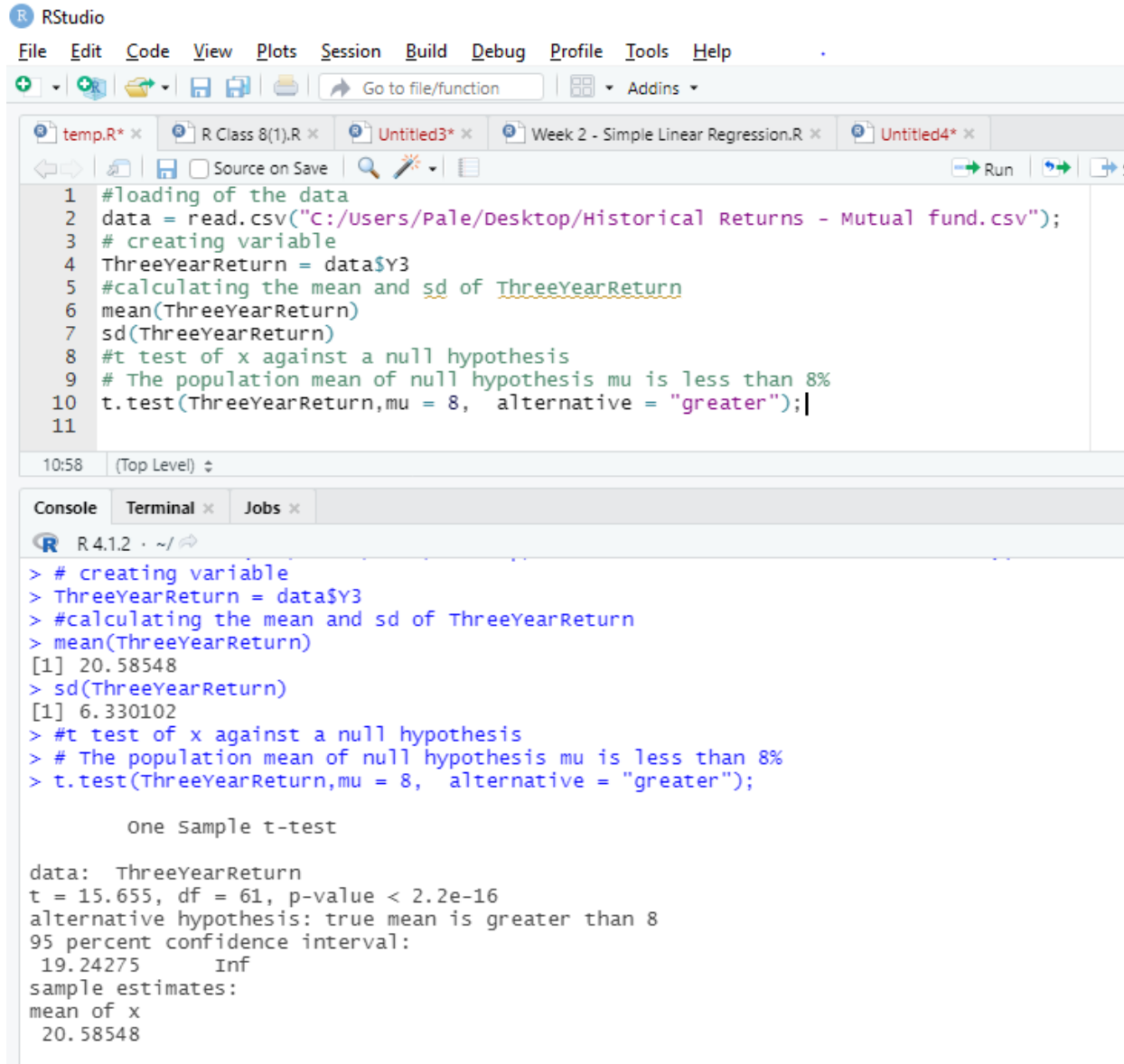
The Console window shows the output of the code:

```
> # creating variable
> TwoYearReturn = data$Y2
> #calculating the mean and sd of TwoYearReturn
> mean(TwoYearReturn)
[1] 45.37403
> sd(TwoYearReturn)
[1] 10.87739
> #t test of x against a null hypothesis
> # The population mean of null hypothesis mu is less than 8%
> t.test(TwoYearReturn,mu = 8, alternative = "greater");

One sample t-test

data: TwoYearReturn
t = 27.055, df = 61, p-value < 2.2e-16
alternative hypothesis: true mean is greater than 8
95 percent confidence interval:
 43.06674      Inf
sample estimates:
mean of x
 45.37403
```

Code for 3 Years return



The screenshot shows the RStudio environment with the following components:

- Menu Bar:** File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, Help.
- Toolbar:** Includes icons for file operations (new, open, save, print) and a search bar.
- Source Editor:** Contains the following R code:

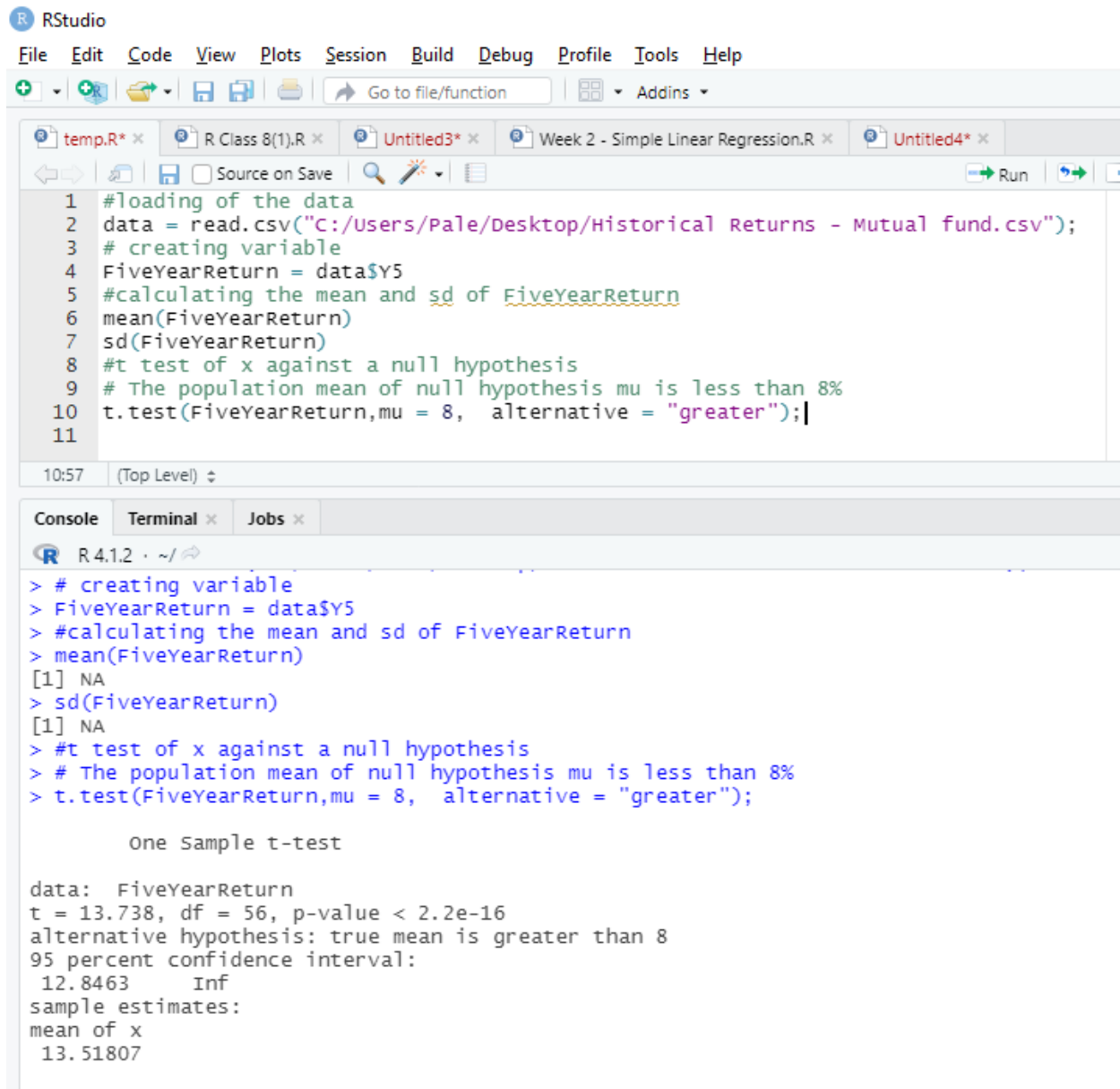
```
1 #loading of the data
2 data = read.csv("C:/Users/Pale/Desktop/Historical Returns - Mutual fund.csv");
3 # creating variable
4 ThreeYearReturn = data$Y3
5 #calculating the mean and sd of ThreeYearReturn
6 mean(ThreeYearReturn)
7 sd(ThreeYearReturn)
8 #t test of x against a null hypothesis
9 # The population mean of null hypothesis mu is less than 8%
10 t.test(ThreeYearReturn,mu = 8, alternative = "greater");|
11
```
- Console:** Shows the output of the code execution:

```
> # creating variable
> ThreeYearReturn = data$Y3
> #calculating the mean and sd of ThreeYearReturn
> mean(ThreeYearReturn)
[1] 20.58548
> sd(ThreeYearReturn)
[1] 6.330102
> #t test of x against a null hypothesis
> # The population mean of null hypothesis mu is less than 8%
> t.test(ThreeYearReturn,mu = 8, alternative = "greater");

One sample t-test

data: ThreeYearReturn
t = 15.655, df = 61, p-value < 2.2e-16
alternative hypothesis: true mean is greater than 8
95 percent confidence interval:
 19.24275      Inf
sample estimates:
mean of x
 20.58548
```

Code for 5 Years return



The screenshot shows the RStudio environment. The top menu bar includes File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, and Help. Below the menu is a toolbar with icons for file operations and a search bar. The script editor displays the following R code:

```
1 #loading of the data
2 data = read.csv("C:/Users/Pale/Desktop/Historical Returns - Mutual fund.csv");
3 # creating variable
4 FiveYearReturn = data$Y5
5 #calculating the mean and sd of FiveYearReturn
6 mean(FiveYearReturn)
7 sd(FiveYearReturn)
8 #t test of x against a null hypothesis
9 # The population mean of null hypothesis mu is less than 8%
10 t.test(FiveYearReturn,mu = 8, alternative = "greater");
11
```

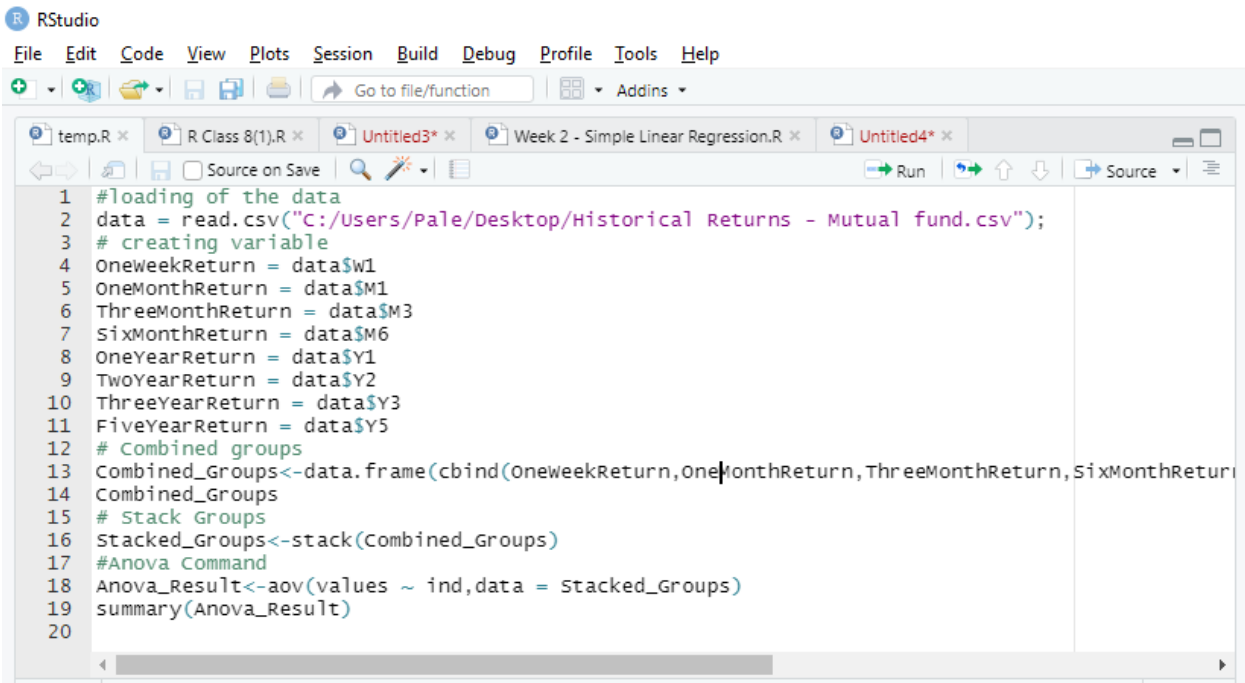
The console output shows the execution of the code:

```
> # creating variable
> FiveYearReturn = data$Y5
> #calculating the mean and sd of FiveYearReturn
> mean(FiveYearReturn)
[1] NA
> sd(FiveYearReturn)
[1] NA
> #t test of x against a null hypothesis
> # The population mean of null hypothesis mu is less than 8%
> t.test(FiveYearReturn,mu = 8, alternative = "greater");

One Sample t-test

data: FiveYearReturn
t = 13.738, df = 56, p-value < 2.2e-16
alternative hypothesis: true mean is greater than 8
95 percent confidence interval:
 12.8463      Inf
sample estimates:
mean of x
 13.51807
```


Code for Anova Analysis



The screenshot shows the RStudio interface with the following elements:

- Menu Bar:** File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, Help.
- Toolbar:** Includes icons for saving, running, and other standard RStudio functions.
- Source Editor:** Contains the following R code:

```
1 #loading of the data
2 data = read.csv("C:/Users/Pale/Desktop/Historical Returns - Mutual fund.csv");
3 # creating variable
4 OneWeekReturn = data$w1
5 OneMonthReturn = data$M1
6 ThreeMonthReturn = data$M3
7 SixMonthReturn = data$M6
8 OneYearReturn = data$Y1
9 TwoYearReturn = data$Y2
10 ThreeYearReturn = data$Y3
11 FiveYearReturn = data$Y5
12 # Combined groups
13 Combined_Groups<-data.frame(cbind(OneWeekReturn,OneMonthReturn,ThreeMonthReturn,SixMonthReturn,OneYearReturn,TwoYearReturn,ThreeYearReturn,FiveYearReturn))
14 Combined_Groups
15 # Stack Groups
16 Stacked_Groups<-stack(Combined_Groups)
17 #Anova Command
18 Anova_Result<-aov(values ~ ind,data = Stacked_Groups)
19 summary(Anova_Result)
20
```

13:52 (Top Level) ↕

Console

Terminal ×

Jobs ×

R 4.1.2 · ~/

```
47      19.56      9.46
48      21.20     13.21
49      23.36     14.52
50      19.25     10.66
51      13.74      7.42
52      18.43     11.59
53      11.59      7.59
54      35.04      NA
55      34.41      NA
56      30.31      NA
57      33.33     17.68
58      28.74     17.70
59      21.08     13.52
60      21.32     13.44
61      17.26     12.46
62      17.62     10.82
```

```
> # Stack Groups
> Stacked_Groups<-stack(Combined_Groups)
> #Anova Command
> Anova_Result<-aov(values ~ ind,data = Stacked_Groups)
> summary(Anova_Result)
```

```
          Df Sum Sq Mean Sq F value Pr(>F)
ind          7 141702   20243   729.4 <2e-16 ***
Residuals  483  13405        28
```

signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1