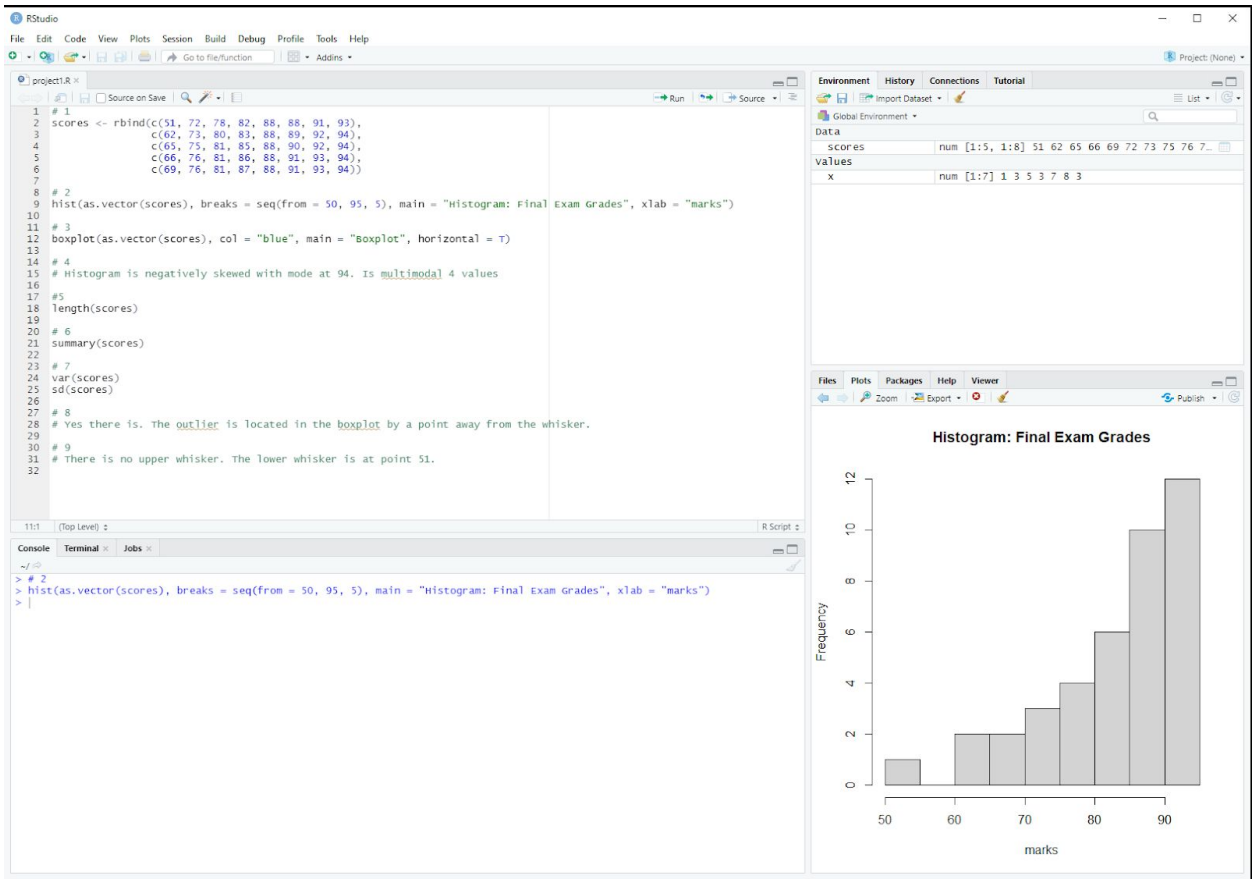
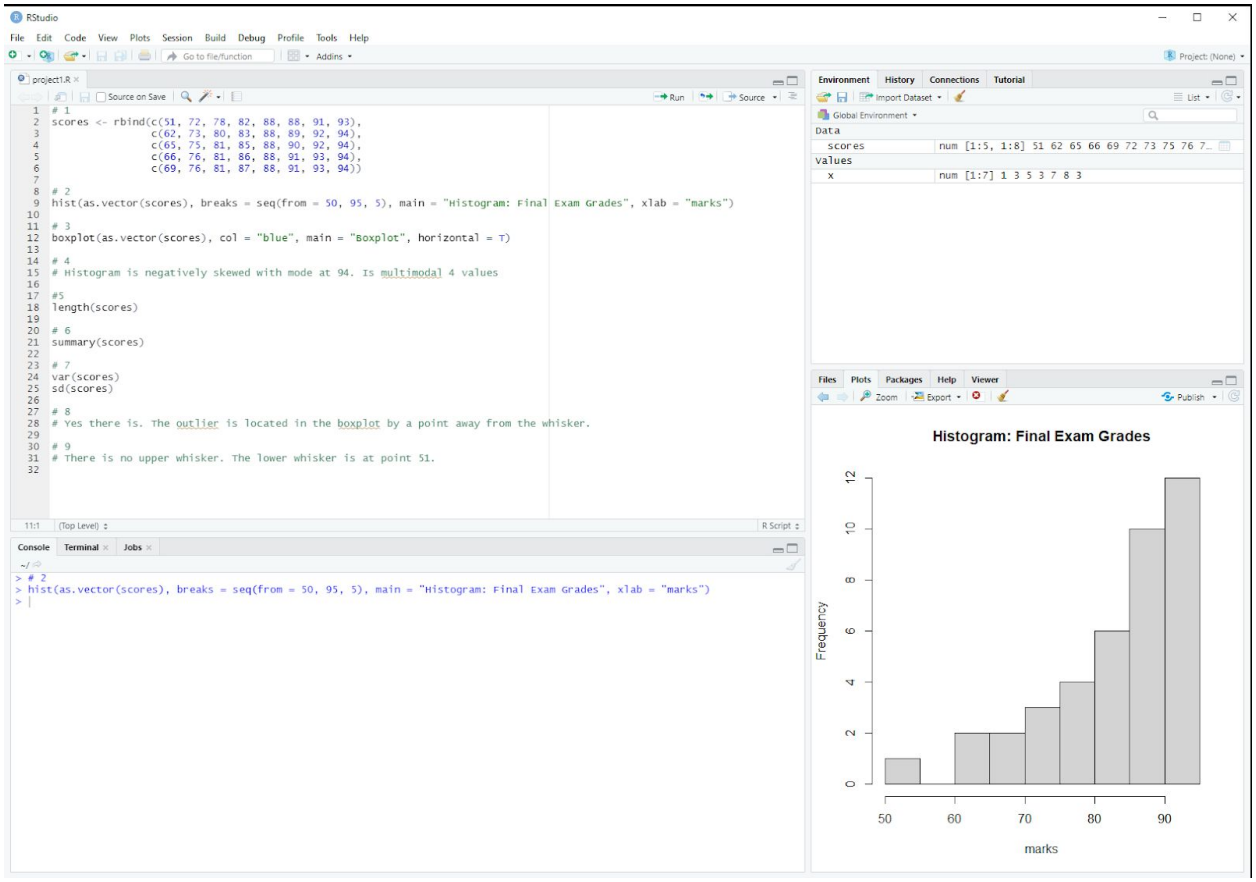
Joseph Hyatt
007131989
MATH 2265-01

R Project

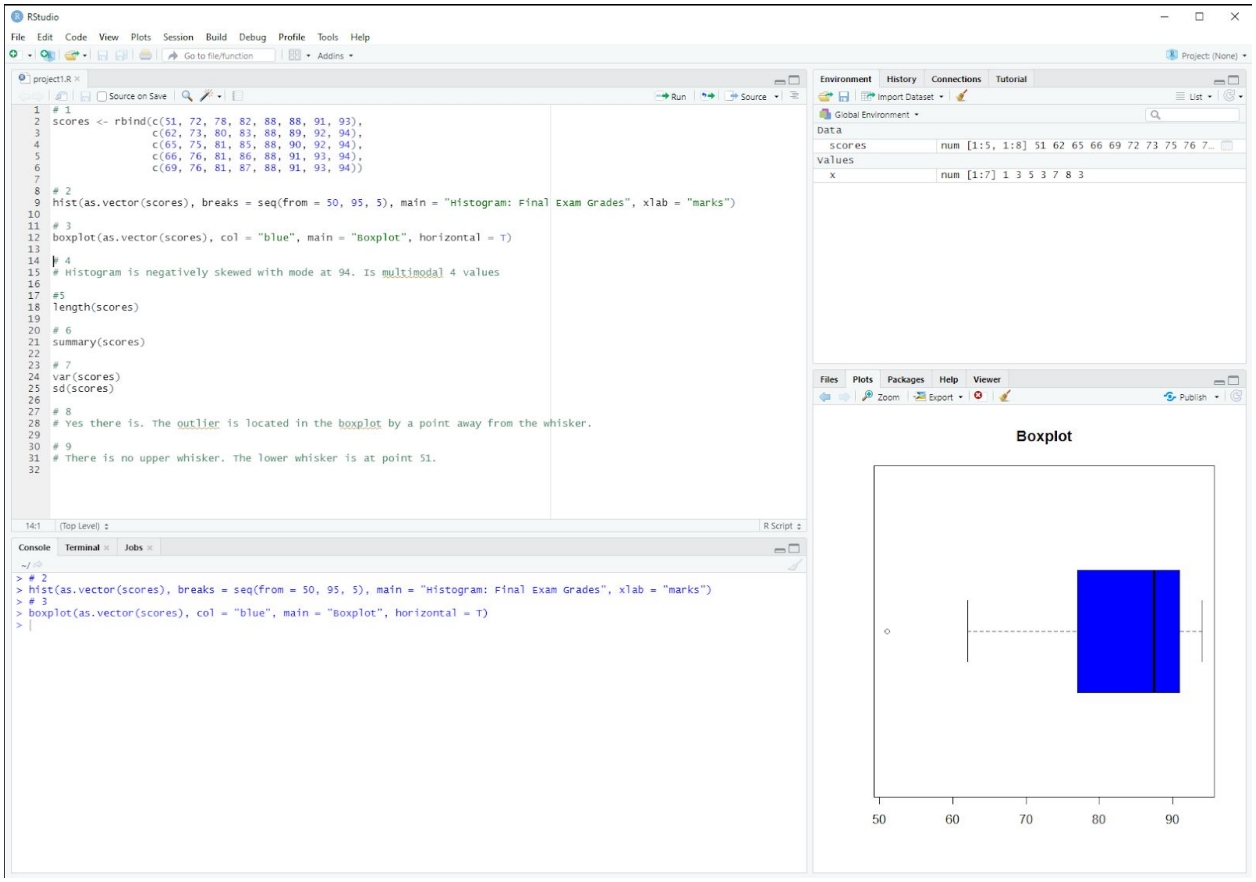
Full Code



Question 2


RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
project1.R
Source on Save
Run
Source
1 # 1
2 scores <- rbind(c(51, 72, 78, 82, 88, 88, 91, 93),
3 c(62, 73, 80, 83, 88, 89, 92, 94),
4 c(65, 75, 81, 85, 88, 90, 92, 94),
5 c(66, 76, 81, 86, 88, 91, 93, 94),
6 c(69, 76, 81, 87, 88, 91, 93, 94))
7
8 # 2
9 hist(as.vector(scores), breaks = seq(from = 50, 95, 5), main = "Histogram: Final Exam Grades", xlab = "marks")
10
11 # 3
12 boxplot(as.vector(scores), col = "blue", main = "Boxplot", horizontal = T)
13
14 # 4
15 # Histogram is negatively skewed with mode at 94. Is multimodal 4 values
16
17 #5
18 length(scores)
19
20 # 6
21 summary(scores)
22
23 # 7
24 var(scores)
25 sd(scores)
26
27 # 8
28 # Yes there is. The outlier is located in the boxplot by a point away from the whisker.
29
30 # 9
31 # There is no upper whisker. The lower whisker is at point 51.
32
11:1 (Top Level) R Script
Console Terminal Jobs
> # 2
> hist(as.vector(scores), breaks = seq(from = 50, 95, 5), main = "Histogram: Final Exam Grades", xlab = "marks")
Environment History Connections Tutorial
Import Dataset List
Global Environment
Data
scores num [1:5, 1:8] 51 62 65 66 69 72 73 75 76 7…
Values
x num [1:7] 1 3 5 3 7 8 3
Files Plots Packages Help Viewer
Zoom Export Publish
Histogram: Final Exam Grades
Frequency
0 2 4 6 8 10 12
50 60 70 80 90
marks

Question 3


RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
project1.R
Source on Save
Run
Source
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scores <- rbind(c(51, 72, 78, 82, 88, 88, 91, 93),
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c(66, 76, 81, 86, 88, 91, 93, 94),
c(69, 76, 81, 87, 88, 91, 93, 94))
# 2
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# 3
boxplot(as.vector(scores), col = "blue", main = "Boxplot", horizontal = T)
# 4
# Histogram is negatively skewed with mode at 94. Is multimodal 4 values
#5
length(scores)
# 6
summary(scores)
# 7
var(scores)
sd(scores)
# 8
# Yes there is. The outlier is located in the boxplot by a point away from the whisker.
# 9
# There is no upper whisker. The lower whisker is at point 51.
14:1 (Top Level) R Script
Console Terminal Jobs
> # 2
> hist(as.vector(scores), breaks = seq(from = 50, 95, 5), main = "Histogram: Final Exam Grades", xlab = "marks")
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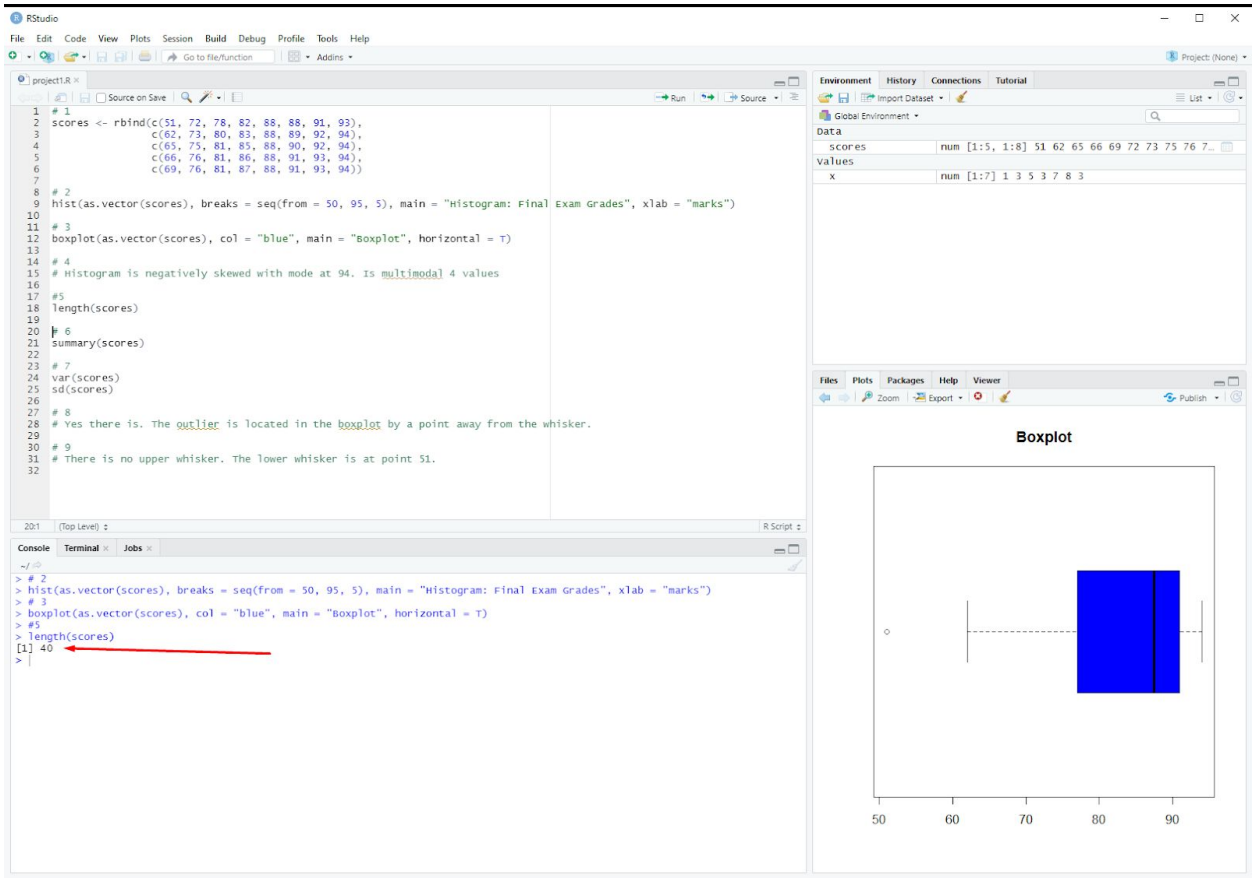
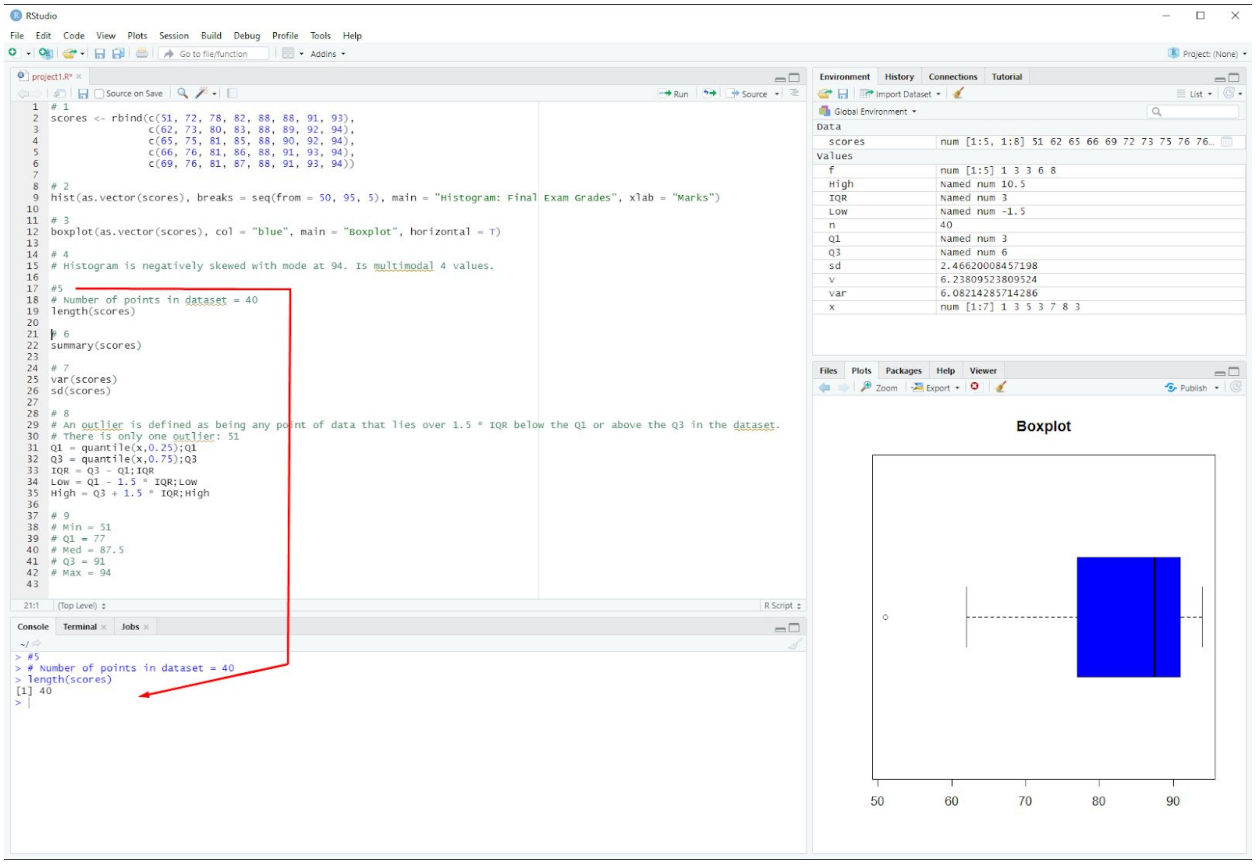
> boxplot(as.vector(scores), col = "blue", main = "Boxplot", horizontal = T)
Environment History Connections Tutorial
Import Dataset
Global Environment
Data
scores num [1:5, 1:8] 51 62 65 66 69 72 73 75 76 7...
Values
x num [1:7] 1 3 5 3 7 8 3
Files Plots Packages Help Viewer
Zoom Export Publish
Boxplot
50 60 70 80 90

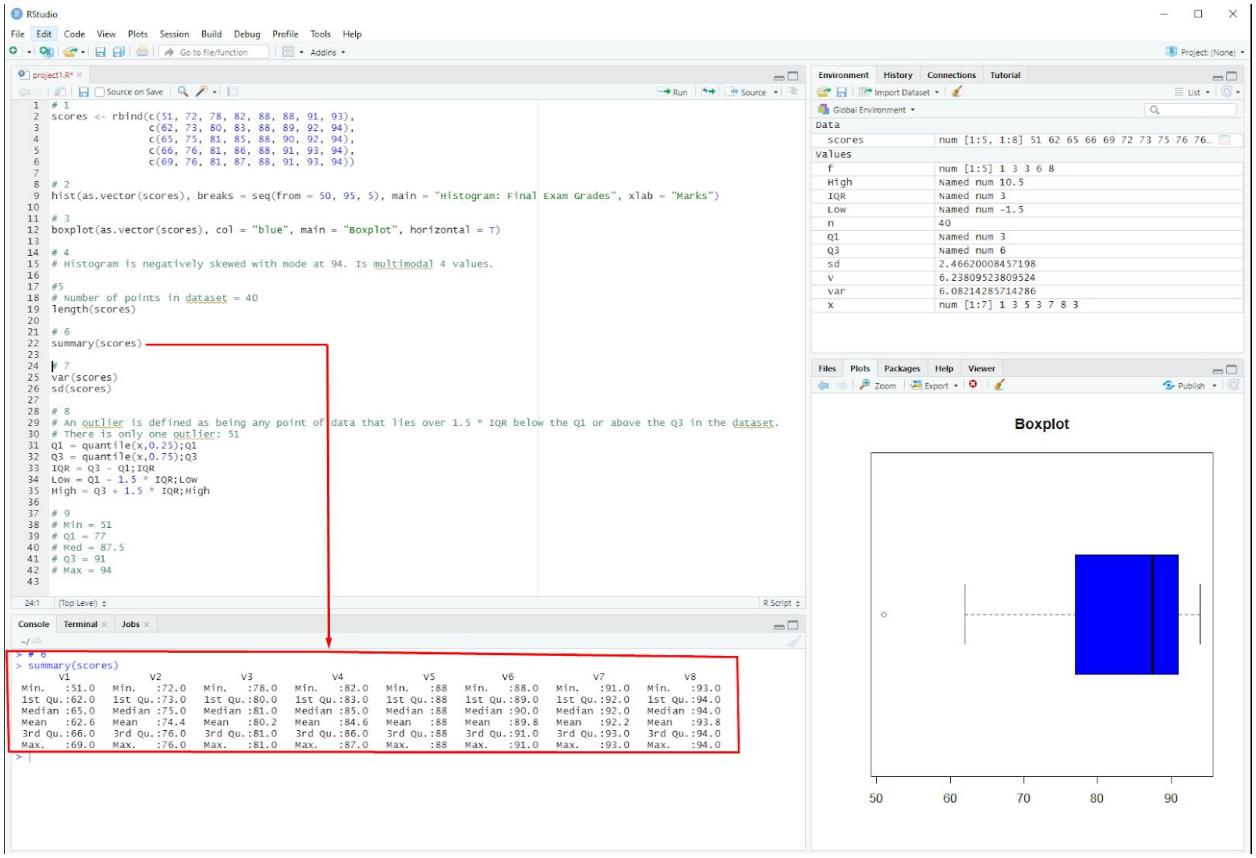
Question 4


RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
project1.R
1 # 1
2 scores <- rbind(c(51, 72, 78, 82, 88, 88, 91, 93),
3 c(62, 73, 80, 83, 88, 89, 92, 94),
4 c(65, 75, 81, 85, 88, 90, 92, 94),
5 c(66, 76, 81, 86, 88, 91, 93, 94),
6 c(69, 76, 81, 87, 88, 91, 93, 94))
7
8 # 2
9 hist(as.vector(scores), breaks = seq(from = 50, 95, 5), main = "Histogram: Final Exam Grades", xlab = "marks")
10
11 # 3
12 boxplot(as.vector(scores), col = "blue", main = "Boxplot", horizontal = T)
13
14 # 4
15 # Histogram is negatively skewed with mode at 94. Is multimodal 4 values
16
17 #5
18 length(scores)
19
20 # 6
21 summary(scores)
22
23 # 7
24 var(scores)
25 sd(scores)
26
27 # 8
28 # Yes there is. The outlier is located in the boxplot by a point away from the whisker.
29
30 # 9
31 # There is no upper whisker. The lower whisker is at point 51.
32
Console Terminal Jobs
> # 2
> hist(as.vector(scores), breaks = seq(from = 50, 95, 5), main = "Histogram: Final Exam Grades", xlab = "marks")
> # 3
> boxplot(as.vector(scores), col = "blue", main = "Boxplot", horizontal = T)
> #5
> length(scores)
[1] 40
Environment History Connections Tutorial
Data
scores num [1:5, 1:8] 51 62 65 66 69 72 73 75 76 7...
Values
x num [1:7] 1 3 5 3 7 8 3
Files Plots Packages Help Viewer
Boxplot
50 60 70 80 90

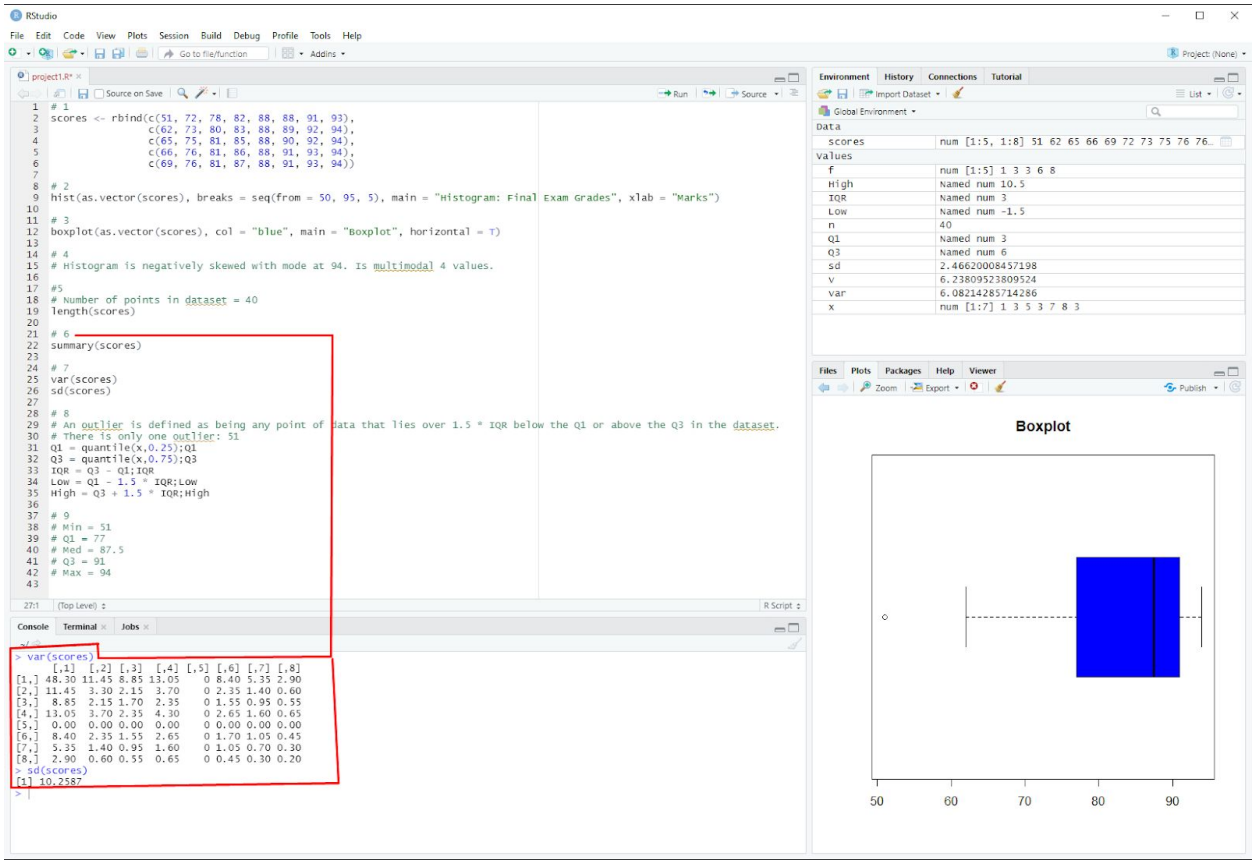
Question 5


RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
project1.R*
Source on Save
Run
Source
1 # 1
2 scores <- rbind(c(51, 72, 78, 82, 88, 88, 91, 93),
3 c(62, 73, 80, 83, 88, 89, 92, 94),
4 c(65, 75, 81, 85, 88, 90, 92, 94),
5 c(66, 76, 81, 86, 88, 91, 93, 94),
6 c(69, 76, 81, 87, 88, 91, 93, 94))
7
8 # 2
9 hist(as.vector(scores), breaks = seq(from = 50, 95, 5), main = "Histogram: Final Exam Grades", xlab = "Marks")
10
11 # 3
12 boxplot(as.vector(scores), col = "blue", main = "Boxplot", horizontal = T)
13
14 # 4
15 # Histogram is negatively skewed with mode at 94. Is multimodal 4 values.
16
17 #5
18 # Number of points in dataset = 40
19 length(scores)
20
21 # 6
22 summary(scores)
23
24 # 7
25 var(scores)
26 sd(scores)
27
28 # 8
29 # An outlier is defined as being any point of data that lies over 1.5 * IQR below the Q1 or above the Q3 in the dataset.
30 # There is only one outlier: 51
31 Q1 = quantile(x,0.25);Q1
32 Q3 = quantile(x,0.75);Q3
33 IQR = Q3 - Q1;IQR
34 Low = Q1 - 1.5 * IQR;Low
35 High = Q3 + 1.5 * IQR;High
36
37 # 9
38 # Min = 51
39 # Q1 = 77
40 # Med = 87.5
41 # Q3 = 91
42 # Max = 94
43
21:1 (Top Level) R Script
Console Terminal Jobs
> #5
> # Number of points in dataset = 40
> length(scores)
[1] 40
>
Environment History Connections Tutorial
Import Dataset List
Global Environment
Data
scores num [1:5, 1:8] 51 62 65 66 69 72 73 75 76 76..
Values
f num [1:5] 1 3 3 6 8
High Named num 10.5
IQR Named num 3
Low Named num -1.5
n 40
Q1 Named num 3
Q3 Named num 6
sd 2.46620008457198
v 6.23809523809524
var 6.08214285714286
x num [1:7] 1 3 5 3 7 8 3
Files Plots Packages Help Viewer
Zoom Export Publish
Boxplot
50 60 70 80 90

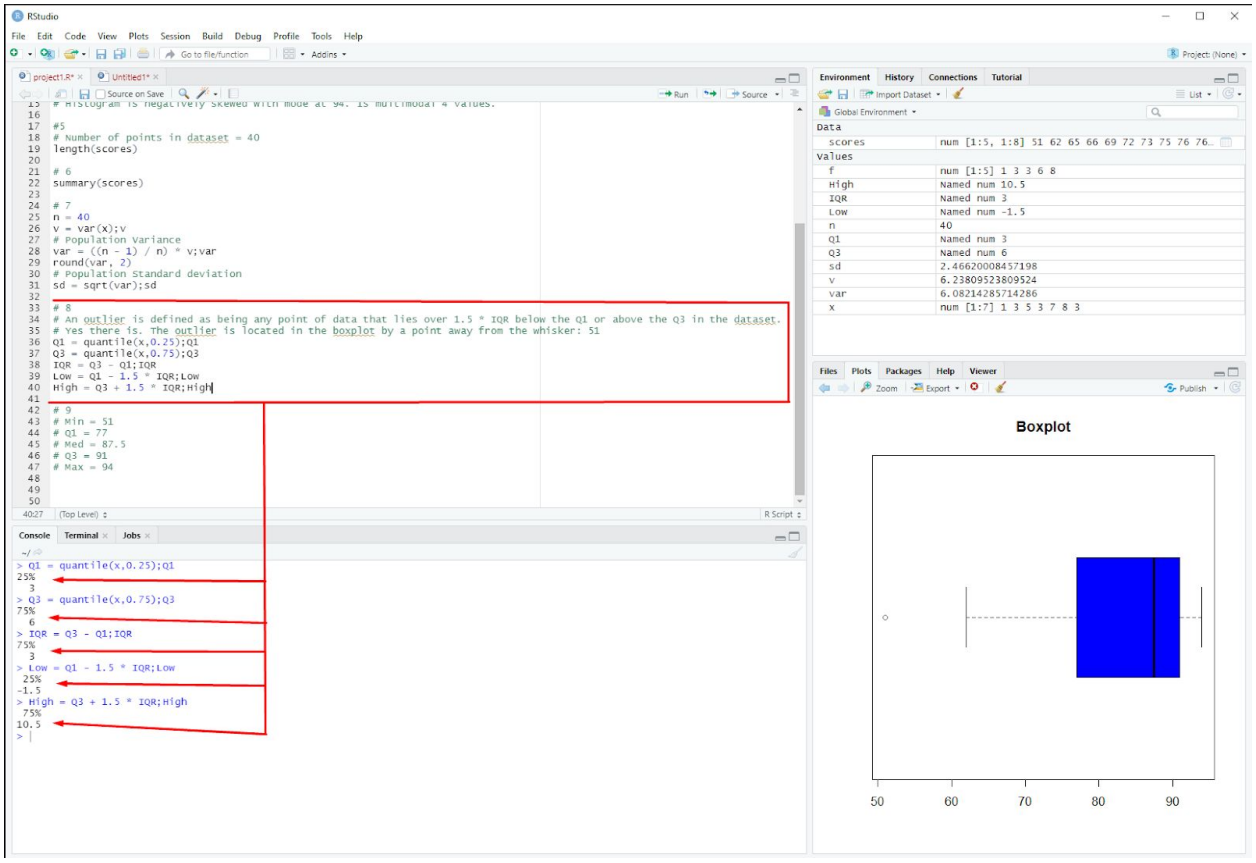
Question 6


RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
project1.R*
1 # 1
2 scores <- rbind(c(51, 72, 78, 82, 88, 88, 91, 93),
3 c(62, 73, 80, 83, 88, 89, 92, 94),
4 c(65, 75, 81, 85, 88, 90, 92, 94),
5 c(66, 76, 81, 86, 88, 91, 93, 94),
6 c(69, 76, 81, 87, 88, 91, 93, 94))
7
8 # 2
9 hist(as.vector(scores), breaks = seq(from = 50, 95, 5), main = "Histogram: Final Exam Grades", xlab = "Marks")
10
11 # 3
12 boxplot(as.vector(scores), col = "blue", main = "Boxplot", horizontal = T)
13
14 # 4
15 # Histogram is negatively skewed with mode at 94. Is multimodal 4 values.
16
17 #5
18 # Number of points in dataset = 40
19 length(scores)
20
21 # 6
22 summary(scores)
23
24 # 7
25 var(scores)
26 sd(scores)
27
28 # 8
29 # An outlier is defined as being any point of data that lies over 1.5 * IQR below the Q1 or above the Q3 in the dataset.
30 # There is only one outlier: 51
31 Q1 = quantile(x,0.25);Q1
32 Q3 = quantile(x,0.75);Q3
33 IQR = Q3 - Q1;IQR
34 Low = Q1 - 1.5 * IQR;Low
35 High = Q3 + 1.5 * IQR;High
36
37 # 9
38 # Min = 51
39 # Q1 = 77
40 # Med = 87.5
41 # Q3 = 91
42 # Max = 94
43
Console Terminal Jobs
> # 6
> summary(scores)
V1 V2 V3 V4 V5 V6 V7 V8
Min. :51.0 Min. :72.0 Min. :78.0 Min. :82.0 Min. :88 Min. :88.0 Min. :91.0 Min. :93.0
1st Qu.:62.0 1st Qu.:73.0 1st Qu.:80.0 1st Qu.:83.0 1st Qu.:88 1st Qu.:89.0 1st Qu.:92.0 1st Qu.:94.0
Median :65.0 Median :75.0 Median :81.0 Median :85.0 Median :88 Median :90.0 Median :92.0 Median :94.0
Mean :62.6 Mean :74.4 Mean :80.2 Mean :84.6 Mean :88 Mean :89.8 Mean :92.2 Mean :93.8
3rd Qu.:66.0 3rd Qu.:76.0 3rd Qu.:81.0 3rd Qu.:86.0 3rd Qu.:88 3rd Qu.:91.0 3rd Qu.:93.0 3rd Qu.:94.0
Max. :69.0 Max. :76.0 Max. :81.0 Max. :87.0 Max. :88 Max. :91.0 Max. :93.0 Max. :94.0
Environment History Connections Tutorial
Import Dataset
Global Environment
Data
scores num [1:5, 1:8] 51 62 65 66 69 72 73 75 76 76..
values
f num [1:5] 1 3 3 6 8
High Named num 10.5
IQR Named num 3
Low Named num -1.5
n 40
Q1 Named num 3
Q3 Named num 6
sd 2.46620008457198
v 6.23809523809524
var 6.08214285714286
x num [1:7] 1 3 5 3 7 8 3
Files Plots Packages Help Viewer
Zoom Export Publish
Boxplot
50 60 70 80 90

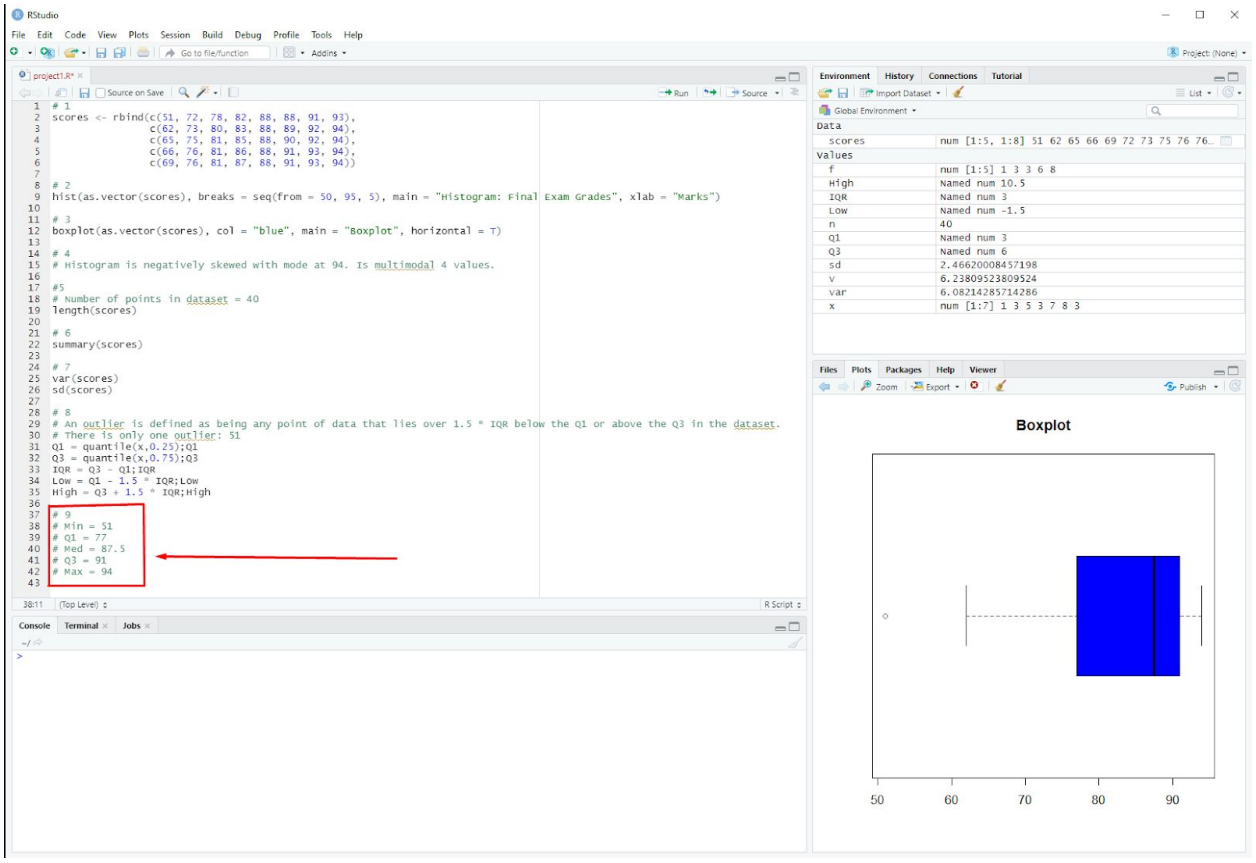
Question 7


RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
project1.R*
Source on Save
Run
Source
1 # 1
2 scores <- rbind(c(51, 72, 78, 82, 88, 88, 91, 93),
3 c(62, 73, 80, 83, 88, 89, 92, 94),
4 c(65, 75, 81, 85, 88, 90, 92, 94),
5 c(66, 76, 81, 86, 88, 91, 93, 94),
6 c(69, 76, 81, 87, 88, 91, 93, 94))
7
8 # 2
9 hist(as.vector(scores), breaks = seq(from = 50, 95, 5), main = "Histogram: Final Exam Grades", xlab = "Marks")
10
11 # 3
12 boxplot(as.vector(scores), col = "blue", main = "Boxplot", horizontal = T)
13
14 # 4
15 # Histogram is negatively skewed with mode at 94. Is multimodal 4 values.
16
17 #5
18 # Number of points in dataset = 40
19 length(scores)
20
21 # 6
22 summary(scores)
23
24 # 7
25 var(scores)
26 sd(scores)
27
28 # 8
29 # An outlier is defined as being any point of data that lies over 1.5 * IQR below the Q1 or above the Q3 in the dataset.
30 # There is only one outlier: 51
31 Q1 = quantile(x,0.25);Q1
32 Q3 = quantile(x,0.75);Q3
33 IQR = Q3 - Q1;IQR
34 Low = Q1 - 1.5 * IQR;Low
35 High = Q3 + 1.5 * IQR;High
36
37 # 9
38 # Min = 51
39 # Q1 = 77
40 # Med = 87.5
41 # Q3 = 91
42 # Max = 94
43
27:1 (Top Level) R Script
Console Terminal Jobs
> var(scores)
[,1] [,2] [,3] [,4] [,5] [,6] [,7] [,8]
[1,] 48.30 11.45 8.85 13.05 0 8.40 5.35 2.90
[2,] 11.45 3.30 2.15 3.70 0 2.35 1.40 0.60
[3,] 8.85 2.15 1.70 2.35 0 1.55 0.95 0.55
[4,] 13.05 3.70 2.35 4.30 0 2.65 1.60 0.65
[5,] 0.00 0.00 0.00 0.00 0 0.00 0.00 0.00
[6,] 8.40 2.35 1.55 2.65 0 1.70 1.05 0.45
[7,] 5.35 1.40 0.95 1.60 0 1.05 0.70 0.30
[8,] 2.90 0.60 0.55 0.65 0 0.45 0.30 0.20
> sd(scores)
[1] 10.2587
>
Environment History Connections Tutorial
Import Dataset
Global Environment
Data
scores num [1:5, 1:8] 51 62 65 66 69 72 73 75 76 76..
values
f num [1:5] 1 3 3 6 8
High Named num 10.5
IQR Named num 3
Low Named num -1.5
n 40
Q1 Named num 3
Q3 Named num 6
sd 2.46620008457198
v 6.23809523809524
var 6.08214285714286
x num [1:7] 1 3 5 3 7 8 3
Files Plots Packages Help Viewer
Zoom Export Publish
Boxplot
50 60 70 80 90

Question 8


RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
project1.R* Untitled1*
Histogram is negatively skewed with mode at 94. Is multimodal 4 values.
#5
# Number of points in dataset = 40
length(scores)
# 6
summary(scores)
# 7
n = 40
v = var(x);v
# Population Variance
var = ((n - 1) / n) * v;var
round(var, 2)
# Population Standard deviation
sd = sqrt(var);sd
# 8
# An outlier is defined as being any point of data that lies over 1.5 * IQR below the Q1 or above the Q3 in the dataset.
# Yes there is. The outlier is located in the boxplot by a point away from the whisker: 51
Q1 = quantile(x,0.25);Q1
Q3 = quantile(x,0.75);Q3
IQR = Q3 - Q1;IQR
Low = Q1 - 1.5 * IQR;Low
High = Q3 + 1.5 * IQR;High
# 9
# Min = 51
# Q1 = 77
# Med = 87.5
# Q3 = 91
# Max = 94
Console Terminal Jobs
> Q1 = quantile(x,0.25);Q1
25%
3
> Q3 = quantile(x,0.75);Q3
75%
6
> IQR = Q3 - Q1;IQR
75%
3
> Low = Q1 - 1.5 * IQR;Low
25%
-1.5
> High = Q3 + 1.5 * IQR;High
75%
10.5
Environment History Connections Tutorial
Data
scores num [1:5, 1:8] 51 62 65 66 69 72 73 75 76 76...
values
f num [1:5] 1 3 3 6 8
High Named num 10.5
IQR Named num 3
Low Named num -1.5
n 40
Q1 Named num 3
Q3 Named num 6
sd 2.46620008457198
v 6.23809523809524
var 6.08214285714286
x num [1:7] 1 3 5 3 7 8 3
Files Plots Packages Help Viewer
Boxplot
50
60
70
80
90

Question 9


RStudio
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project1.R*
Source on Save
Run
Source
1 # 1
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5 c(66, 76, 81, 86, 88, 91, 93, 94),
6 c(69, 76, 81, 87, 88, 91, 93, 94))
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11 # 3
12 boxplot(as.vector(scores), col = "blue", main = "Boxplot", horizontal = T)
13
14 # 4
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17 #5
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21 # 6
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35 High = Q3 + 1.5 * IQR;High
36
37 # 9
38 # Min = 51
39 # Q1 = 77
40 # Med = 87.5
41 # Q3 = 91
42 # Max = 94
43
38:11 (Top Level) R Script
Console Terminal Jobs
~/
>
Environment History Connections Tutorial
Import Dataset
Global Environment
Data
scores num [1:5, 1:8] 51 62 65 66 69 72 73 75 76 76...
values
f num [1:5] 1 3 3 6 8
High Named num 10.5
IQR Named num 3
Low Named num -1.5
n 40
Q1 Named num 3
Q3 Named num 6
sd 2.46620008457198
v 6.23809523809524
var 6.08214285714286
x num [1:7] 1 3 5 3 7 8 3
Files Plots Packages Help Viewer
Zoom Export Publish
Boxplot
50 60 70 80 90