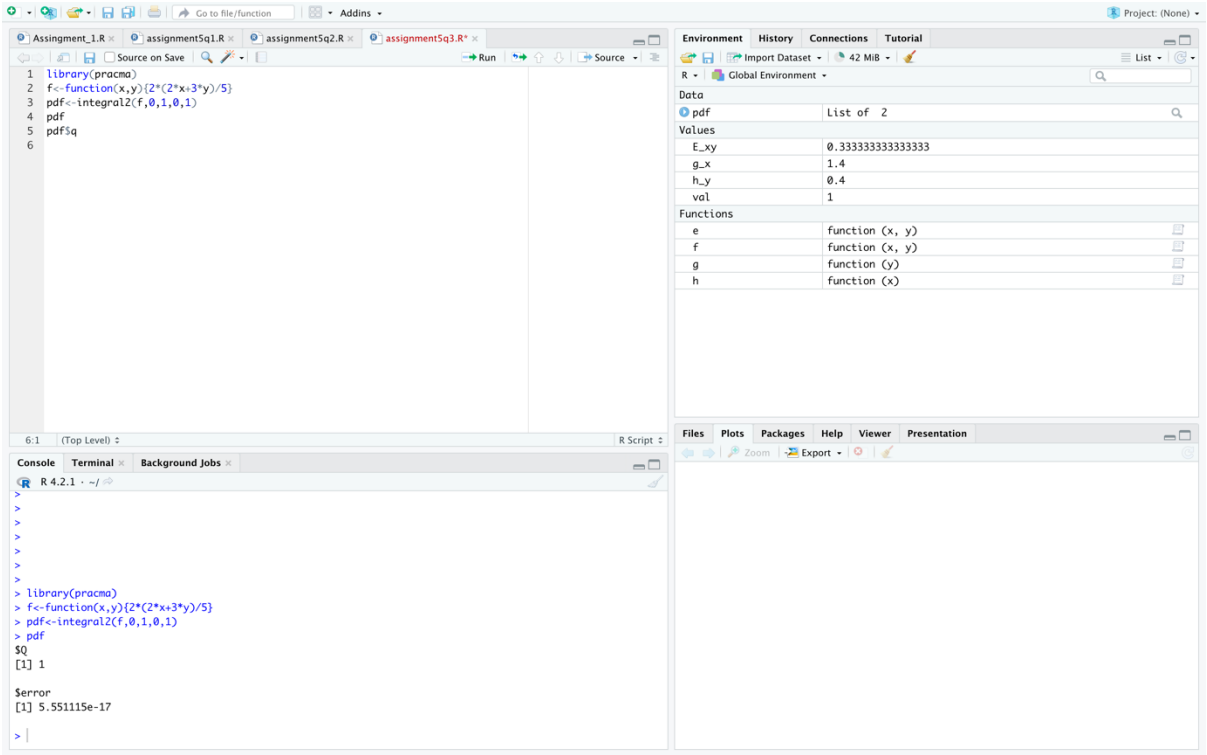
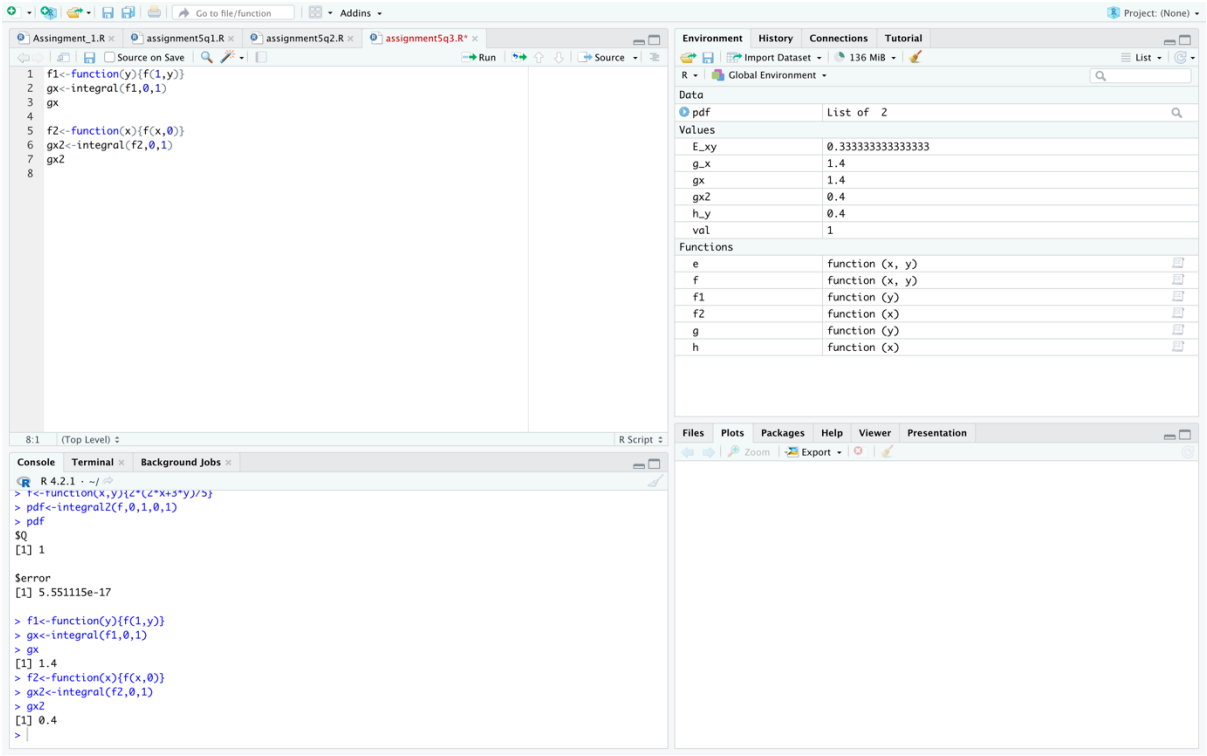
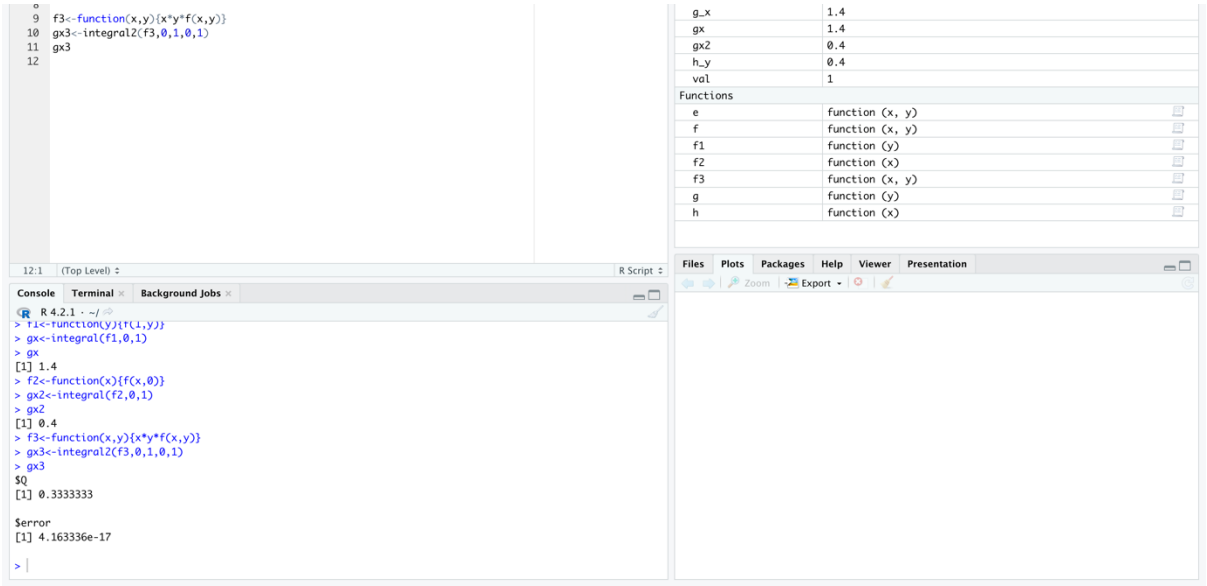
Assignment-6

Name: Suyash Kumar Sherwal
Class: 3COE1
Roll_No: 102003067

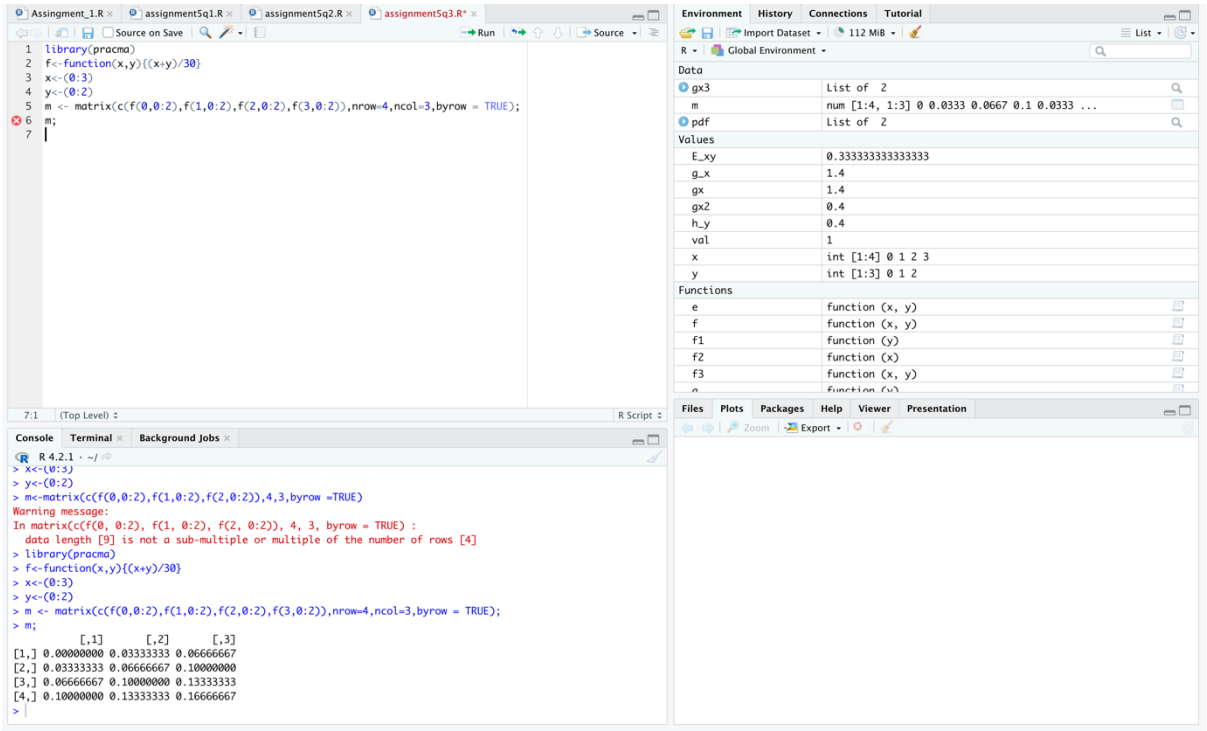
Q1.

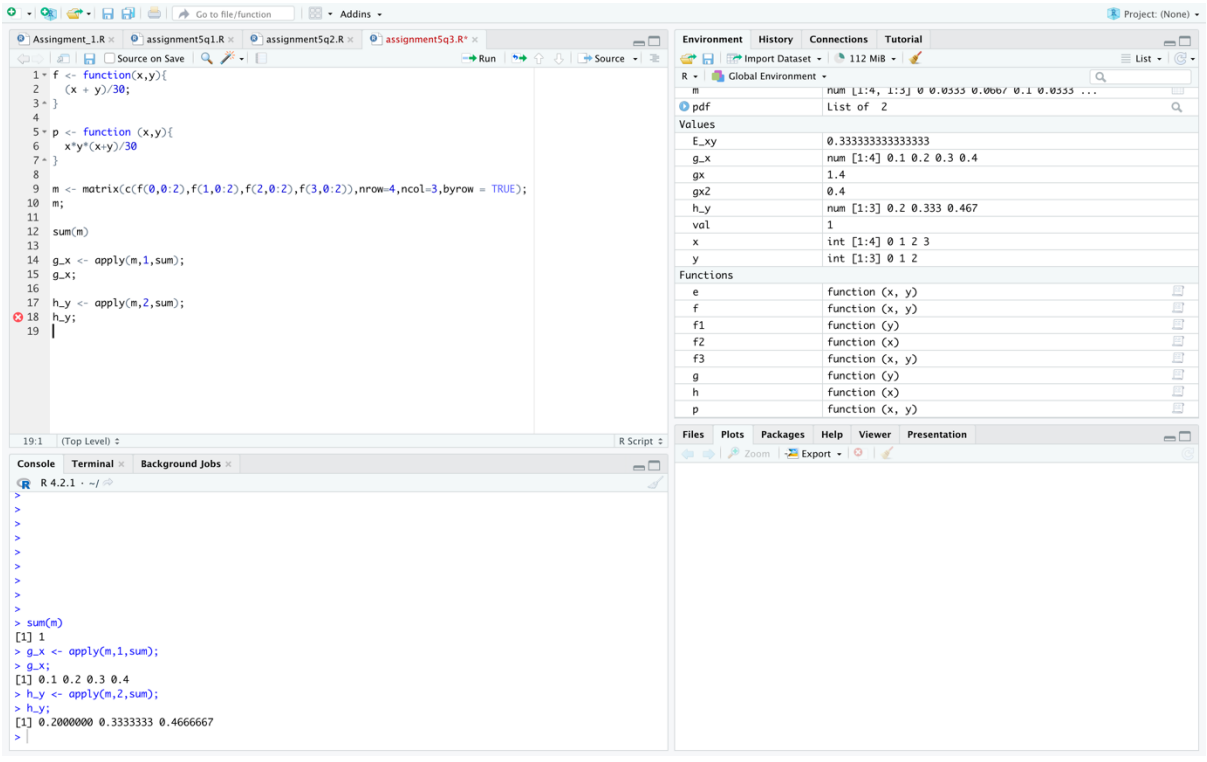


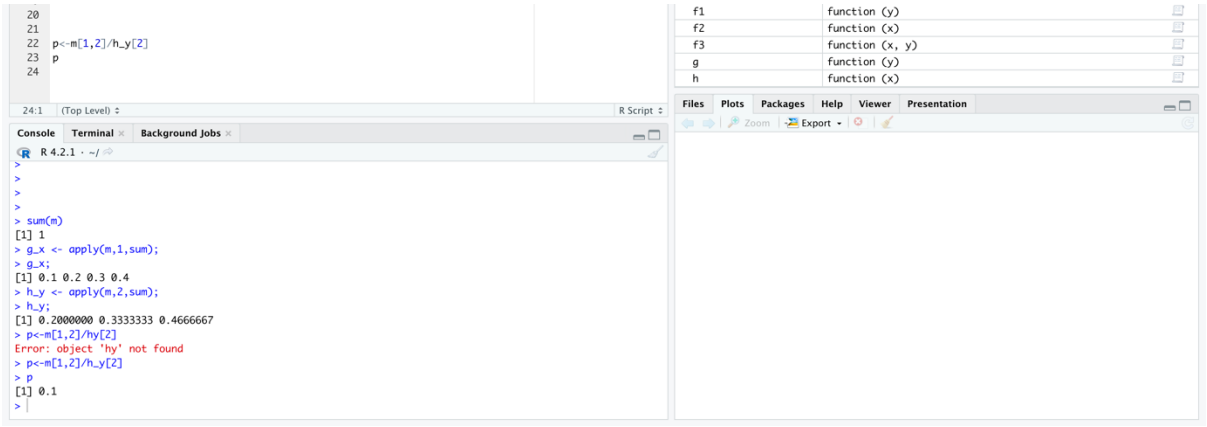

Assingment_1.R
assignment5q1.R
assignment5q2.R
assignment5q3.R*
f1<-function(y){f(1,y)}
gx<-integral(f1,0,1)
gx
f2<-function(x){f(x,0)}
gx2<-integral(f2,0,1)
gx2
Environment
History
Connections
Tutorial
Data
pdf
List of 2
Values
E_xy
0.333333333333333
g_x
1.4
gx
1.4
gx2
0.4
h_y
0.4
val
1
Functions
e
function (x, y)
f
function (x, y)
f1
function (y)
f2
function (x)
g
function (y)
h
function (x)
Console
Terminal
Background Jobs
> pdf<-integral2(f,0,1,0,1)
> pdf
$Q
[1] 1
$error
[1] 5.551115e-17
> f1<-function(y){f(1,y)}
> gx<-integral(f1,0,1)
> gx
[1] 1.4
> f2<-function(x){f(x,0)}
> gx2<-integral(f2,0,1)
> gx2
[1] 0.4

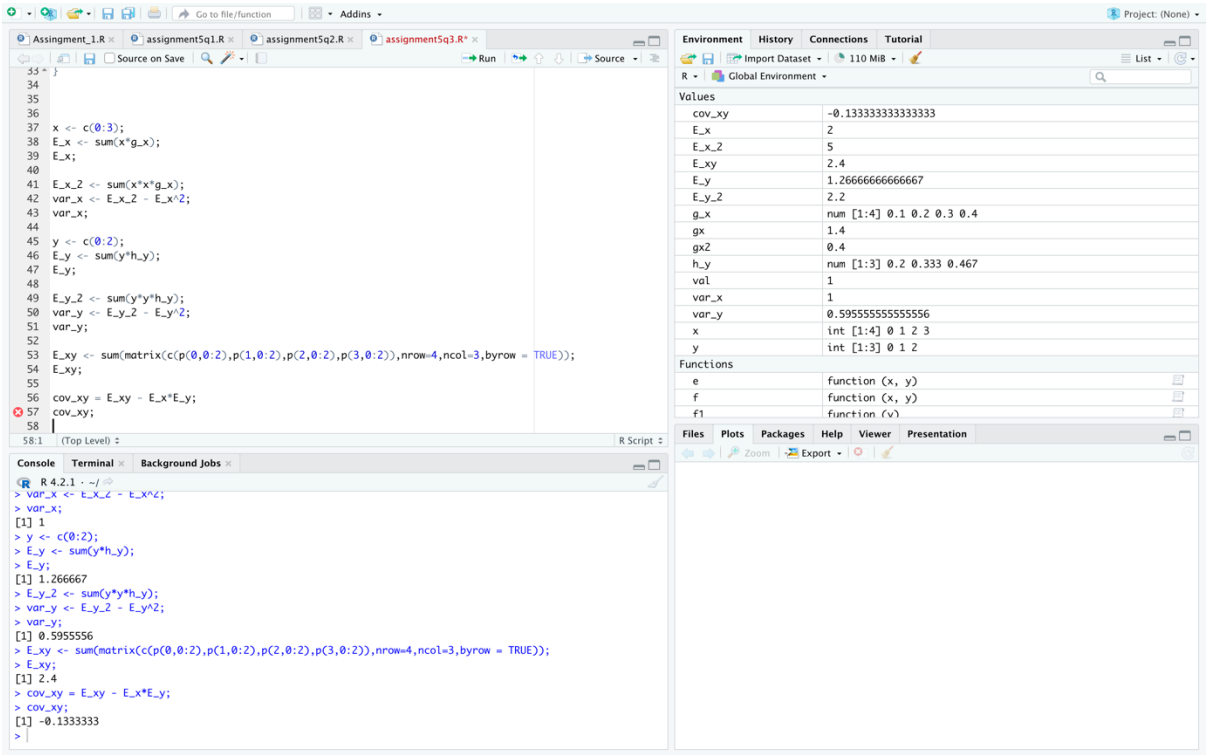

f3<-function(x,y){x*y*f(x,y)}
gx3<-integral2(f3,0,1,0,1)
gx3
g_x
1.4
gx
1.4
gx2
0.4
h_y
0.4
val
1
f3
function (x, y)
> f3<-function(x,y){x*y*f(x,y)}
> gx3<-integral2(f3,0,1,0,1)
> gx3
$Q
[1] 0.3333333
$error
[1] 4.163336e-17

Q2.


Assingment_1.R
assignment5q1.R
assignment5q2.R
assignment5q3.R*
Source on Save
Run
Source
1 library(pracma)
2 f<-function(x,y){(x+y)/30}
3 x<-(0:3)
4 y<-(0:2)
5 m <- matrix(c(f(0,0:2),f(1,0:2),f(2,0:2),f(3,0:2)),nrow=4,ncol=3,byrow = TRUE);
6 m;
7
7:1 (Top Level)
R Script
Console
Terminal
Background Jobs
R 4.2.1 · ~/
> x<-(0:3)
> y<-(0:2)
> m<-matrix(c(f(0,0:2),f(1,0:2),f(2,0:2)),4,3,byrow =TRUE)
Warning message:
In matrix(c(f(0, 0:2), f(1, 0:2), f(2, 0:2)), 4, 3, byrow = TRUE) :
data length [9] is not a sub-multiple or multiple of the number of rows [4]
> library(pracma)
> f<-function(x,y){(x+y)/30}
> x<-(0:3)
> y<-(0:2)
> m <- matrix(c(f(0,0:2),f(1,0:2),f(2,0:2),f(3,0:2)),nrow=4,ncol=3,byrow = TRUE);
> m;
[,1] [,2] [,3]
[1,] 0.00000000 0.03333333 0.06666667
[2,] 0.03333333 0.06666667 0.10000000
[3,] 0.06666667 0.10000000 0.13333333
[4,] 0.10000000 0.13333333 0.16666667
Environment
History
Connections
Tutorial
Import Dataset
112 MiB
List
R
Global Environment
Data
gx3 List of 2
m num [1:4, 1:3] 0 0.0333 0.0667 0.1 0.0333 ...
pdf List of 2
Values
E_xy 0.333333333333333
g_x 1.4
gx 1.4
gx2 0.4
h_y 0.4
val 1
x int [1:4] 0 1 2 3
y int [1:3] 0 1 2
Functions
e function (x, y)
f function (x, y)
f1 function (y)
f2 function (x)
f3 function (x, y)
Files
Plots
Packages
Help
Viewer
Presentation
Zoom
Export


Go to file/function
Addins
Project: (None)
Assingment_1.R
assignment5q1.R
assignment5q2.R
assignment5q3.R*
Source on Save
Run
Source
1 f <- function(x,y){
2 (x + y)/30;
3 }
4
5 p <- function (x,y){
6 x*y*(x+y)/30
7 }
8
9 m <- matrix(c(f(0,0:2),f(1,0:2),f(2,0:2),f(3,0:2)),nrow=4,ncol=3,byrow = TRUE);
10 m;
11
12 sum(m)
13
14 g_x <- apply(m,1,sum);
15 g_x;
16
17 h_y <- apply(m,2,sum);
18 h_y;
19
19:1 (Top Level)
R Script
Console
Terminal
Background Jobs
R 4.2.1 · ~/
> sum(m)
[1] 1
> g_x <- apply(m,1,sum);
> g_x;
[1] 0.1 0.2 0.3 0.4
> h_y <- apply(m,2,sum);
> h_y;
[1] 0.2000000 0.3333333 0.4666667
Environment
History
Connections
Tutorial
Import Dataset
112 MiB
List
R
Global Environment
pdf List of 2
Values
E_xy 0.333333333333333
g_x num [1:4] 0.1 0.2 0.3 0.4
gx 1.4
gx2 0.4
h_y num [1:3] 0.2 0.333 0.467
val 1
x int [1:4] 0 1 2 3
y int [1:3] 0 1 2
Functions
e function (x, y)
f function (x, y)
f1 function (y)
f2 function (x)
f3 function (x, y)
g function (y)
h function (x)
p function (x, y)
Files
Plots
Packages
Help
Viewer
Presentation
Zoom
Export


p<-m[1,2]/h_y[2]
p
24:1 (Top Level) R Script
Console Terminal Background Jobs
R 4.2.1 · ~/
> sum(m)
[1] 1
> g_x <- apply(m,1,sum);
> g_x;
[1] 0.1 0.2 0.3 0.4
> h_y <- apply(m,2,sum);
> h_y;
[1] 0.2000000 0.3333333 0.4666667
> p<-m[1,2]/hy[2]
Error: object 'hy' not found
> p<-m[1,2]/h_y[2]
> p
[1] 0.1
f1 function (y)
f2 function (x)
f3 function (x, y)
g function (y)
h function (x)
Files Plots Packages Help Viewer Presentation
Zoom Export


Assignment_1.R assignment5q1.R assignment5q2.R assignment5q3.R*
Source on Save Run Source
x <- c(0:3);
E_x <- sum(x*g_x);
E_x;
E_x_2 <- sum(x*x*g_x);
var_x <- E_x_2 - E_x^2;
var_x;
y <- c(0:2);
E_y <- sum(y*h_y);
E_y;
E_y_2 <- sum(y*y*h_y);
var_y <- E_y_2 - E_y^2;
var_y;
E_xy <- sum(matrix(c(p(0,0:2),p(1,0:2),p(2,0:2),p(3,0:2)),nrow=4,ncol=3,byrow = TRUE));
E_xy;
cov_xy = E_xy - E_x*E_y;
cov_xy;
58:1 (Top Level) R Script
Console Terminal Background Jobs
R 4.2.1 · ~/
> var_x <- E_x_2 - E_x^2;
> var_x;
[1] 1
> y <- c(0:2);
> E_y <- sum(y*h_y);
> E_y;
[1] 1.266667
> E_y_2 <- sum(y*y*h_y);
> var_y <- E_y_2 - E_y^2;
> var_y;
[1] 0.5955556
> E_xy <- sum(matrix(c(p(0,0:2),p(1,0:2),p(2,0:2),p(3,0:2)),nrow=4,ncol=3,byrow = TRUE));
> E_xy;
[1] 2.4
> cov_xy = E_xy - E_x*E_y;
> cov_xy;
[1] -0.1333333
Environment History Connections Tutorial
Import Dataset 110 MiB List
R Global Environment
Values
cov_xy -0.133333333333333
E_x 2
E_x_2 5
E_xy 2.4
E_y 1.26666666666667
E_y_2 2.2
g_x num [1:4] 0.1 0.2 0.3 0.4
gx 1.4
gx2 0.4
h_y num [1:3] 0.2 0.333 0.467
val 1
var_x 1
var_y 0.595555555555556
x int [1:4] 0 1 2 3
y int [1:3] 0 1 2
Functions
e function (x, y)
f function (x, y)
f1 function (y)
Files Plots Packages Help Viewer Presentation
Zoom Export