

```

In [1]: # Load the required packages
install.packages("ggplot2")
library(ggplot2)
install.packages("tidyr")
library(tidyr)

# Read the CSV file
data <- read.csv("Pilot_modified_data_1.csv")

# Select the specific columns for correlation
columns_of_interest <- c('Panas..', 'Panas...1', 'BFI..E.', 'BFI..A.', 'BFI..C.', 'BFI..O.')
data_subset <- data[, columns_of_interest]

# Calculate the correlation matrix
cor_matrix <- cor(data_subset)

# Convert the correlation matrix to a data frame
cor_df <- as.data.frame(cor_matrix)
cat("The Correlation Matrix is as follows\n\n")
#print(cor_df)

# Assuming you have already created the correlation matrix in the 'cor_df' data frame

# Set row names to column names
cor_df$Var1 <- rownames(cor_df)

# Reshape data using gather
cor_df <- gather(cor_df, Var2, cor, -Var1)

# Convert 'Var1' and 'Var2' to factors to ensure correct ordering in the plot
cor_df$Var1 <- factor(cor_df$Var1, levels = c('Panas..', 'Panas...1', 'BFI..E.', 'BFI..A.', 'BFI..C.', 'BFI..O.'))
cor_df$Var2 <- factor(cor_df$Var2, levels = c('Panas..', 'Panas...1', 'BFI..E.', 'BFI..A.', 'BFI..C.', 'BFI..O.'))

# Create a correlation plot using ggplot2 without text values
# cor_plot <- ggplot(data = cor_df, aes(x = Var1, y = Var2, fill = cor)) +
#   geom_tile(color = "white") +
#   scale_fill_gradient2(low = "blue", mid = "white", high = "red", midpoint = 0, limit = 1) +
#   labs(x = NULL, y = NULL, title = "Correlation Matrix", fill = "Correlation") +
#   theme_minimal() +
#   theme(axis.text.x = element_text(angle = 45, hjust = 1),
#         plot.title = element_text(size = 14, face = "bold"))

# Display the correlation plot
# print(cor_plot)

# Create a correlation plot using ggplot2 with text labels
cor_plot <- ggplot(data = cor_df, aes(x = Var1, y = Var2, fill = cor, label = sprintf("%.2f", cor))) +
  geom_tile(color = "white") +
  geom_text(size = 3) + # Add text labels for correlation values
  scale_fill_gradient2(low = "blue", mid = "white", high = "red", midpoint = 0, limit = 1) +
  labs(x = NULL, y = NULL, title = "Correlation Matrix", fill = "Correlation") +
  theme_minimal() +

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theme(axis.text.x = element_text(angle = 45, hjust = 1),
      plot.title = element_text(size = 14, face = "bold"))

# Display the correlation plot
print(cor_plot)

# Save the correlation plot as PNG and JPEG files
ggsave(filename = "correlation_plot.png", plot = cor_plot, width = 100, height = 10)
ggsave(filename = "correlation_plot.jpg", plot = cor_plot, width = 10, height = 10,

```

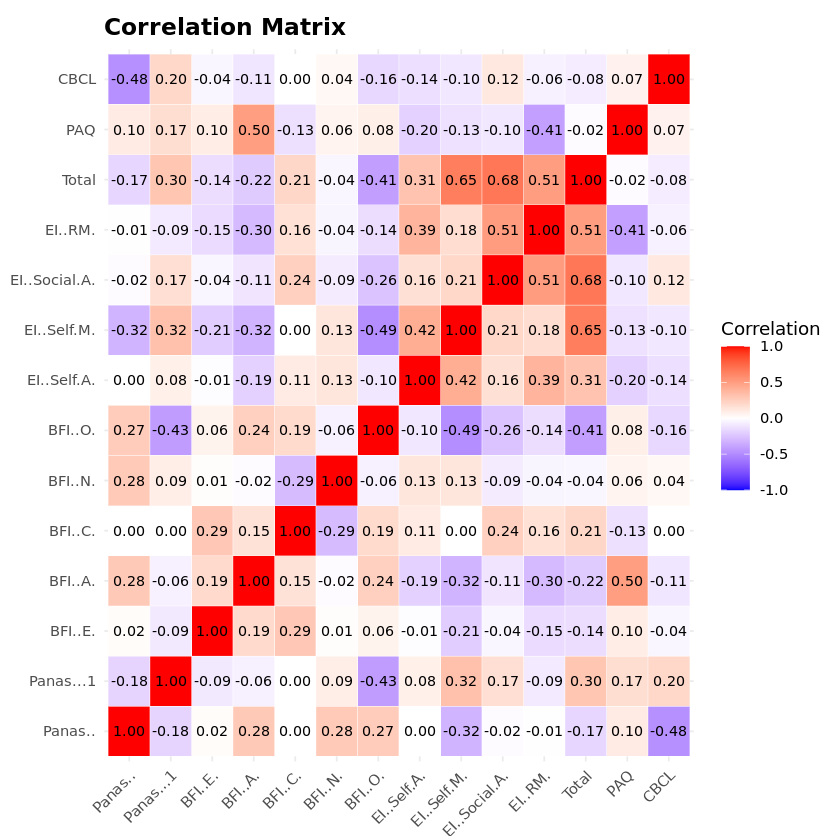
Updating HTML index of packages in '.Library'

Making 'packages.html' ...
done

Updating HTML index of packages in '.Library'

Making 'packages.html' ...
done

The Correlation Matrix is as follows



In [2]: print(cor_df)

	Var1	Var2	cor
1	Panas..	Panas..	1.00000000
2	Panas...1	Panas..	-0.18463724
3	BFI..E.	Panas..	0.01732137
4	BFI..A.	Panas..	0.28246087
5	BFI..C.	Panas..	0.00000000
6	BFI..N.	Panas..	0.27714199
7	BFI..O.	Panas..	0.26967994
8	EI..Self.A.	Panas..	0.00000000
9	EI..Self.M.	Panas..	-0.32202044
10	EI..Social.A.	Panas..	-0.01580439
11	EI..RM.	Panas..	-0.00630938
12	Total	Panas..	-0.17452344
13	PAQ	Panas..	0.10361609
14	CBCL	Panas..	-0.47673129
15	Panas..	Panas...1	-0.18463724
16	Panas...1	Panas...1	1.00000000
17	BFI..E.	Panas...1	-0.09381301
18	BFI..A.	Panas...1	-0.06168610
19	BFI..C.	Panas...1	0.00000000
20	BFI..N.	Panas...1	0.09381301
21	BFI..O.	Panas...1	-0.42600643
22	EI..Self.A.	Panas...1	0.08003565
23	EI..Self.M.	Panas...1	0.32477502
24	EI..Social.A.	Panas...1	0.16954784
25	EI..RM.	Panas...1	-0.09031108
26	Total	Panas...1	0.29960206
27	PAQ	Panas...1	0.17267304
28	CBCL	Panas...1	0.20440745
29	Panas..	BFI..E.	0.01732137
30	Panas...1	BFI..E.	-0.09381301
31	BFI..E.	BFI..E.	1.00000000
32	BFI..A.	BFI..E.	0.19270572
33	BFI..C.	BFI..E.	0.29010070
34	BFI..N.	BFI..E.	0.00990099
35	BFI..O.	BFI..E.	0.06422937
36	EI..Self.A.	BFI..E.	-0.01228645
37	EI..Self.M.	BFI..E.	-0.21430575
38	EI..Social.A.	BFI..E.	-0.03822023
39	EI..RM.	BFI..E.	-0.15404801
40	Total	BFI..E.	-0.14251219
41	PAQ	BFI..E.	0.09567521
42	CBCL	BFI..E.	-0.03633362
43	Panas..	BFI..A.	0.28246087
44	Panas...1	BFI..A.	-0.06168610
45	BFI..E.	BFI..A.	0.19270572
46	BFI..A.	BFI..A.	1.00000000
47	BFI..C.	BFI..A.	0.15260299
48	BFI..N.	BFI..A.	-0.01562479
49	BFI..O.	BFI..A.	0.24326546
50	EI..Self.A.	BFI..A.	-0.19389287
51	EI..Self.M.	BFI..A.	-0.32089914
52	EI..Social.A.	BFI..A.	-0.11368555
53	EI..RM.	BFI..A.	-0.29595235
54	Total	BFI..A.	-0.22115068
55	PAQ	BFI..A.	0.50088804

56	CBCL	BFI..A.	-0.10512007
57	Panas..	BFI..C.	0.00000000
58	Panas...1	BFI..C.	0.00000000
59	BFI..E.	BFI..C.	0.29010070
60	BFI..A.	BFI..C.	0.15260299
61	BFI..C.	BFI..C.	1.00000000
62	BFI..N.	BFI..C.	-0.29010070
63	BFI..O.	BFI..C.	0.18819316
64	EI..Self.A.	BFI..C.	0.10588089
65	EI..Self.M.	BFI..C.	0.00000000
66	EI..Social.A.	BFI..C.	0.24433293
67	EI..RM.	BFI..C.	0.15850550
68	Total	BFI..C.	0.20878157
69	PAQ	BFI..C.	-0.13349047
70	CBCL	BFI..C.	0.00000000
71	Panas..	BFI..N.	0.27714199
72	Panas...1	BFI..N.	0.09381301
73	BFI..E.	BFI..N.	0.00990099
74	BFI..A.	BFI..N.	-0.01562479
75	BFI..C.	BFI..N.	-0.29010070
76	BFI..N.	BFI..N.	1.00000000
77	BFI..O.	BFI..N.	-0.06422937
78	EI..Self.A.	BFI..N.	0.12900770
79	EI..Self.M.	BFI..N.	0.13077564
80	EI..Social.A.	BFI..N.	-0.08582179
81	EI..RM.	BFI..N.	-0.04302010
82	Total	BFI..N.	-0.03919085
83	PAQ	BFI..N.	0.05922751
84	CBCL	BFI..N.	0.03633362
85	Panas..	BFI..O.	0.26967994
86	Panas...1	BFI..O.	-0.42600643
87	BFI..E.	BFI..O.	0.06422937
88	BFI..A.	BFI..O.	0.24326546
89	BFI..C.	BFI..O.	0.18819316
90	BFI..N.	BFI..O.	-0.06422937
91	BFI..O.	BFI..O.	1.00000000
92	EI..Self.A.	BFI..O.	-0.10361551
93	EI..Self.M.	BFI..O.	-0.49381616
94	EI..Social.A.	BFI..O.	-0.25785865
95	EI..RM.	BFI..O.	-0.14271441
96	Total	BFI..O.	-0.41140265
97	PAQ	BFI..O.	0.08275481
98	CBCL	BFI..O.	-0.16499158
99	Panas..	EI..Self.A.	0.00000000
100	Panas...1	EI..Self.A.	0.08003565
101	BFI..E.	EI..Self.A.	-0.01228645
102	BFI..A.	EI..Self.A.	-0.19389287
103	BFI..C.	EI..Self.A.	0.10588089
104	BFI..N.	EI..Self.A.	0.12900770
105	BFI..O.	EI..Self.A.	-0.10361551
106	EI..Self.A.	EI..Self.A.	1.00000000
107	EI..Self.M.	EI..Self.A.	0.42095235
108	EI..Social.A.	EI..Self.A.	0.16211984
109	EI..RM.	EI..Self.A.	0.38584234
110	Total	EI..Self.A.	0.31390489
111	PAQ	EI..Self.A.	-0.19787726

112	CBCL	EI..Self.A.	-0.13526257
113	Panas..	EI..Self.M.	-0.32202044
114	Panas...1	EI..Self.M.	0.32477502
115	BFI..E.	EI..Self.M.	-0.21430575
116	BFI..A.	EI..Self.M.	-0.32089914
117	BFI..C.	EI..Self.M.	0.00000000
118	BFI..N.	EI..Self.M.	0.13077564
119	BFI..O.	EI..Self.M.	-0.49381616
120	EI..Self.A.	EI..Self.M.	0.42095235
121	EI..Self.M.	EI..Self.M.	1.00000000
122	EI..Social.A.	EI..Self.M.	0.20500755
123	EI..RM.	EI..Self.M.	0.17970521
124	Total	EI..Self.M.	0.65174988
125	PAQ	EI..Self.M.	-0.12591887
126	CBCL	EI..Self.M.	-0.10263903
127	Panas..	EI..Social.A.	-0.01580439
128	Panas...1	EI..Social.A.	0.16954784
129	BFI..E.	EI..Social.A.	-0.03822023
130	BFI..A.	EI..Social.A.	-0.11368555
131	BFI..C.	EI..Social.A.	0.24433293
132	BFI..N.	EI..Social.A.	-0.08582179
133	BFI..O.	EI..Social.A.	-0.25785865
134	EI..Self.A.	EI..Social.A.	0.16211984
135	EI..Self.M.	EI..Social.A.	0.20500755
136	EI..Social.A.	EI..Social.A.	1.00000000
137	EI..RM.	EI..Social.A.	0.51400633
138	Total	EI..Social.A.	0.68266343
139	PAQ	EI..Social.A.	-0.10360414
140	CBCL	EI..Social.A.	0.11985565
141	Panas..	EI..RM.	-0.00630938
142	Panas...1	EI..RM.	-0.09031108
143	BFI..E.	EI..RM.	-0.15404801
144	BFI..A.	EI..RM.	-0.29595235
145	BFI..C.	EI..RM.	0.15850550
146	BFI..N.	EI..RM.	-0.04302010
147	BFI..O.	EI..RM.	-0.14271441
148	EI..Self.A.	EI..RM.	0.38584234
149	EI..Self.M.	EI..RM.	0.17970521
150	EI..Social.A.	EI..RM.	0.51400633
151	EI..RM.	EI..RM.	1.00000000
152	Total	EI..RM.	0.50575787
153	PAQ	EI..RM.	-0.40966620
154	CBCL	EI..RM.	-0.05908333
155	Panas..	Total	-0.17452344
156	Panas...1	Total	0.29960206
157	BFI..E.	Total	-0.14251219
158	BFI..A.	Total	-0.22115068
159	BFI..C.	Total	0.20878157
160	BFI..N.	Total	-0.03919085
161	BFI..O.	Total	-0.41140265
162	EI..Self.A.	Total	0.31390489
163	EI..Self.M.	Total	0.65174988
164	EI..Social.A.	Total	0.68266343
165	EI..RM.	Total	0.50575787
166	Total	Total	1.00000000
167	PAQ	Total	-0.01639432

168	CBCL	Total	-0.07844645
169	Panas..	PAQ	0.10361609
170	Panas...1	PAQ	0.17267304
171	BFI..E.	PAQ	0.09567521
172	BFI..A.	PAQ	0.50088804
173	BFI..C.	PAQ	-0.13349047
174	BFI..N.	PAQ	0.05922751
175	BFI..O.	PAQ	0.08275481
176	EI..Self.A.	PAQ	-0.19787726
177	EI..Self.M.	PAQ	-0.12591887
178	EI..Social.A.	PAQ	-0.10360414
179	EI..RM.	PAQ	-0.40966620
180	Total	PAQ	-0.01639432
181	PAQ	PAQ	1.00000000
182	CBCL	PAQ	0.06687598
183	Panas..	CBCL	-0.47673129
184	Panas...1	CBCL	0.20440745
185	BFI..E.	CBCL	-0.03633362
186	BFI..A.	CBCL	-0.10512007
187	BFI..C.	CBCL	0.00000000
188	BFI..N.	CBCL	0.03633362
189	BFI..O.	CBCL	-0.16499158
190	EI..Self.A.	CBCL	-0.13526257
191	EI..Self.M.	CBCL	-0.10263903
192	EI..Social.A.	CBCL	0.11985565
193	EI..RM.	CBCL	-0.05908333
194	Total	CBCL	-0.07844645
195	PAQ	CBCL	0.06687598
196	CBCL	CBCL	1.00000000

```
In [3]: print(cor_df$Var1)
        print(cor_df$Var2)
```

[1]	Panas..	Panas...1	BFI..E.	BFI..A.	BFI..C.
[6]	BFI..N.	BFI..O.	EI..Self.A.	EI..Self.M.	EI..Social.A.
[11]	EI..RM.	Total	PAQ	CBCL	Panas..
[16]	Panas...1	BFI..E.	BFI..A.	BFI..C.	BFI..N.
[21]	BFI..O.	EI..Self.A.	EI..Self.M.	EI..Social.A.	EI..RM.
[26]	Total	PAQ	CBCL	Panas..	Panas...1
[31]	BFI..E.	BFI..A.	BFI..C.	BFI..N.	BFI..O.
[36]	EI..Self.A.	EI..Self.M.	EI..Social.A.	EI..RM.	Total
[41]	PAQ	CBCL	Panas..	Panas...1	BFI..E.
[46]	BFI..A.	BFI..C.	BFI..N.	BFI..O.	EI..Self.A.
[51]	EI..Self.M.	EI..Social.A.	EI..RM.	Total	PAQ
[56]	CBCL	Panas..	Panas...1	BFI..E.	BFI..A.
[61]	BFI..C.	BFI..N.	BFI..O.	EI..Self.A.	EI..Self.M.
[66]	EI..Social.A.	EI..RM.	Total	PAQ	CBCL
[71]	Panas..	Panas...1	BFI..E.	BFI..A.	BFI..C.
[76]	BFI..N.	BFI..O.	EI..Self.A.	EI..Self.M.	EI..Social.A.
[81]	EI..RM.	Total	PAQ	CBCL	Panas..
[86]	Panas...1	BFI..E.	BFI..A.	BFI..C.	BFI..N.
[91]	BFI..O.	EI..Self.A.	EI..Self.M.	EI..Social.A.	EI..RM.
[96]	Total	PAQ	CBCL	Panas..	Panas...1
[101]	BFI..E.	BFI..A.	BFI..C.	BFI..N.	BFI..O.
[106]	EI..Self.A.	EI..Self.M.	EI..Social.A.	EI..RM.	Total
[111]	PAQ	CBCL	Panas..	Panas...1	BFI..E.
[116]	BFI..A.	BFI..C.	BFI..N.	BFI..O.	EI..Self.A.
[121]	EI..Self.M.	EI..Social.A.	EI..RM.	Total	PAQ
[126]	CBCL	Panas..	Panas...1	BFI..E.	BFI..A.
[131]	BFI..C.	BFI..N.	BFI..O.	EI..Self.A.	EI..Self.M.
[136]	EI..Social.A.	EI..RM.	Total	PAQ	CBCL
[141]	Panas..	Panas...1	BFI..E.	BFI..A.	BFI..C.
[146]	BFI..N.	BFI..O.	EI..Self.A.	EI..Self.M.	EI..Social.A.
[151]	EI..RM.	Total	PAQ	CBCL	Panas..
[156]	Panas...1	BFI..E.	BFI..A.	BFI..C.	BFI..N.
[161]	BFI..O.	EI..Self.A.	EI..Self.M.	EI..Social.A.	EI..RM.
[166]	Total	PAQ	CBCL	Panas..	Panas...1
[171]	BFI..E.	BFI..A.	BFI..C.	BFI..N.	BFI..O.
[176]	EI..Self.A.	EI..Self.M.	EI..Social.A.	EI..RM.	Total
[181]	PAQ	CBCL	Panas..	Panas...1	BFI..E.
[186]	BFI..A.	BFI..C.	BFI..N.	BFI..O.	EI..Self.A.
[191]	EI..Self.M.	EI..Social.A.	EI..RM.	Total	PAQ
[196]	CBCL				

14 Levels: Panas.. Panas...1 BFI..E. BFI..A. BFI..C. BFI..N. ... CBCL

[1]	Panas..	Panas..	Panas..	Panas..	Panas..
[6]	Panas..	Panas..	Panas..	Panas..	Panas..
[11]	Panas..	Panas..	Panas..	Panas..	Panas...1
[16]	Panas...1	Panas...1	Panas...1	Panas...1	Panas...1
[21]	Panas...1	Panas...1	Panas...1	Panas...1	Panas...1
[26]	Panas...1	Panas...1	Panas...1	BFI..E.	BFI..E.
[31]	BFI..E.	BFI..E.	BFI..E.	BFI..E.	BFI..E.
[36]	BFI..E.	BFI..E.	BFI..E.	BFI..E.	BFI..E.
[41]	BFI..E.	BFI..E.	BFI..A.	BFI..A.	BFI..A.
[46]	BFI..A.	BFI..A.	BFI..A.	BFI..A.	BFI..A.
[51]	BFI..A.	BFI..A.	BFI..A.	BFI..A.	BFI..A.
[56]	BFI..A.	BFI..C.	BFI..C.	BFI..C.	BFI..C.
[61]	BFI..C.	BFI..C.	BFI..C.	BFI..C.	BFI..C.
[66]	BFI..C.	BFI..C.	BFI..C.	BFI..C.	BFI..C.
[71]	BFI..N.	BFI..N.	BFI..N.	BFI..N.	BFI..N.

[76]	BFI..N.	BFI..N.	BFI..N.	BFI..N.	BFI..N.
[81]	BFI..N.	BFI..N.	BFI..N.	BFI..N.	BFI..O.
[86]	BFI..O.	BFI..O.	BFI..O.	BFI..O.	BFI..O.
[91]	BFI..O.	BFI..O.	BFI..O.	BFI..O.	BFI..O.
[96]	BFI..O.	BFI..O.	BFI..O.	EI..Self.A.	EI..Self.A.
[101]	EI..Self.A.	EI..Self.A.	EI..Self.A.	EI..Self.A.	EI..Self.A.
[106]	EI..Self.A.	EI..Self.A.	EI..Self.A.	EI..Self.A.	EI..Self.A.
[111]	EI..Self.A.	EI..Self.A.	EI..Self.M.	EI..Self.M.	EI..Self.M.
[116]	EI..Self.M.	EI..Self.M.	EI..Self.M.	EI..Self.M.	EI..Self.M.
[121]	EI..Self.M.	EI..Self.M.	EI..Self.M.	EI..Self.M.	EI..Self.M.
[126]	EI..Self.M.	EI..Social.A.	EI..Social.A.	EI..Social.A.	EI..Social.A.
[131]	EI..Social.A.	EI..Social.A.	EI..Social.A.	EI..Social.A.	EI..Social.A.
[136]	EI..Social.A.	EI..Social.A.	EI..Social.A.	EI..Social.A.	EI..Social.A.
[141]	EI..RM.	EI..RM.	EI..RM.	EI..RM.	EI..RM.
[146]	EI..RM.	EI..RM.	EI..RM.	EI..RM.	EI..RM.
[151]	EI..RM.	EI..RM.	EI..RM.	EI..RM.	Total
[156]	Total	Total	Total	Total	Total
[161]	Total	Total	Total	Total	Total
[166]	Total	Total	Total	PAQ	PAQ
[171]	PAQ	PAQ	PAQ	PAQ	PAQ
[176]	PAQ	PAQ	PAQ	PAQ	PAQ
[181]	PAQ	PAQ	CBCL	CBCL	CBCL
[186]	CBCL	CBCL	CBCL	CBCL	CBCL
[191]	CBCL	CBCL	CBCL	CBCL	CBCL
[196]	CBCL				

14 Levels: Panas.. Panas...1 BFI..E. BFI..A. BFI..C. BFI..N. ... CBCL

In [4]: `library(ggplot2)`

In []: