

## Summary Statistics

```
> summary(dataset)
```

E1		E2		E3		E4		E5		E6		R1		R2	
Min.	: 14.51	Min.	:-232.8	Min.	: 453.7	Min.	: 400.4	Min.	: 490.4	Min.	: 17.02	Min.	:0.000	Min.	:0.0000
1st Qu.	: 455.52	1st Qu.	: 207.3	1st Qu.	: 828.7	1st Qu.	: 758.2	1st Qu.	: 965.1	1st Qu.	: 378.26	1st Qu.	:0.000	1st Qu.	:0.0000
Median	: 566.37	Median	: 316.0	Median	: 932.4	Median	: 866.1	Median	:1063.4	Median	: 490.49	Median	:0.000	Median	:0.0000
Mean	: 566.15	Mean	: 313.7	Mean	: 934.0	Mean	: 867.4	Mean	:1067.3	Mean	: 485.51	Mean	:0.478	Mean	:0.4922
3rd Qu.	: 679.59	3rd Qu.	: 415.5	3rd Qu.	:1035.3	3rd Qu.	: 975.5	3rd Qu.	:1171.1	3rd Qu.	: 591.73	3rd Qu.	:1.000	3rd Qu.	:1.0000
Max.	:1083.97	Max.	: 759.6	Max.	:1451.3	Max.	:1329.5	Max.	:1574.9	Max.	:1057.54	Max.	:1.000	Max.	:1.0000
NA's	:20	NA's	:30	NA's	:20	NA's	:20	NA's	:30	NA's	:20	NA's	:30	NA's	:30

R3		R4		R5		R6		R7		R8		R9		R10	
Min.	:0.0000	Min.	:0.0000	Min.	:0.0000	Min.	:0.0000	Min.	:0.0000	Min.	:0.0000	Min.	:0.0000	Min.	:0.0000
1st Qu.	:0.0000	1st Qu.	:0.0000	1st Qu.	:0.0000	1st Qu.	:0.0000	1st Qu.	:0.0000	1st Qu.	:0.0000	1st Qu.	:0.0000	1st Qu.	:0.0000
Median	:1.0000	Median	:1.0000	Median	:1.0000	Median	:0.0000	Median	:0.0000	Median	:1.0000	Median	:0.0000	Median	:1.0000
Mean	:0.5078	Mean	:0.5078	Mean	:0.5058	Mean	:0.4966	Mean	:0.4948	Mean	:0.5168	Mean	:0.4936	Mean	:0.5125
3rd Qu.	:1.0000	3rd Qu.	:1.0000	3rd Qu.	:1.0000	3rd Qu.	:1.0000	3rd Qu.	:1.0000	3rd Qu.	:1.0000	3rd Qu.	:1.0000	3rd Qu.	:1.0000
Max.	:1.0000	Max.	:1.0000	Max.	:1.0000	Max.	:1.0000	Max.	:1.0000	Max.	:1.0000	Max.	:1.0000	Max.	:1.0000
NA's	:30	NA's	:30												

R11		R12		R13		R14		R15		R16		R17		R18	
Min.	:0.0000	Min.	:0.0000	Min.	:0.0000	Min.	:0.0000	Min.	:0.0000	Min.	:0.0000	Min.	:0.0000	Min.	:0.0000
1st Qu.	:0.0000	1st Qu.	:0.0000	1st Qu.	:0.0000	1st Qu.	:0.0000	1st Qu.	:0.0000	1st Qu.	:0.0000	1st Qu.	:0.0000	1st Qu.	:0.0000
Median	:1.0000	Median	:0.0000	Median	:0.0000	Median	:0.0000	Median	:1.0000	Median	:1.0000	Median	:1.0000	Median	:1.0000
Mean	:0.5047	Mean	:0.4879	Mean	:0.4966	Mean	:0.4936	Mean	:0.5168	Mean	:0.5168	Mean	:0.5196	Mean	:0.5082
3rd Qu.	:1.0000	3rd Qu.	:1.0000	3rd Qu.	:1.0000	3rd Qu.	:1.0000	3rd Qu.	:1.0000	3rd Qu.	:1.0000	3rd Qu.	:1.0000	3rd Qu.	:1.0000
Max.	:1.0000	Max.	:1.0000	Max.	:1.0000	Max.	:1.0000	Max.	:1.0000	Max.	:1.0000	Max.	:1.0000	Max.	:1.0000
NA's	:30	NA's	:30									NA's	:30		

R19		R20		R21		R22		R23		R24		R25		Y	
Min.	:0.0000	Min.	:0.0000	Min.	:0.0000	Min.	:0.0000	Min.	:0.0000	Min.	:0.0000	Min.	:0.0000	Min.	:2418
1st Qu.	:0.0000	1st Qu.	:0.0000	1st Qu.	:0.0000	1st Qu.	:0.0000	1st Qu.	:0.0000	1st Qu.	:0.0000	1st Qu.	:0.0000	1st Qu.	:2817
Median	:1.0000	Median	:0.0000	Median	:1.0000	Median	:1.0000	Median	:0.0000	Median	:0.0000	Median	:1.0000	Median	:2910
Mean	:0.5009	Mean	:0.4954	Mean	:0.5034	Mean	:0.5155	Mean	:0.4984	Mean	:0.4839	Mean	:0.5133	Mean	:2909
3rd Qu.	:1.0000	3rd Qu.	:1.0000	3rd Qu.	:1.0000	3rd Qu.	:1.0000	3rd Qu.	:1.0000	3rd Qu.	:1.0000	3rd Qu.	:1.0000	3rd Qu.	:3009
Max.	:1.0000	Max.	:1.0000	Max.	:1.0000	Max.	:1.0000	Max.	:1.0000	Max.	:1.0000	Max.	:1.0000	Max.	:3320
NA's				NA's	:30			NA's	:30			NA's	:30	NA's	:30

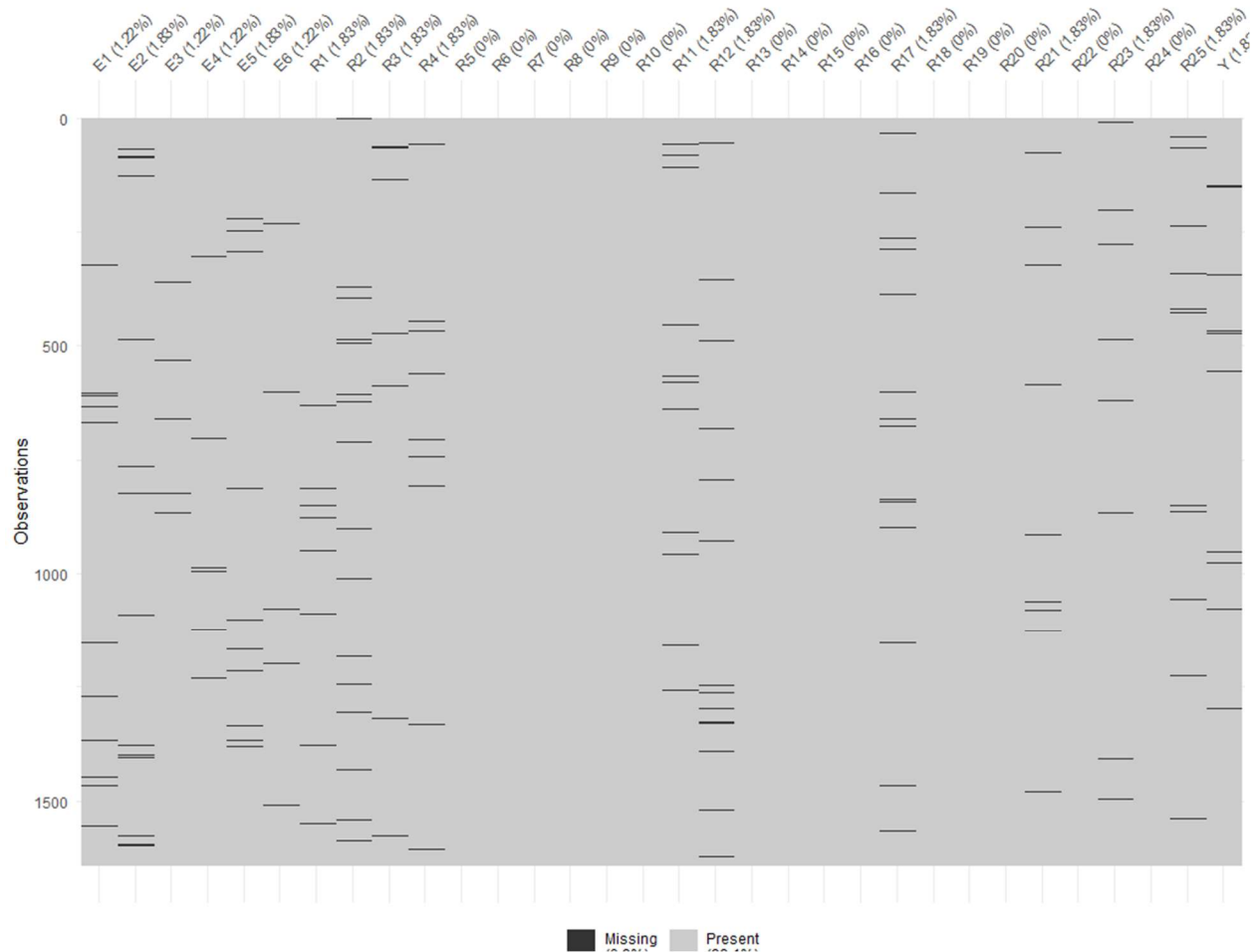
Figure 1 Summary Statistics

There were 1641 observations across the 32 variables. The standard deviations for these variables are in the following table. For these statistics, the NA values were omitted.

	col.sd	col.names
1	161.2249346	E1
2	158.5766711	E2
3	154.7397274	E3
4	163.8501074	E4
5	152.4820444	E5
6	160.0223517	E6
7	0.4996693	R1
8	0.5000950	R2
9	0.5000950	R3
10	0.5000950	R4
11	0.5001189	R5
12	0.5001412	R6
13	0.5001256	R7
14	0.4998714	R8
15	0.5001115	R9
16	0.4999963	R10
17	0.5001336	R11
18	0.5000087	R12
19	0.5001412	R13
20	0.5001115	R14
21	0.4998714	R15
22	0.4998714	R16
23	0.4997727	R17
24	0.5000847	R18
25	0.5001516	R19
26	0.5001315	R20
27	0.5001436	R21
28	0.4999108	R22
29	0.5001528	R23
30	0.4998915	R24
31	0.4999771	R25
32	142.4371304	Y

Figure 2 Standard Deviations

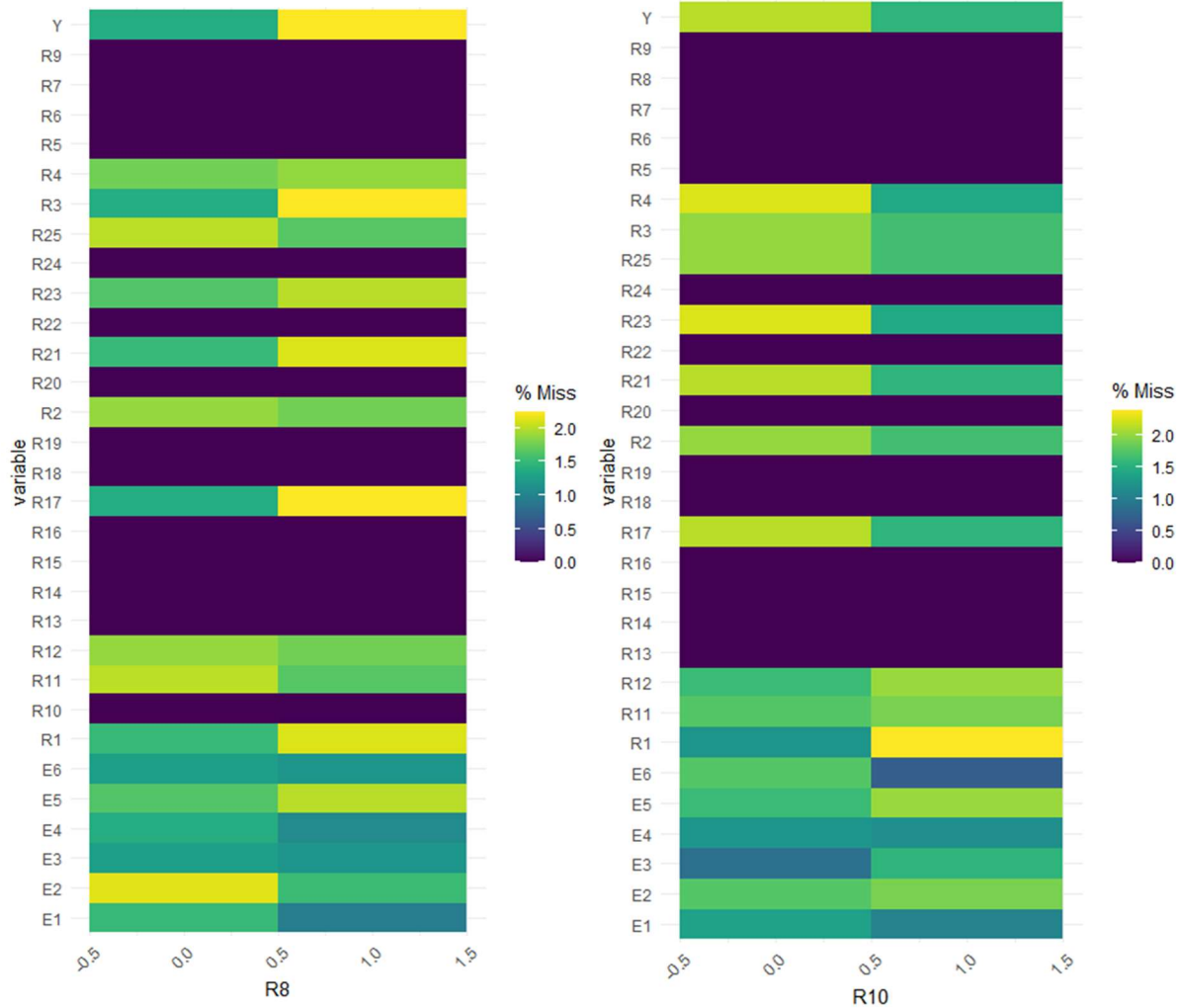
## Missing Values



**Figure 3 Missing Values**

From the summary statistics and this missing value plot we can see several variables are free of missing values, and that there is no obvious pattern in the missing values, we can inspect the intersection of missing values in the next figure.





**Figure 5 NA Correlation**

Some of the genetic indicator factor variables correlate with number of missing variables in unique ways across the rest of the variables. This is an example of R8 and R10's correlation with missing values, these were among the highest correlations for missing values, but the sample sizes are small with the number of NA's either being 30 or 20 for variables. It is hard to tell if there is an overarching pattern or not.

## Imputation Method

For imputation, each incomplete variable will be imputed by a separate model created by classification and regression trees (CART) by Gibbs sampling. The implantation of the method being used is the MICE package in R. This will generate multiple imputations for each column based on models of the other columns, which are then evaluated and pooled after analysis for a robust imputation. If necessary, a separate univariate imputation model can be used for each column/variable, such as a random forest-based model or logistic regression for the categorical variables. This will depend on subsequent analysis.

## Correlation Matrix

	E1	E2	E3	E4	E5	E6	R1	R2	R3	R4	R5	R6	R7
E1	1.000000000	-0.0291753478	-0.006065138	-0.0389056554	0.0426528038	-0.0078457204	-0.0205042069	0.0161067633	-0.037352036	0.0450261549	-0.006857283	-0.0231359947	-0.0276520664
E2	-0.0291753478	1.000000000	0.020354047	-0.0127121839	0.0112033533	0.0182615603	-0.0009266508	0.0028404237	0.002091157	0.0119811526	-0.060144317	-0.0130929486	-0.0844360261
E3	-0.0060651384	0.0203540469	1.000000000	-0.0205047920	0.0493808563	-0.0130948945	-0.0012178538	-0.0205106080	0.015576871	-0.0030801141	0.046228679	0.0050539021	0.0140735031
E4	-0.0389056554	-0.0127121839	-0.020504792	1.000000000	0.0005160968	0.0060440104	0.0519644273	0.0062259978	0.014590056	0.0313708062	0.022610817	0.0091865580	-0.0452665965
E5	0.0426528038	0.0112033533	0.049380856	0.0005160968	1.000000000	-0.0034001148	-0.0002269269	-0.0401870094	-0.064590665	0.0091559559	0.014235501	0.0298159164	0.0079501590
E6	-0.0078457204	0.0182615603	-0.013094895	0.0060440104	-0.0034001148	1.000000000	-0.0020358305	0.0103374298	0.019844597	-0.0300014764	0.035639784	-0.0301525750	0.0074477451
R1	-0.0205042069	-0.0009266508	-0.001217854	0.0519644273	-0.0002269269	-0.0020358305	1.000000000	-0.0175833732	0.056470504	-0.0253966759	-0.023076863	0.0207460644	0.0026043118
R2	0.0161067633	0.0028404237	-0.020510608	0.0062259978	-0.0401870094	0.0103374298	-0.0175833732	1.000000000	0.012388288	-0.0041663467	0.020668152	-0.0168547808	-0.0055992733
R3	-0.0373520361	0.0020911566	0.015576871	0.0145900558	-0.0645906647	0.0198445969	0.0564705044	0.0123882883	1.000000000	-0.0056358470	-0.014033582	-0.0351394374	0.0121456739
R4	0.0450261549	0.0119811526	-0.003080114	0.0313708062	0.0091559559	-0.0300014764	-0.0253966759	-0.0041663467	-0.005635847	1.000000000	0.005803389	0.0041475973	-0.0203099593
R5	-0.0068572834	-0.0601443172	0.046228679	0.0226108168	0.0142355006	0.0356397839	-0.0230768625	0.0206681519	-0.014033582	0.0058033894	1.000000000	0.0347383368	-0.0025480879
R6	-0.0231359947	-0.0130929486	0.005053902	0.0091865580	0.0298159164	-0.0301525750	0.0207460644	-0.0168547808	-0.035139437	0.0041475973	0.034738337	1.000000000	0.0121276168
R7	-0.0276520664	-0.0844360261	0.014073503	-0.0452665965	0.0079501590	0.0074477451	0.0026043118	-0.0055992733	0.012145674	-0.0203099593	-0.002548088	0.0121276168	1.000000000
R8	-0.0243719641	0.0214746071	0.001994774	-0.0357130768	-0.0180463713	-0.0271400529	-0.0539696178	0.0711619517	-0.048234357	0.0009297373	0.011828880	0.0330890925	-0.0172067622
R9	-0.0488273599	0.0220481423	-0.019913107	-0.0222814309	-0.0110126051	-0.0072378351	0.0305457924	-0.0194722279	0.025705268	-0.0206068693	-0.004894048	-0.0197655037	-0.0021974652
R10	-0.0592221735	0.0219222124	-0.004523055	-0.0047857271	-0.0358133281	0.0491774671	-0.0079161411	-0.0034455163	-0.006087414	0.0401059047	0.005014697	0.0263648237	-0.0107936666
R11	-0.0575297706	-0.0491277992	-0.022785569	-0.0142969947	-0.0443035015	-0.0283741709	0.0577708237	-0.0284965107	-0.013824555	-0.0170919800	-0.021957706	-0.0203324382	-0.0349837396
R12	-0.0117368052	-0.0030640723	0.027005391	-0.0115114596	0.0092338043	0.0218504927	0.0100505844	0.0216562602	0.004267290	0.0137284196	-0.039533430	-0.0575272579	0.0383564043
R13	0.0221535728	-0.0004878878	-0.009244051	0.0213580875	0.0202016682	0.0141070945	0.0100505844	-0.0011338079	-0.064096757	-0.0285904999	-0.029765973	-0.0184605360	-0.0104731181
R14	-0.0531519139	0.0162749727	-0.011220250	-0.0104517536	-0.0111767040	0.0166286950	0.0522079734	0.0150357017	-0.031478083	0.0071817617	-0.026392069	0.0011630557	-0.0657855727
R15	0.0563133208	0.0352460861	0.001169642	-0.0553210151	0.0418573734	-0.0047155335	0.0012081999	0.0287217332	-0.009098060	-0.0284028308	0.002182735	-0.0351858621	-0.0106576829
R16	0.0004655953	0.0212049646	-0.042726343	0.0191318702	0.0006096463	0.0183812145	-0.0458728493	-0.0379348802	0.012009864	-0.0137284196	0.023254335	-0.0401395468	0.0332602285
R17	0.0110371367	-0.0024362077	0.050642537	0.0116180092	-0.0042509172	-0.0064522515	0.0184351760	-0.0260904954	0.013356919	0.0271449100	0.014610043	0.0327573016	0.0217286534
R18	0.0323014094	0.0040156729	-0.022597028	-0.0333290417	0.0263536826	-0.0168481525	0.0123724678	0.0399736197	0.028420241	-0.0203099593	0.007217817	-0.0041475973	0.0105456067
R19	0.0136536301	-0.0266219562	-0.009439145	0.0143203902	0.0094114522	0.0124494306	0.0118170431	-0.0352326638	-0.049495038	-0.0106576829	0.030372866	-0.0201542626	-0.0251477880
R20	0.0231998673	-0.0214993667	0.019431763	-0.0554234455	0.0196029294	-0.0421138261	0.0252108208	0.0073101933	-0.013824555	0.0187100772	0.036636790	0.0187274548	0.0203467124
R21	-0.0056427557	-0.0652096030	-0.038602705	-0.0136955963	-0.0235180685	0.0004276921	0.0333971844	-0.0333514326	0.004059970	-0.0284742746	0.002426207	0.0008024917	-0.0008183176
R22	0.0073031601	0.0021968647	-0.016670613	0.0039178242	-0.0452226619	-0.0280483295	0.0160957799	-0.0118342412	0.015231869	0.0090778333	0.013426837	0.0086493962	-0.0286109360
R23	-0.0079243072	-0.0064684336	0.008572679	0.0016282966	0.0211345844	-0.0289163934	-0.0155355869	-0.0008555068	0.010604151	0.0203282283	0.022018684	-0.0089174809	0.0284928880
R24	0.0342083140	0.0092863933	0.048267811	0.0626945893	0.0393944640	0.0192830573	0.0376862525	0.0102337361	0.012423479	0.0511567425	-0.005317035	0.0222571896	0.0269729772
R25	-0.0399251227	0.0377308299	-0.014014450	-0.0139384480	0.0187574456	0.0015927031	0.0309897532	0.0387801303	0.023289829	-0.0185516388	0.018162402	-0.0126284113	-0.0009856055
Y	0.4128738791	-0.0386130082	0.210757608	0.4899262083	0.4259518615	-0.0137955430	0.0403968565	0.0039786941	-0.027975465	0.0268654230	0.005226562	0.0161334440	-0.0280234341

Figure 6 Correlation Matrix 1



R7	R8	R9	R10	R11	R12	R13	R14	R15	R16	R17	R18
-0.0276520664	-0.0243719641	-0.048627360	-0.059222174	-0.0575297706	-0.011736805	0.0221535728	-0.0531519139	0.056313321	0.0004655953	0.011037137	0.032301409
-0.0844360261	0.0214746071	0.022046142	0.021922212	-0.0491277992	-0.003064072	-0.0004878878	0.0162749727	0.035246086	0.0212049646	-0.002436208	0.004015673
0.0140735031	0.0019947742	-0.019913107	-0.004523055	-0.0227855685	0.027005391	-0.0092440510	-0.0112202503	0.001169642	-0.0427263431	0.050642537	-0.022597028
-0.0452685965	-0.0357130768	-0.022281431	-0.004785727	-0.0142969947	-0.011511460	0.0213580875	-0.0104517536	-0.055321015	0.0191318702	0.011618009	-0.033329042
0.0079501590	-0.0180463713	-0.011012605	-0.035813328	-0.0443035015	0.009233804	0.0202016682	-0.0111767040	0.041857373	0.0006096463	-0.004250917	0.026353663
0.0074477451	-0.0271400529	-0.007237835	0.049177467	-0.0283741709	0.021850493	0.0141070945	0.0166286950	-0.004715533	0.0183812145	-0.006452251	-0.016848152
0.0026043118	-0.0539696178	0.030545792	-0.007916141	0.0577708237	0.010050584	0.0100505844	0.0522079734	0.001208200	-0.0458728493	0.018435176	0.012372468
-0.0055992733	0.0711619517	-0.019472228	-0.003445516	-0.0284965107	0.021656260	-0.0011338079	0.0150357017	0.028721733	-0.0379348802	-0.026090495	0.039973620
0.0121456739	-0.0482343566	0.025705268	-0.006087414	-0.0138245553	0.004267290	-0.0640967575	-0.0314780827	-0.009098060	0.0120098644	0.013356919	0.028420241
-0.0203099593	0.0009297373	-0.020606869	0.040105905	-0.0170919800	0.013728420	-0.0285904999	0.0071817617	-0.028402831	-0.0137284196	0.027144910	-0.020309959
-0.0025480879	0.0118268800	-0.004894048	0.005014697	-0.0219577059	-0.039533430	-0.0297659731	-0.0263920686	0.002182735	0.0232543354	0.014610043	0.007217817
0.0121276168	0.0330890925	-0.019765504	0.026364824	-0.0203324382	-0.057527258	-0.0184605360	0.0011630557	-0.035185862	-0.0401395468	0.032757302	-0.004147597
1.0000000000	-0.0172067622	-0.002197465	-0.010793667	-0.0349837396	0.038356404	-0.0104731181	-0.0657855727	-0.010657683	0.0332602285	0.021728653	0.010545607
-0.0172067622	1.0000000000	-0.009711520	0.003326451	0.0187348361	0.046777723	-0.0215966471	-0.0279800326	-0.002723208	0.0118288800	-0.016424225	-0.036739192
-0.0021974652	-0.0097115204	1.000000000	-0.035092281	0.0203255676	-0.017913911	0.0211854469	0.0046136844	0.003040643	0.0048807919	-0.015117301	0.014091345
-0.0107936666	0.0033264511	-0.035092281	1.000000000	0.0285273691	0.043846797	0.0112724675	-0.0015189391	-0.022492788	0.0310741614	0.034978024	-0.040105905
-0.0349837396	0.0187348361	0.020325568	0.028527369	1.000000000	-0.010594792	0.0187024562	-0.0008344592	-0.007312474	0.0105947918	0.025288718	0.056146770
0.0383564043	0.0467777231	-0.017913911	0.043846797	-0.0105947918	1.000000000	0.0265101542	0.0035980754	-0.002182735	-0.0265101542	-0.017868798	0.012313992
-0.0104731181	-0.0215966471	0.021185447	0.011272467	0.0187024562	0.026510154	1.000000000	-0.0582713347	0.007583945	-0.0004636032	-0.027645064	-0.007217817
-0.0657855727	-0.0279800326	0.004613684	-0.001518939	-0.0008344592	0.003598075	-0.0582713347	1.000000000	0.040235367	-0.0329046381	-0.017569035	0.009097075
-0.0106576829	-0.0027232077	0.003040643	-0.022492788	-0.0073124739	-0.002182735	0.0075839453	0.0402353674	1.000000000	-0.0238617461	-0.016120145	-0.039953068
0.0332602285	0.0118288800	0.004880792	0.031074161	0.0105947918	-0.026510154	-0.0004636032	-0.0329046381	-0.023861746	1.000000000	-0.034271289	0.003962515
0.0217286534	-0.0164242252	-0.015117301	0.034978024	0.0252887178	-0.017868798	-0.0276450642	-0.0175690348	-0.016120145	-0.0342712886	1.000000000	-0.023886672
0.0105456067	-0.0367391921	0.014091345	-0.040105905	0.0561467696	0.012313992	-0.0072178166	0.0090970747	-0.039953068	0.0039625151	-0.023886672	1.000000000
-0.0251477880	0.0515581625	0.006733420	-0.010078953	0.0040574828	0.005438295	-0.0140950656	0.0020929703	-0.013643660	-0.0086938555	0.025895635	-0.057696216
0.0203467124	0.0415223089	0.023583278	0.028527369	-0.0024416726	0.018702456	0.0284682055	-0.0236244681	0.054532357	0.0138500415	-0.033358626	-0.038238472
-0.0008183176	-0.0089687763	0.031797797	0.039866766	0.0447525224	-0.028468205	-0.0089367069	-0.0121884030	-0.021982446	0.0349787050	0.043133184	-0.030110910
-0.0286109360	0.0085072899	-0.040597303	-0.008134845	-0.0056791845	0.058205922	-0.0004026991	-0.0002596721	-0.059721895	-0.0061093699	-0.005093966	0.003944235
0.0284928880	0.0334171241	-0.072589612	-0.044692555	-0.0073250373	-0.002487134	0.0365759667	0.0040080640	0.030142516	0.0057423923	0.010702466	0.025238147
0.0269729772	0.0321602103	-0.022672314	0.006446159	-0.0122241296	0.037876259	0.0508999486	-0.0208657914	-0.020066438	-0.0150848023	0.016424225	-0.008836478
-0.0009856055	0.0067150555	0.039595537	-0.078489129	0.0220035578	-0.008392228	0.0046346720	0.0048314557	-0.009371945	0.0051355027	-0.023401139	-0.010754228
-0.0280234341	-0.0110401946	-0.046392020	-0.035517125	-0.0375238023	0.020574221	0.0233505340	-0.0336172394	-0.007838996	-0.0220443279	0.030335120	-0.018107955

Figure 7 Correlation Matrix 2

R19	R20	R21	R22	R23	R24	R25	Y
0.013653630	0.023199867	-0.0056427557	0.0073031601	-0.0079243072	0.034208314	-0.0399251227	0.412873879
-0.026621956	-0.021499367	-0.0652096030	0.0021968647	-0.0064684336	0.009286393	0.0377308299	-0.038613008
-0.009439145	0.019431763	-0.0386027046	-0.0166706126	0.0085726788	0.048267811	-0.0140144500	0.210757608
0.014320390	-0.055423445	-0.0136955963	0.0039178242	0.0016282966	0.062694589	-0.0139384480	0.489926208
0.009411452	0.019602929	-0.0235180685	-0.0452226619	0.0211345844	0.039394464	0.0187574656	0.425951862
0.012449431	-0.042113826	0.0004276921	-0.0280483295	-0.0289163934	0.019283057	0.0015927031	-0.013795543
0.011817043	0.025210821	0.0333971844	0.0160957799	-0.0155355869	0.037686252	0.0309897532	0.040396856
-0.035232664	0.007310193	-0.0333514326	-0.0118342412	-0.0008555068	0.010233736	0.0387801303	0.003978694
-0.049495038	-0.013824555	0.0040599700	0.0152318690	0.0106041506	0.012423479	0.0232898290	-0.027975465
-0.010657683	0.018710077	-0.0284742746	0.0090778333	0.0203282283	0.051156742	-0.0185516388	0.026865423
0.030372866	0.036636790	0.0024262073	0.0134268373	0.0220186843	-0.005317035	0.0181624024	0.005226562
-0.020154263	0.018727455	0.0008024917	0.0086493962	-0.0089174809	0.022257190	-0.0126284113	0.016133444
-0.025147788	0.020346712	-0.0008183176	-0.0286109360	0.0284928880	0.026972977	-0.0009856055	-0.028023434
0.051558163	0.041522309	-0.0089687763	0.0085072899	0.0334171241	0.032160210	0.0067150555	-0.011040195
0.006733420	0.023583278	0.0317977972	-0.0405973032	-0.0725896118	-0.022872314	0.0395955366	-0.046392020
-0.010078953	0.028527369	0.0398667664	-0.0081348446	-0.0446925549	0.006446159	-0.0784891292	-0.035517125
0.004057483	-0.002441673	0.0447525224	-0.0056791845	-0.0073250373	-0.012224130	0.0220035578	-0.037523802
0.005438295	0.018702456	-0.0284682055	0.0582059225	-0.0024871340	0.037876259	-0.0083922276	0.020574221
-0.014095066	0.028468205	-0.0089367069	-0.0004026991	0.0365759667	0.050899949	0.0046346720	0.023350534
0.002092970	-0.023624468	-0.0121884030	-0.0002596721	0.0040080640	-0.020865791	0.0048314557	-0.033617239
-0.013643660	0.054532357	-0.0219824459	-0.0597218954	0.0301425156	-0.020066438	-0.0093719452	-0.007838996
-0.008693856	0.013850042	0.0349787050	-0.0061093699	0.0057423923	-0.015084802	0.0051355027	-0.022044328
0.025895635	-0.033358626	0.0431331837	-0.0050939657	0.0107024661	0.016424225	-0.0234011392	0.030335120
-0.057698216	-0.038238472	-0.0301109098	0.0039442351	0.0252381469	-0.008836478	-0.0107542276	-0.018107955
1.000000000	-0.028492428	0.0284924281	-0.0216724994	-0.0138675171	-0.015745862	-0.0166797837	-0.015917939
-0.028492428	1.000000000	-0.0203410927	-0.0284674422	-0.0268531735	-0.021990189	0.0024666240	-0.002910912
0.028492428	-0.020341093	1.0000000000	-0.0268754693	0.0333625523	-0.013818696	-0.0252597134	-0.032557124
-0.021672499	-0.028467442	-0.0268754693	1.0000000000	-0.0398259167	0.063127747	-0.0112469129	-0.001925618
-0.013867517	-0.026853174	0.0333625523	-0.0398259167	1.0000000000	0.008902580	-0.0414425723	-0.021286244
-0.015745862	-0.021990189	-0.0138186965	0.0631277472	0.0089025804	1.000000000	-0.0164855409	0.068907284
-0.016679784	0.002466624	-0.0252597134	-0.0112469129	-0.0414425723	-0.016485541	1.0000000000	-0.048812037
-0.015917939	-0.002910912	-0.0325571243	-0.0019256183	-0.0212862441	0.068907284	-0.0488120368	1.000000000

Figure 8 Correlation Matrix 3