

Human Activity Recognition Dataset Cleaning

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Merges the training and the test sets to create one data set

```
## loading subject data
test_subject <- read.table("data/test/subject_test.txt", header = FALSE)
train_subject <- read.table("data/train/subject_train.txt", header = FALSE)
```

```
## loading features data
test_features <- read.table("data/test/X_test.txt", header = FALSE)
train_features <- read.table("data/train/X_train.txt", header = FALSE)
```

```
## loading activity data
test_activity <- read.table("data/test/Y_test.txt" , header = FALSE)
train_activity <- read.table("data/train/Y_train.txt", header = FALSE)
```

```
## take a look at the top rows of datasets
head(test_subject)
```

```
##      V1
## 1  2
## 2  2
## 3  2
## 4  2
## 5  2
## 6  2
```

```
head(train_subject)
```

```
##      V1
## 1  1
## 2  1
## 3  1
## 4  1
## 5  1
## 6  1
```

```
head(test_features)
```

```
##      V1      V2      V3      V4      V5      V6
## 1 0.2571778 -0.02328523 -0.01465376 -0.9384040 -0.9200908 -0.6676833
## 2 0.2860267 -0.01316336 -0.11908252 -0.9754147 -0.9674579 -0.9449582
## 3 0.2754848 -0.02605042 -0.11815167 -0.9938190 -0.9699255 -0.9627480
## 4 0.2702982 -0.03261387 -0.11752018 -0.9947428 -0.9732676 -0.9670907
## 5 0.2748330 -0.02784779 -0.12952716 -0.9938525 -0.9674455 -0.9782950
## 6 0.2792199 -0.01862040 -0.11390197 -0.9944552 -0.9704169 -0.9653163
##      V7      V8      V9      V10     V11     V12
## 1 -0.9525011 -0.9252487 -0.6743022 -0.8940875 -0.5545772 -0.4662230
## 2 -0.9867988 -0.9684013 -0.9458234 -0.8940875 -0.5545772 -0.8060133
## 3 -0.9944034 -0.9707350 -0.9634827 -0.9392603 -0.5685122 -0.7991165
## 4 -0.9952743 -0.9744710 -0.9688974 -0.9386098 -0.5685122 -0.7991165
```

```

## 5 -0.9941114 -0.9659526 -0.9773460 -0.9386098 -0.5608306 -0.8258941
## 6 -0.9945851 -0.9694806 -0.9658969 -0.9378563 -0.5608306 -0.8011523
##      V13      V14      V15      V16      V17      V18
## 1 0.7172085 0.6355024 0.7894967 -0.8777642 -0.9977661 -0.9984138
## 2 0.7680313 0.6836980 0.7967058 -0.9690965 -0.9995795 -0.9996456
## 3 0.8483052 0.6678642 0.8224423 -0.9767823 -0.9999539 -0.9995698
## 4 0.8483052 0.6678642 0.8224423 -0.9744184 -0.9999534 -0.9993302
## 5 0.8491794 0.6706998 0.8298973 -0.9752829 -0.9999537 -0.9994672
## 6 0.8509852 0.6755901 0.8298973 -0.9809815 -0.9999607 -0.9997163
##      V19      V20      V21      V22      V23      V24
## 1 -0.9343453 -0.9756690 -0.9498237 -0.8304778 -0.1680842 -0.3789955
## 2 -0.9977203 -0.9940063 -0.9736367 -0.9507199 -0.3024370 -0.3482432
## 3 -0.9987200 -0.9934559 -0.9742661 -0.9649758 -0.6179159 -0.6954902
## 4 -0.9989332 -0.9952355 -0.9787394 -0.9699818 -0.7495784 -0.8992260
## 5 -0.9988233 -0.9934979 -0.9670322 -0.9762567 -0.5905761 -0.7402065
## 6 -0.9989343 -0.9948603 -0.9763354 -0.9703371 -0.5387699 -0.5054416
##      V25      V26      V27      V28      V29      V30
## 1 0.2462170 0.5212036 -0.48779311 0.48228047 -0.04546211 0.2119550500
## 2 -0.4047853 0.5074924 -0.15649451 0.04067368 0.27299122 0.1975658100
## 3 -0.5366929 0.2421474 -0.11499664 0.03270297 0.19238524 -0.0119446610
## 4 -0.5538126 0.1746836 -0.05133189 0.03419965 0.15363891 0.0307673730
## 5 -0.7994187 0.1155703 -0.02892266 -0.03280404 0.29434042 0.0006299078
## 6 -0.4788728 0.1842802 -0.19590873 0.22991372 0.09903875 -0.0906301630
##      V31      V32      V33      V34      V35      V36
## 1 -0.13489443 0.13085848 -0.01417631 -0.10597085 0.07354401 -0.17151642
## 2 -0.19455563 0.41141089 -0.34046620 0.07755506 -0.08402448 0.03530499
## 3 -0.06336285 0.47081883 -0.50739515 0.18853579 -0.23157509 0.63211960
## 4 -0.12927714 0.44610006 -0.41949570 0.27149343 -0.22576856 0.41637605
## 5 -0.04527152 0.16841922 -0.06815647 0.07438405 0.02713754 -0.14593145
## 6 0.09465511 0.02696288 0.10867399 -0.02176199 -0.01669594 0.02645014
##      V37      V38      V39      V40      V41      V42
## 1 0.04006298 0.07698893 -0.4905457 -0.7090026 0.9364893 -0.2827192
## 2 -0.01008253 -0.10498290 -0.4291335 0.3991770 0.9274036 -0.2892151
## 3 -0.55070789 0.30565330 -0.3238477 0.2797865 0.9299150 -0.2875128
## 4 -0.28644496 -0.06379201 -0.1671111 0.5449161 0.9288814 -0.2933958
## 5 -0.05019720 0.23515128 0.2904867 0.4577181 0.9265997 -0.3029609
## 6 0.01924324 0.32285286 0.4185400 0.7275770 0.9256632 -0.3089397
##      V43      V44      V45      V46      V47      V48
## 1 0.1152882 -0.9254273 -0.9370141 -0.5642884 -0.9300199 -0.9378220
## 2 0.1525683 -0.9890571 -0.9838872 -0.9647811 -0.9889996 -0.9831594
## 3 0.1460856 -0.9959365 -0.9882505 -0.9815796 -0.9959759 -0.9886287
## 4 0.1429259 -0.9931392 -0.9704192 -0.9915917 -0.9929791 -0.9712240
## 5 0.1383067 -0.9955746 -0.9709604 -0.9680853 -0.9955278 -0.9709048
## 6 0.1305608 -0.9988423 -0.9907387 -0.9712319 -0.9988435 -0.9911926
##      V49      V50      V51      V52      V53      V54
## 1 -0.6055877 0.9060826 -0.2792441 0.1528952 0.9444614 -0.2621596
## 2 -0.9652063 0.8561758 -0.3048700 0.1528952 0.9444614 -0.2621596
## 3 -0.9802547 0.8562691 -0.3048700 0.1394543 0.9487043 -0.2616608
## 4 -0.9931267 0.8562691 -0.3051008 0.1361241 0.9473090 -0.2729157
## 5 -0.9685948 0.8539417 -0.3125521 0.1335407 0.9462210 -0.2791896
## 6 -0.9708445 0.8515732 -0.3237002 0.1292985 0.9461996 -0.2794163
##      V55      V56      V57      V58      V59      V60
## 1 -0.07616168 -0.01782692 0.8292968 -0.8646206 -0.9677953 -0.9497267
## 2 0.14901318 0.05767649 0.8055747 -0.8581631 -0.9572396 -0.9884034

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## 3	0.14496859	0.04056073	0.8120440	-0.8599467	-0.9609650	-0.9959671
## 4	0.14210730	0.04610593	0.8093794	-0.8537132	-0.9627130	-0.9924825
## 5	0.13093136	0.05535090	0.8035001	-0.8433784	-0.9651366	-0.9955685
## 6	0.12892889	0.04908850	0.8010895	-0.8367905	-0.9690918	-0.9988469
##	V61	V62	V63	V64	V65	V66
## 1	-0.9461192	-0.7597181	-0.4249753	-1	0.2192273	-0.4302536
## 2	-0.9816875	-0.9712152	-0.7288840	-1	-0.4650471	-0.5098819
## 3	-0.9896235	-0.9787818	-0.8233928	-1	-0.5295769	-0.2949863
## 4	-0.9726324	-0.9959882	-0.8233928	-1	-0.7001571	-0.3430160
## 5	-0.9715982	-0.9689766	-0.8301235	-1	-0.3018707	-0.4817419
## 6	-0.9928763	-0.9718545	-0.7199673	-1	-0.3921442	-0.5262082
##	V68	V69	V70	V71	V72	V73
## 1	-0.4318389	0.4327738	-0.7954677	0.7813139	-0.7803915	0.7852716
## 2	-0.5402447	0.5544470	-0.7456869	0.7331707	-0.7373905	0.7486983
## 3	-0.3152394	0.3257889	-0.2316402	0.1687004	-0.1552034	0.1640398
## 4	-0.3751908	0.3917760	-0.2330360	0.1762410	-0.1693681	0.1848743
## 5	-0.5963212	0.6552316	-0.4933308	0.4626772	-0.4654635	0.4829400
## 6	-0.6393117	0.6971136	-0.5885098	0.5740407	-0.5873130	0.6122555
##	V74	V75	V76	V77	V78	V79
## 1	-0.9844102	0.9871799	-0.9894148	0.9876861	0.9805803	-0.9963518
## 2	-0.8451508	0.8692901	-0.8930646	0.9131189	0.9452327	-0.9114153
## 3	-0.4294592	0.4403016	-0.4506272	0.4578925	0.5484322	-0.3348641
## 4	-0.2965727	0.3037875	-0.3106797	0.3149643	0.9855345	0.6531688
## 5	-0.5355455	0.5443169	-0.5529496	0.5587397	0.9983455	0.9162361
## 6	-0.5736824	0.5810748	-0.5882441	0.5924296	0.7382672	0.5283003
##	V80	V81	V82	V83	V84	V85
## 1	-0.9601171	0.07204601	0.045754401	-0.106042660	-0.9066828	-0.9380164
## 2	-0.7385345	0.07018069	-0.017876016	-0.001720629	-0.9492040	-0.9726989
## 3	0.5903015	0.06936778	-0.004908146	-0.013672983	-0.9910699	-0.9714041
## 4	0.7465177	0.07485289	0.032274322	0.012141275	-0.9908016	-0.9728957
## 5	0.9285952	0.07837679	0.022276764	0.002748499	-0.9920724	-0.9786700
## 6	0.9527397	0.07598039	0.017519217	0.008208061	-0.9938344	-0.9791029
##	V86	V87	V88	V89	V90	V91
## 1	-0.9359358	-0.9160809	-0.9367255	-0.9490538	-0.9032242	-0.9498183
## 2	-0.9777267	-0.9693120	-0.9737227	-0.9786179	-0.9150930	-0.9812429
## 3	-0.9728674	-0.9906526	-0.9730043	-0.9750370	-0.9918130	-0.9752695
## 4	-0.9759253	-0.9897889	-0.9729827	-0.9782229	-0.9918130	-0.9752695
## 5	-0.9866120	-0.9910405	-0.9768033	-0.9850277	-0.9940122	-0.9864061
## 6	-0.9876064	-0.9934654	-0.9760191	-0.9845059	-0.9933200	-0.9864061
##	V92	V93	V94	V95	V96	V97
## 1	-0.8914035	0.8984794	0.9501816	0.9461528	-0.9306729	-0.9950459
## 2	-0.9776797	0.8984794	0.9677382	0.9660948	-0.9743072	-0.9983738
## 3	-0.9618553	0.9938499	0.9763493	0.9660948	-0.9818289	-0.9998993
## 4	-0.9618553	0.9938499	0.9763493	0.9696992	-0.9825311	-0.9998952
## 5	-0.9855763	0.9938507	0.9802494	0.9848181	-0.9866601	-0.9999146
## 6	-0.9926030	0.9899897	0.9886713	0.9868308	-0.9873007	-0.9999390
##	V98	V99	V100	V101	V102	V103
## 1	-0.9974955	-0.9970156	-0.9364160	-0.9468741	-0.9687746	-0.08517415
## 2	-0.9993648	-0.9994262	-0.9797422	-0.9790958	-0.9852629	-0.49723319
## 3	-0.9993183	-0.9992359	-0.9882860	-0.9814459	-0.9755409	-0.69983410
## 4	-0.9993732	-0.9993582	-0.9852427	-0.9810848	-0.9796994	-0.69960845
## 5	-0.9995684	-0.9997137	-0.9874482	-0.9777288	-0.9814935	-0.74494966
## 6	-0.9995819	-0.9997409	-0.9931457	-0.9766015	-0.9784103	-0.74826155
##	V104	V105	V106	V107	V108	V109

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## 1 -0.3102630 -0.5102876 0.52148173 -0.2258897 0.49172843 0.31275555
## 2 -0.6557512 -0.6144241 0.39796610 0.2997433 0.23919281 0.36635961
## 3 -0.6749493 -0.5823873 0.19469165 0.1986103 0.08525316 0.37178135
## 4 -0.6140421 -0.6074465 0.13449752 0.2540127 0.06329948 0.45968875
## 5 -0.6379350 -0.6619097 0.02859357 0.1871435 -0.02373467 0.28932844
## 6 -0.6530428 -0.6390231 0.17753084 -0.1142666 0.29277690 0.05655979
##      V110      V111      V112      V113      V114      V115
## 1 0.229796800 0.11395925 0.21987861 0.4229745 -0.08263318 0.14042653
## 2 0.212155920 -0.18363333 0.50841803 0.2321498 -0.00283189 -0.03809703
## 3 0.086717931 -0.01393069 0.41612086 0.5614391 0.25190088 -0.18650950
## 4 0.118920200 -0.11470761 0.37496649 0.4783779 0.21230132 -0.11206260
## 5 0.009163829 0.04877595 0.08521107 0.4365061 0.05743768 0.25887807
## 6 -0.145690300 0.11508604 0.06647843 0.2398866 -0.06001174 -0.03963317
##      V116      V117      V118      V119      V120      V121
## 1 -0.19623228 0.07235794 -0.26486023 0.03585215 -0.3497352 0.119976160
## 2 -0.08265699 0.10156150 -0.15319717 -0.27996556 0.4976121 -0.001552463
## 3 0.25974030 0.70815329 -0.06362439 0.18278565 0.7563778 -0.048212671
## 4 0.11319731 0.56574152 -0.19787553 0.17551832 0.6196289 -0.056641577
## 5 -0.12067037 0.26782470 0.08658512 0.42479852 0.3457794 -0.059992128
## 6 -0.11846032 0.12273612 -0.06231584 0.38781921 0.4895796 -0.039697949
##      V122      V123      V124      V125      V126      V127
## 1 -0.09179234 0.18962854 -0.8830891 -0.8161636 -0.9408812 -0.8886123
## 2 -0.18729119 0.18070522 -0.9255665 -0.9295992 -0.9675810 -0.9178548
## 3 -0.16627974 0.15417437 -0.9729882 -0.9785106 -0.9756483 -0.9744292
## 4 -0.12601846 0.11833718 -0.9677905 -0.9751338 -0.9632327 -0.9694272
## 5 -0.08472343 0.07865926 -0.9746560 -0.9779511 -0.9676287 -0.9750224
## 6 -0.06682849 0.07054732 -0.9798784 -0.9764628 -0.9634617 -0.9802073
##      V128      V129      V130      V131      V132      V133
## 1 -0.8578010 -0.9458183 -0.6634106 -0.7134366 -0.6486786 0.8371004
## 2 -0.9500255 -0.9670348 -0.8103367 -0.8698789 -0.7032122 0.8230325
## 3 -0.9805577 -0.9758503 -0.8737938 -0.9509173 -0.7151697 0.8230325
## 4 -0.9739148 -0.9635130 -0.8737938 -0.9509173 -0.7151697 0.8160590
## 5 -0.9795073 -0.9684613 -0.8814599 -0.9485043 -0.7317056 0.8160590
## 6 -0.9781896 -0.9643120 -0.8814599 -0.9483477 -0.7317056 0.8250607
##      V134      V135      V136      V137      V138      V139
## 1 0.8252568 0.8109771 -0.7964999 -0.9796164 -0.9829001 -0.9940368
## 2 0.8707803 0.8440353 -0.8887569 -0.9969186 -0.9951945 -0.9959479
## 3 0.8927145 0.8290852 -0.9326540 -0.9993514 -0.9982649 -0.9978517
## 4 0.8946200 0.8238037 -0.9466141 -0.9989351 -0.9991736 -0.9988330
## 5 0.8992625 0.8163019 -0.9580481 -0.9989948 -0.9996863 -0.9993630
## 6 0.8992625 0.8050707 -0.9685562 -0.9996887 -0.9996580 -0.9991407
##      V140      V141      V142      V143      V144      V145
## 1 -0.8865579 -0.9061043 -0.9580488 0.77403279 -0.26770588 0.45224806
## 2 -0.9113224 -0.9606847 -0.9692744 -0.01836119 -0.85159109 0.30504741
## 3 -0.9797555 -0.9861989 -0.9783006 -0.63542251 -0.94126738 0.23767246
## 4 -0.9752914 -0.9716812 -0.9650716 -0.63542251 -0.88593105 0.06872326
## 5 -0.9729662 -0.9815836 -0.9704161 -0.80285329 -0.37891314 -0.44459155
## 6 -0.9809389 -0.9820461 -0.9708505 -0.58702696 -0.09849476 -0.39077487
##      V146      V147      V148      V149      V150      V151
## 1 -0.07845127 -0.01257862 0.2359816 -0.19904751 0.03391784 -0.08078053
## 2 -0.24702630 0.30890640 -0.4820437 0.50874888 -0.25023745 0.19068988
## 3 -0.21228632 0.03391515 0.2679298 -0.14283506 -0.30612471 0.02332412
## 4 -0.32354197 0.16450452 0.1420309 -0.12489415 -0.24791417 -0.01145683
## 5 -0.34014860 0.13414162 0.2583694 -0.23745824 -0.36976146 0.12237332

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## 6	-0.28907719	0.08532431	0.2264042	-0.06752342	-0.34390878	0.18038880
##	V152	V153	V154	V155	V156	V157
## 1	0.006998715	0.24488551	0.21651661	-0.27968077	0.2497388	0.01771975
## 2	-0.136272720	0.19949752	-0.01189863	-0.13845696	0.3353709	-0.27653307
## 3	0.593764370	-0.55054445	-0.13900595	-0.06601300	0.4930217	-0.54922446
## 4	0.572775630	-0.50481633	0.03607181	-0.20887571	0.4687120	-0.35510514
## 5	0.207528190	0.06939742	-0.22727350	0.10070156	0.0209894	0.21856856
## 6	-0.011767740	0.32077633	-0.11797291	-0.05364571	0.1893088	0.20638900
##	V158	V159	V160	V161	V162	V163
## 1	0.648464540	-0.23693109	-0.3017347	-0.20489621	-0.17448771	-0.09338934
## 2	-0.002972786	0.54181281	-0.5339624	-0.13866849	-0.02580207	-0.07141841
## 3	-0.200555860	0.31402401	-0.7300501	-0.09780967	-0.03421327	-0.06002840
## 4	-0.630286750	0.58864892	-0.8917357	-0.10223178	-0.04471346	-0.05343650
## 5	0.268595960	-0.12960656	-0.9183186	-0.09184994	-0.02900502	-0.06123535
## 6	0.129553810	-0.04322475	-0.8554236	-0.09273955	-0.03213821	-0.07257549
##	V164	V165	V166	V167	V168	V169
## 1	-0.9012242	-0.9108601	-0.9392504	-0.9103627	-0.9273567	-0.9535541
## 2	-0.9623042	-0.9562894	-0.9813408	-0.9686141	-0.9740239	-0.9821632
## 3	-0.9841669	-0.9879399	-0.9761876	-0.9837226	-0.9895697	-0.9787070
## 4	-0.9841709	-0.9895542	-0.9807240	-0.9839950	-0.9917047	-0.9836989
## 5	-0.9884738	-0.9918773	-0.9819836	-0.9882437	-0.9924723	-0.9837369
## 6	-0.9894167	-0.9894940	-0.9777794	-0.9894176	-0.9895552	-0.9782051
##	V170	V171	V172	V173	V174	V175
## 1	-0.8679143	-0.9134978	-0.8975779	0.9049367	0.9173084	0.9476122
## 2	-0.9592559	-0.9511318	-0.9795697	0.9497259	0.9298252	0.9770782
## 3	-0.9815796	-0.9905711	-0.9673495	0.9859398	0.9875760	0.9770782
## 4	-0.9815796	-0.9905711	-0.9673495	0.9859398	0.9875760	0.9797098
## 5	-0.9883567	-0.9929557	-0.9736173	0.9909349	0.9947457	0.9843560
## 6	-0.9883567	-0.9929557	-0.9736173	0.9909349	0.9932789	0.9843560
##	V176	V177	V178	V179	V180	V181
## 1	-0.9296091	-0.9946862	-0.9957906	-0.9978126	-0.9365408	-0.9588796
## 2	-0.9751256	-0.9991333	-0.9989404	-0.9997191	-0.9755280	-0.9872757
## 3	-0.9862341	-0.9998120	-0.9998980	-0.9995816	-0.9824186	-0.9901951
## 4	-0.9885511	-0.9998120	-0.9999201	-0.9997049	-0.9831855	-0.9932335
## 5	-0.9900661	-0.9998877	-0.9999471	-0.9997353	-0.9881397	-0.9938023
## 6	-0.9877041	-0.9999019	-0.9999193	-0.9996262	-0.9890131	-0.9903918
##	V182	V183	V184	V185	V186	V187
## 1	-0.9703483	0.03661912	0.07645993	-0.1971260	0.10651426	-0.02081190
## 2	-0.9825260	-0.29249393	-0.14390965	-0.3860780	-0.05297410	0.20970463
## 3	-0.9820583	-0.41189668	-0.36810437	-0.3326342	-0.02177301	-0.12252597
## 4	-0.9872709	-0.40084865	-0.45529523	-0.4164355	-0.13005818	0.02273893
## 5	-0.9885212	-0.46306153	-0.45275061	-0.4252359	-0.13105286	-0.07877794
## 6	-0.9779012	-0.49898174	-0.39220479	-0.3538400	-0.12842958	-0.09291511
##	V188	V189	V190	V191	V192	V193
## 1	0.19325784	0.30447875	0.11572923	0.05414960	0.06895124	0.1970496
## 2	-0.11165626	-0.25754483	-0.19712748	0.25112852	-0.04835748	0.1582181
## 3	0.18054322	0.14193330	-0.08592564	-0.08550133	0.34156360	0.3828919
## 4	0.06134586	0.22839658	-0.02570165	-0.07972945	0.29777325	0.5397360
## 5	0.21973274	0.05980249	-0.34191961	0.01649005	-0.10653608	0.4874077
## 6	0.05386602	0.24286067	-0.38414218	0.09741200	-0.18384291	0.4596498
##	V194	V195	V196	V197	V198	V199
## 1	0.3099283	-0.21265711	0.173178140	0.1458445	0.12400875	-0.15534634
## 2	0.1588639	-0.23110857	0.315681620	0.1434450	0.28485043	-0.17115207
## 3	0.1099679	-0.11010236	0.194852660	0.6148686	0.16167166	-0.17700262

## 4	0.2120013	-0.21107820	0.197870330	0.5749480	0.16704230	-0.19684429
## 5	-0.2303126	0.01951718	-0.148038710	0.2742529	-0.11420864	0.11782975
## 6	-0.1451967	-0.19810251	-0.008808391	0.2274427	0.01573996	0.07658491
##	V200	V201	V202	V203	V204	V205
## 1	-0.3234373	-0.8669294	-0.7051911	-0.7440217	-0.7607956	-0.9816487
## 2	-0.2481132	-0.9689614	-0.9539024	-0.9631648	-0.9376082	-0.9859442
## 3	-0.8353808	-0.9762282	-0.9790834	-0.9823638	-0.9692116	-0.9859442
## 4	-0.8156161	-0.9743245	-0.9770159	-0.9811550	-0.9692116	-0.9862629
## 5	-0.7503226	-0.9758356	-0.9768934	-0.9792374	-0.9759545	-0.9932282
## 6	-0.7671823	-0.9817163	-0.9777039	-0.9789605	-0.9784902	-0.9932282
##	V206	V207	V208	V209	V210	V211
## 1	-0.8669294	-0.9801658	-0.8594742	0.2551044	0.05377970	-0.20414449
## 2	-0.9689614	-0.9989199	-0.9762200	-0.3293450	0.45848929	-0.45648942
## 3	-0.9762282	-0.9994239	-0.9829047	-0.5153616	0.14173151	-0.04885047
## 4	-0.9743245	-0.9993494	-0.9848230	-0.4863167	0.13108562	-0.07174782
## 5	-0.9758356	-0.9993951	-0.9790442	-0.4470493	-0.07571101	0.06155314
## 6	-0.9817163	-0.9995654	-0.9787186	-0.4926671	-0.13453848	0.02128811
##	V212	V213	V214	V215	V216	V217
## 1	0.610527550	-0.564449320	-0.8669294	-0.7051911	-0.7440217	-0.7607956
## 2	0.488122070	-0.348261970	-0.9689614	-0.9539024	-0.9631648	-0.9376082
## 3	0.006845639	-0.155699340	-0.9762282	-0.9790834	-0.9823638	-0.9692116
## 4	0.046840045	-0.134310660	-0.9743245	-0.9770159	-0.9811550	-0.9692116
## 5	-0.035947656	-0.006066411	-0.9758356	-0.9768934	-0.9792374	-0.9759545
## 6	0.236426680	-0.202521190	-0.9817163	-0.9777039	-0.9789605	-0.9784902
##	V218	V219	V220	V221	V222	V223
## 1	-0.9816487	-0.8669294	-0.9801658	-0.8594742	0.2551044	0.05377970
## 2	-0.9859442	-0.9689614	-0.9989199	-0.9762200	-0.3293450	0.45848929
## 3	-0.9859442	-0.9762282	-0.9994239	-0.9829047	-0.5153616	0.14173151
## 4	-0.9862629	-0.9743245	-0.9993494	-0.9848230	-0.4863167	0.13108562
## 5	-0.9932282	-0.9758356	-0.9993951	-0.9790442	-0.4470493	-0.07571101
## 6	-0.9932282	-0.9817163	-0.9995654	-0.9787186	-0.4926671	-0.13453848
##	V224	V225	V226	V227	V228	V229
## 1	-0.20414449	0.610527550	-0.564449320	-0.9297665	-0.8959942	-0.9004173
## 2	-0.45648942	0.488122070	-0.348261970	-0.9737168	-0.9410078	-0.9596534
## 3	-0.04885047	0.006845639	-0.155699340	-0.9816177	-0.9713710	-0.9776023
## 4	-0.07174782	0.046840045	-0.134310660	-0.9827121	-0.9748075	-0.9817946
## 5	0.06155314	-0.035947656	-0.006066411	-0.9869079	-0.9888539	-0.9902561
## 6	0.02128811	0.236426680	-0.202521190	-0.9873357	-0.9919970	-0.9929347
##	V230	V231	V232	V233	V234	V235
## 1	-0.9030044	-0.9750111	-0.9297665	-0.9956077	-0.9141207	-0.1295523
## 2	-0.9288375	-0.9750111	-0.9737168	-0.9987898	-0.9780807	-0.5277083
## 3	-0.9643663	-0.9837072	-0.9816177	-0.9994780	-0.9875633	-0.6337396
## 4	-0.9643663	-0.9837072	-0.9827121	-0.9995411	-0.9890873	-0.6385587
## 5	-0.9891086	-0.9722159	-0.9869079	-0.9997492	-0.9926297	-0.7643276
## 6	-0.9918324	-0.9722159	-0.9873357	-0.9997765	-0.9952174	-0.8501094
##	V236	V237	V238	V239	V240	V241
## 1	0.2389109	-0.34559715	0.32646236	-0.26304800	-0.7955439	-0.7620732
## 2	-0.3186169	0.18419955	-0.46009650	0.71335686	-0.8984331	-0.9108583
## 3	0.4180511	0.03234082	-0.33840962	-0.37629403	-0.9391936	-0.9717763
## 4	0.3926791	-0.08744107	-0.25171191	-0.22531825	-0.9471844	-0.9703682
## 5	0.2096274	-0.13119043	-0.09635455	-0.07398238	-0.9574192	-0.9694995
## 6	0.0693537	-0.02824560	0.12660380	-0.29374478	-0.9697442	-0.9732947
##	V242	V243	V244	V245	V246	V247
## 1	-0.7826723	-0.7165936	-0.7641926	-0.7955439	-0.9741521	-0.8395810

## 2	-0.9011104	-0.9024317	-0.8937527	-0.8984331	-0.9941803	-0.9101851
## 3	-0.9701844	-0.9705676	-0.9504100	-0.9391936	-0.9980922	-0.9736598
## 4	-0.9669844	-0.9705676	-0.9504100	-0.9471844	-0.9984927	-0.9657706
## 5	-0.9638216	-0.9752528	-0.9695732	-0.9574192	-0.9989345	-0.9601811
## 6	-0.9709561	-0.9769737	-0.9829388	-0.9697442	-0.9993892	-0.9702223
##	V248	V249	V250	V251	V252	V253
## 1	0.66756269	0.03562114	-0.16189398	0.15325006	-0.006759604	-0.9251949
## 2	0.39460411	0.03012846	-0.03752390	0.08112477	-0.222040480	-0.9733934
## 3	0.07839758	-0.21718596	-0.03706647	0.44928622	-0.430571380	-0.9867480
## 4	0.10900203	-0.41378455	0.25149767	-0.01523949	-0.001456836	-0.9888204
## 5	0.10773644	-0.41361067	0.30844362	-0.09852761	-0.008311151	-0.9900621
## 6	0.02449829	-0.25027579	0.09865250	0.15840493	-0.184694330	-0.9878482
##	V254	V255	V256	V257	V258	V259
## 1	-0.8943436	-0.9001467	-0.9167371	-0.9763667	-0.9251949	-0.9958242
## 2	-0.9440900	-0.9606210	-0.9292873	-0.9763667	-0.9733934	-0.9990856
## 3	-0.9844015	-0.9870224	-0.9840864	-0.9746050	-0.9867480	-0.9998399
## 4	-0.9855681	-0.9890357	-0.9840864	-0.9813857	-0.9888204	-0.9998712
## 5	-0.9904189	-0.9913670	-0.9911232	-0.9813857	-0.9900621	-0.9999089
## 6	-0.9890428	-0.9888397	-0.9911232	-0.9802600	-0.9878482	-0.9998786
##	V260	V261	V262	V263	V264	V265
## 1	-0.9118375	0.3316543	0.516953160	-0.51350400	0.04131981	0.01183501
## 2	-0.9844092	-0.1862041	0.032238715	0.01025307	-0.65001828	0.52648944
## 3	-0.9916139	-0.4241094	0.495272190	-0.21584314	0.24163895	-0.77077493
## 4	-0.9931473	-0.4998587	0.645559460	-0.30094403	0.29765769	-0.88520672
## 5	-0.9926822	-0.5176108	-0.064276276	-0.01928329	0.39166371	-0.52522965
## 6	-0.9893050	-0.4261656	-0.006708336	-0.01767363	0.30808658	-0.50086214
##	V266	V267	V268	V269	V270	V271
## 1	-0.9185097	-0.9182132	-0.7890915	-0.9482903	-0.9251369	-0.6363167
## 2	-0.9609030	-0.9644333	-0.9566748	-0.9843500	-0.9701748	-0.9418619
## 3	-0.9919063	-0.9650336	-0.9668996	-0.9947537	-0.9736959	-0.9622866
## 4	-0.9930298	-0.9682839	-0.9669116	-0.9955936	-0.9769176	-0.9689579
## 5	-0.9924042	-0.9692072	-0.9796527	-0.9945037	-0.9674681	-0.9782399
## 6	-0.9938427	-0.9707293	-0.9755771	-0.9946471	-0.9710160	-0.9614438
##	V272	V273	V274	V275	V276	V277
## 1	-0.9306803	-0.9244385	-0.7249026	-0.9684241	-0.9401367	-0.5971887
## 2	-0.9757642	-0.9702565	-0.9442487	-0.9930506	-0.9743570	-0.9426704
## 3	-0.9939414	-0.9679526	-0.9615674	-0.9950820	-0.9837728	-0.9602915
## 4	-0.9940528	-0.9707264	-0.9649323	-0.9974953	-0.9878870	-0.9715113
## 5	-0.9931035	-0.9708048	-0.9766591	-0.9959320	-0.9720391	-0.9782644
## 6	-0.9930539	-0.9700484	-0.9673953	-0.9959019	-0.9793231	-0.9577877
##	V278	V279	V280	V281	V282	V283
## 1	-0.9661371	-0.9844505	-0.9520871	-0.8650632	-0.9978437	-0.9960362
## 2	-0.9724499	-0.9856056	-0.9995443	-0.9576235	-0.9995923	-0.9991488
## 3	-0.9922826	-0.9930192	-0.9802508	-0.9771138	-0.9999541	-0.9992501
## 4	-0.9967732	-0.9813299	-0.9950586	-0.9786883	-0.9999634	-0.9993777
## 5	-0.9944123	-0.9853351	-0.9857864	-0.9829645	-0.9999545	-0.9991484
## 6	-0.9980739	-0.9913526	-0.9758857	-0.9827866	-0.9999606	-0.9992696
##	V284	V285	V286	V287	V288	V289
## 1	-0.9401950	-0.9048404	-0.9338125	-0.8693829	-0.3396733	-0.4858032
## 2	-0.9975995	-0.9550323	-0.9710025	-0.9662298	-0.6040128	-0.7868864
## 3	-0.9987012	-0.9904021	-0.9693517	-0.9720156	-0.9463569	-0.7419244
## 4	-0.9989229	-0.9919868	-0.9624321	-0.9693662	-1.0000000	-0.7419244
## 5	-0.9994092	-0.9911072	-0.9788623	-0.9780067	-0.9463569	-0.7579533
## 6	-0.9988345	-0.9896697	-0.9797988	-0.9806086	-0.9463569	-0.7419244

##	V290	V291	V292	V293	V294	V295
## 1	-0.1662577	-1.00000000	-1.00000000	-1.00000000	0.01111695	0.121250690
## 2	-0.6102978	-0.80645161	-1.00000000	-1.00000000	0.35206637	0.174546760
## 3	-0.6280778	-1.00000000	-1.00000000	-1.00000000	0.18043767	0.133458310
## 4	-0.6118308	-0.09677419	-0.9333333	-1.00000000	0.06270005	0.261719750
## 5	-0.8098879	-0.54838710	-0.9333333	-0.9230769	-0.01890990	-0.009980057
## 6	-0.7295225	-0.54838710	-0.9333333	-1.00000000	-0.17797819	-0.122556470
##	V296	V297	V298	V299	V300	V301
## 1	-0.52294869	-0.5719995	-0.8946124	-0.3382659	-0.6867975	0.1895525
## 2	-0.32067339	-0.9181764	-0.9987617	-0.3263535	-0.6570871	-0.3276864
## 3	0.18265917	-0.3841142	-0.7405239	-0.6636137	-0.9266437	-0.3769352
## 4	0.15182490	-0.6355806	-0.9287958	-0.7065920	-0.9537878	-0.5903865
## 5	0.09521546	-0.5073913	-0.8568786	-0.2414177	-0.6169523	-0.5003530
## 6	-0.12332551	-0.4621296	-0.8141046	-0.4707076	-0.8144876	-0.1869594
##	V302	V303	V304	V305	V306	V307
## 1	-0.1135957	-0.9985063	-0.9979426	-0.9955979	-0.9950356	-0.9959769
## 2	-0.6274052	-0.9998504	-0.9995818	-0.9987183	-0.9978567	-0.9961857
## 3	-0.6440250	-0.9999755	-0.9999288	-0.9998870	-0.9998622	-0.9998434
## 4	-0.8166940	-0.9999831	-0.9999408	-0.9998771	-0.9998901	-0.9998424
## 5	-0.7537866	-0.9999611	-0.9999605	-0.9998902	-0.9999035	-0.9998662
## 6	-0.5099702	-0.9999591	-0.9999725	-0.9999304	-0.9999335	-0.9999522
##	V308	V309	V310	V311	V312	V313
## 1	-0.9914874	-0.9921312	-0.9997751	-0.9982039	-0.9947467	-0.9943090
## 2	-0.9977299	-0.9992383	-0.9998986	-0.9997598	-0.9982664	-0.9967796
## 3	-0.9997929	-0.9999356	-0.9999410	-0.9999619	-0.9998679	-0.9998395
## 4	-0.9998748	-0.9999595	-0.9999984	-0.9999714	-0.9998677	-0.9998696
## 5	-0.9999037	-0.9999606	-0.9999772	-0.9999597	-0.9998830	-0.9998953
## 6	-0.9999139	-0.9999574	-0.9999994	-0.9999616	-0.9999265	-0.9999529
##	V314	V315	V316	V317	V318	V319
## 1	-0.9946932	-0.9980205	-0.9937275	-0.9962089	-0.9979761	-0.9989209
## 2	-0.9994596	-0.9996875	-0.9969297	-0.9991415	-0.9997153	-0.9995509
## 3	-0.9999375	-0.9999583	-0.9998332	-0.9995158	-0.9993382	-0.9993897
## 4	-0.9999725	-0.9999665	-0.9998676	-0.9996210	-0.9994476	-0.9995419
## 5	-0.9999662	-0.9999565	-0.9998895	-0.9990703	-0.9996317	-0.9998196
## 6	-0.9999715	-0.9999611	-0.9999387	-0.9991698	-0.9997289	-0.9997873
##	V320	V321	V322	V323	V324	V325
## 1	-0.9964011	-0.9975599	-0.9950680	-0.9973513	-0.9982380	-0.9960705
## 2	-0.9986450	-0.9997514	-0.9995840	-0.9990960	-0.9994171	-0.9992123
## 3	-0.9996982	-0.9993572	-0.9991498	-0.9994102	-0.9995991	-0.9993051
## 4	-0.9993676	-0.9992872	-0.9986572	-0.9996542	-0.9996911	-0.9994420
## 5	-0.9994687	-0.9995114	-0.9994546	-0.9994976	-0.9997972	-0.9991147
## 6	-0.9996318	-0.9997467	-0.9995098	-0.9997578	-0.9999447	-0.9992410
##	V326	V327	V328	V329	V330	V331
## 1	-0.9979246	-0.9963566	-0.9976398	-0.9962200	-0.9962254	-0.9247055
## 2	-0.9991820	-0.9996913	-0.9992025	-0.9992024	-0.9989229	-0.9971858
## 3	-0.9993306	-0.9992366	-0.9994711	-0.9992587	-0.9995606	-0.9990833
## 4	-0.9993821	-0.9989964	-0.9996589	-0.9994107	-0.9992413	-0.9991714
## 5	-0.9996797	-0.9994662	-0.9996081	-0.9991606	-0.9994623	-0.9993552
## 6	-0.9996957	-0.9996594	-0.9998292	-0.9992703	-0.9996430	-0.9985872
##	V332	V333	V334	V335	V336	V337
## 1	-0.9940973	-0.9953235	-0.9989694	-0.9979016	-0.9949296	-0.9892607
## 2	-0.9992512	-0.9996962	-0.9997392	-0.9994487	-0.9993130	-0.9991077
## 3	-0.9984180	-0.9992964	-0.9997733	-0.9996996	-0.9986638	-0.9991742
## 4	-0.9988070	-0.9995555	-0.9996803	-0.9995611	-0.9987750	-0.9989052

## 5	-0.9997693	-0.9997178	-0.9997648	-0.9995464	-0.9995101	-0.9997063
## 6	-0.9997110	-0.9997350	-0.9998679	-0.9997192	-0.9996375	-0.9995464
##	V338	V339	V340	V341	V342	V343
## 1	-0.9800854	-0.9379367	-0.9966776	-0.9970254	-0.9864274	-0.9392008
## 2	-0.9999994	-0.9975401	-0.9997451	-0.9994201	-0.9993766	-0.9975846
## 3	-0.9998030	-0.9987883	-0.9995025	-0.9994546	-0.9993649	-0.9987052
## 4	-0.9998729	-0.9989842	-0.9996341	-0.9993713	-0.9991952	-0.9989479
## 5	-0.9998989	-0.9994414	-0.9997682	-0.9995506	-0.9997707	-0.9994226
## 6	-0.9997193	-0.9988087	-0.9998165	-0.9997238	-0.9996036	-0.9988160
##	V344	V345	V346	V347	V348	V349
## 1	-0.9984318	-0.8996332	-0.9374850	-0.9235514	-0.9244291	-0.9432104
## 2	-0.9996649	-0.9435190	-0.9691623	-0.9734489	-0.9616312	-0.9800263
## 3	-0.9996992	-0.9910295	-0.9733689	-0.9717030	-0.9919122	-0.9709857
## 4	-0.9996090	-0.9905362	-0.9724525	-0.9703374	-0.9919600	-0.9754341
## 5	-0.9997205	-0.9914800	-0.9798346	-0.9834930	-0.9935709	-0.9786966
## 6	-0.9998436	-0.9937759	-0.9789845	-0.9860986	-0.9944514	-0.9807585
##	V350	V351	V352	V353	V354	V355
## 1	-0.9478915	-0.8966146	-0.9383091	-0.9425757	-0.9486343	-0.9583254
## 2	-0.9807873	-0.9458104	-0.9772743	-0.9771656	-0.9773950	-0.9870866
## 3	-0.9723222	-0.9887885	-0.9720282	-0.9722904	-0.9946627	-0.9755812
## 4	-0.9806211	-0.9893498	-0.9762816	-0.9792625	-0.9939669	-0.9795799
## 5	-0.9885033	-0.9909483	-0.9794355	-0.9869510	-0.9955192	-0.9751047
## 6	-0.9875569	-0.9920256	-0.9791621	-0.9858199	-0.9965363	-0.9860251
##	V356	V357	V358	V359	V360	V361
## 1	-0.9588169	-0.9438824	-0.9873033	-0.9784656	-0.9052742	-0.9950361
## 2	-0.9842024	-0.9785668	-0.9534687	-0.9966644	-0.9554910	-0.9983708
## 3	-0.9697617	-0.9991204	-0.9994595	-0.9899748	-0.9784007	-0.9998992
## 4	-0.9782094	-0.9861423	-0.9855391	-0.9735074	-0.9773405	-0.9998950
## 5	-0.9906151	-0.9945600	-0.9998073	-0.9732291	-0.9852960	-0.9999145
## 6	-0.9893724	-0.9965865	-0.9958048	-0.9745407	-0.9870903	-0.9999389
##	V362	V363	V364	V365	V366	V367
## 1	-0.9974993	-0.9970307	-0.8870774	-0.9358196	-0.9536533	-0.4706616
## 2	-0.9993671	-0.9994262	-0.9295984	-0.9732304	-0.9731457	-0.6066333
## 3	-0.9993190	-0.9992361	-0.9855866	-0.9773278	-0.9713641	-1.0000000
## 4	-0.9993744	-0.9993584	-0.9898502	-0.9821422	-0.9826662	-1.0000000
## 5	-0.9995688	-0.9997137	-0.9887913	-0.9825050	-0.9822731	-1.0000000
## 6	-0.9995820	-0.9997410	-0.9902591	-0.9790690	-0.9834229	-1.0000000
##	V368	V369	V370	V371	V372	V373
## 1	-0.6721718	-0.5962740	-0.52	0.08	0.32	0.45100539
## 2	-1.0000000	-0.9422163	-0.16	-0.32	-0.40	0.47285157
## 3	-0.9391203	-0.8641583	-0.64	-0.40	-0.44	0.27074412
## 4	-1.0000000	-0.9001619	-0.44	-0.56	-0.48	0.27733393
## 5	-0.9391203	-1.0000000	-0.36	-0.56	-0.24	0.18027241
## 6	-1.0000000	-1.0000000	-0.72	-0.56	-0.48	0.07917486
##	V375	V376	V377	V378	V379	V380
## 1	-0.18029913	-0.5800861	-0.9080700	-0.6255269	-0.9427572	-0.6619101
## 2	-0.24311457	-0.9256467	-0.9658581	-0.7208120	-0.9924446	-0.7647273
## 3	-0.08249234	-0.5972016	-0.8940541	-0.3854568	-0.8307502	-0.2781365
## 4	0.02181301	-0.4961496	-0.8520281	-0.4069163	-0.8672804	-0.5470710
## 5	0.10085294	-0.6554288	-0.9154482	-0.2716506	-0.6360181	-0.6710494
## 6	-0.11027662	-0.6548313	-0.9190851	-0.6487496	-0.9610271	-0.5689498
##	V381	V382	V383	V384	V385	V386
## 1	-0.9115321	-0.9990115	-0.9976301	-0.9959848	-0.9947085	-0.9955716
## 2	-0.9447724	-0.9999176	-0.9994950	-0.9986462	-0.9977000	-0.9959019

## 3	-0.6615201	-0.9999956	-0.9999294	-0.9999054	-0.9998644	-0.9998166
## 4	-0.7952377	-0.9999867	-0.9999271	-0.9998818	-0.9998770	-0.9998307
## 5	-0.9346144	-0.9999598	-0.9999556	-0.9999114	-0.9998791	-0.9998638
## 6	-0.9054224	-0.9999507	-0.9999683	-0.9999314	-0.9999276	-0.9999469
##	V387	V388	V389	V390	V391	V392
## 1	-0.9878765	-0.9864452	-0.9982052	-0.9980404	-0.9944968	-0.9920496
## 2	-0.9967749	-0.9988225	-0.9999343	-0.9996409	-0.9979245	-0.9959339
## 3	-0.9997614	-0.9999490	-0.9999990	-0.9999542	-0.9998758	-0.9997924
## 4	-0.9998249	-0.9999218	-0.9999718	-0.9999487	-0.9998626	-0.9998280
## 5	-0.9998576	-0.9999543	-0.9999819	-0.9999550	-0.9998870	-0.9998637
## 6	-0.9998733	-0.9999262	-0.9999980	-0.9999590	-0.9999242	-0.9999259
##	V393	V394	V395	V396	V397	V398
## 1	-0.9863330	-0.9968935	-0.9907627	-0.9994092	-0.9986481	-0.9987487
## 2	-0.9988303	-0.9991966	-0.9955815	-0.9994072	-0.9997577	-0.9995540
## 3	-0.9999497	-0.9999317	-0.9997724	-0.9997983	-0.9994083	-0.9992566
## 4	-0.9999178	-0.9999182	-0.9998056	-0.9996148	-0.9994170	-0.9996363
## 5	-0.9999516	-0.9999346	-0.9998312	-0.9996982	-0.9996638	-0.9997501
## 6	-0.9999271	-0.9999456	-0.9999088	-0.9993743	-0.9997324	-0.9997036
##	V399	V400	V401	V402	V403	V404
## 1	-0.9964063	-0.9971722	-0.9945302	-0.9979198	-0.9999697	-0.9986417
## 2	-0.9992200	-0.9995406	-0.9989524	-0.9984723	-0.9990067	-0.9996475
## 3	-0.9997466	-0.9995379	-0.9991835	-0.9996738	-0.9999998	-0.9994227
## 4	-0.9995866	-0.9995210	-0.9991132	-0.9994958	-0.9994121	-0.9993874
## 5	-0.9995702	-0.9996387	-0.9993428	-0.9996603	-0.9999988	-0.9996308
## 6	-0.9996149	-0.9998052	-0.9994571	-0.9997460	-0.9999953	-0.9996168
##	V405	V406	V407	V408	V409	V410
## 1	-0.9974017	-0.9954108	-0.9981824	-0.9984631	-0.9959958	-0.9936388
## 2	-0.9993159	-0.9992262	-0.9985437	-0.9995493	-0.9992340	-0.9982249
## 3	-0.9993471	-0.9993227	-0.9997189	-0.9992548	-0.9996017	-0.9996453
## 4	-0.9995488	-0.9992789	-0.9994892	-0.9993963	-0.9994844	-0.9994163
## 5	-0.9996241	-0.9994727	-0.9997070	-0.9996235	-0.9995489	-0.9996599
## 6	-0.9996112	-0.9996569	-0.9997814	-0.9995928	-0.9996481	-0.9990358
##	V411	V412	V413	V414	V415	V416
## 1	-0.9978378	-0.9971293	-0.9987495	-0.9967088	-0.9951097	-0.9984858
## 2	-0.9991344	-0.9997071	-0.9996953	-0.9994477	-0.9992861	-0.9984971
## 3	-0.9978670	-0.9993956	-0.9998051	-0.9997525	-0.9983542	-0.9990254
## 4	-0.9984729	-0.9996507	-0.9997479	-0.9995035	-0.9984924	-0.9987529
## 5	-0.9997204	-0.9997133	-0.9997606	-0.9995575	-0.9995458	-0.9995495
## 6	-0.9996568	-0.9997535	-0.9998860	-0.9997475	-0.9996471	-0.9994272
##	V417	V418	V419	V420	V421	V422
## 1	-0.9990935	-0.9959246	-0.9979509	-0.9960129	-0.9984601	-0.9962671
## 2	-0.9999825	-0.9986624	-0.9997308	-0.9993699	-0.9985726	-0.9992475
## 3	-0.9999757	-0.9980822	-0.9996253	-0.9993213	-0.9990731	-0.9987768
## 4	-0.9998053	-0.9985194	-0.9997277	-0.9991726	-0.9987950	-0.9991454
## 5	-0.9998101	-0.9996733	-0.9997659	-0.9995323	-0.9995514	-0.9996999
## 6	-0.9998118	-0.9993973	-0.9998478	-0.9997082	-0.9994356	-0.9996051
##	V423	V424	V425	V426	V427	V428
## 1	-0.9977005	-0.8235579	-0.8079160	-0.9179126	-0.9032627	-0.8226770
## 2	-0.9995935	-0.9225130	-0.9264957	-0.9682295	-0.9270506	-0.9320107
## 3	-0.9996411	-0.9728456	-0.9808333	-0.9720602	-0.9731979	-0.9771945
## 4	-0.9995480	-0.9715016	-0.9813450	-0.9667055	-0.9671856	-0.9719094
## 5	-0.9996970	-0.9764045	-0.9804043	-0.9687820	-0.9743979	-0.9765654
## 6	-0.9998423	-0.9797034	-0.9805261	-0.9602064	-0.9800146	-0.9742469
##	V429	V430	V431	V432	V433	V434

## 1	-0.9561651	-0.8651270	-0.8318008	-0.9410562	-0.9047980	-0.8792566
## 2	-0.9701434	-0.9400269	-0.9338519	-0.9671190	-0.9035110	-0.9487658
## 3	-0.9790953	-0.9698475	-0.9796193	-0.9710030	-0.9719872	-0.9830423
## 4	-0.9652755	-0.9686588	-0.9779172	-0.9637506	-0.9589503	-0.9720110
## 5	-0.9700165	-0.9731455	-0.9786927	-0.9633466	-0.9735023	-0.9842999
## 6	-0.9678163	-0.9780488	-0.9775095	-0.9591008	-0.9827596	-0.9786638
##	V435	V436	V437	V438	V439	V440
## 1	-0.9677885	-0.8785993	-0.9483291	-0.9196852	-0.8284720	-0.9929495
## 2	-0.9776940	-0.9889596	-0.9611363	-0.9751811	-0.9312954	-0.9970900
## 3	-0.9883536	-0.9994072	-0.9910446	-0.9944469	-0.9756077	-0.9995833
## 4	-0.9680136	-0.9972096	-0.9985079	-0.9891006	-0.9740588	-0.9994196
## 5	-0.9783110	-0.9980948	-0.9925046	-0.9914964	-0.9759260	-0.9996301
## 6	-0.9767031	-0.9938869	-0.9911374	-0.9887523	-0.9751247	-0.9997588
##	V441	V442	V443	V444	V445	V446
## 1	-0.9826631	-0.9979933	-0.8788944	-0.8381520	-0.9291400	0.0007581481
## 2	-0.9973439	-0.9993307	-0.9476938	-0.9411104	-0.9788356	-0.2382949000
## 3	-0.9997134	-0.9995951	-0.9791283	-0.9843627	-0.9763149	-0.5418896700
## 4	-0.9996265	-0.9991614	-0.9800219	-0.9890341	-0.9749980	-0.5731624400
## 5	-0.9996998	-0.9993325	-0.9864211	-0.9904682	-0.9841752	-0.6057112400
## 6	-0.9996620	-0.9991707	-0.9883881	-0.9887968	-0.9832032	-0.6019911500
##	V447	V448	V449	V450	V451	V452
## 1	0.20014368	-0.2533842	-1.0	-0.9354839	-0.9310345	0.18403457
## 2	-0.09074787	-0.5945097	-1.0	-0.9354839	-0.9310345	0.01810862
## 3	-0.51739221	-0.5989126	-1.0	-0.9354839	-1.0000000	-0.47914475
## 4	-0.58785161	-0.5764817	-1.0	-1.0000000	-1.0000000	-0.49695391
## 5	-0.58555355	-0.5696633	-1.0	-0.9354839	-0.9310345	-0.42750236
## 6	-0.57568325	-0.5319145	-0.8	-0.5483871	-0.5172414	-0.32012497
##	V453	V454	V455	V456	V457	V458
## 1	-0.05932286	0.43810716	-0.3954227600	-0.69876160	-0.38745724	-0.7863942
## 2	-0.22726634	-0.15169839	0.5574831700	0.38025340	-0.39647764	-0.7590735
## 3	-0.21008368	0.04930984	-0.0668244670	-0.44424084	-0.27466818	-0.6993909
## 4	-0.49990580	-0.25889610	0.3447759300	0.09276551	0.04432834	-0.3157187
## 5	-0.27813128	-0.29130830	0.0007812517	-0.39580949	-0.33120367	-0.7686541
## 6	-0.33338449	-0.05054079	-0.1406186200	-0.56688067	-0.24209966	-0.6661124
##	V459	V460	V461	V462	V463	V464
## 1	-0.4856536	-0.7868151	-0.9946291	-0.9904691	-0.9927778	-0.9956797
## 2	-0.1502196	-0.5483663	-0.9971174	-0.9992759	-0.9990813	-0.9972360
## 3	-0.5666755	-0.8772182	-0.9995897	-0.9997958	-0.9998559	-0.9999541
## 4	0.0422413	-0.2778187	-0.9994157	-0.9997857	-0.9998254	-0.9999257
## 5	-0.3314640	-0.7049328	-0.9996303	-0.9998518	-0.9998736	-0.9999599
## 6	-0.3840935	-0.7392980	-0.9997671	-0.9998414	-0.9999498	-0.9999523
##	V465	V466	V467	V468	V469	V470
## 1	-0.9870777	-0.9866510	-0.9841144	-0.9852502	-0.9935525	-0.9924302
## 2	-0.9985964	-0.9982226	-0.9982025	-0.9975895	-0.9971812	-0.9981353
## 3	-0.9998419	-0.9999030	-0.9999256	-0.9999998	-0.9995843	-0.9998674
## 4	-0.9998502	-0.9999211	-0.9999571	-0.9999968	-0.9994190	-0.9998313
## 5	-0.9998970	-0.9999181	-0.9999293	-0.9999449	-0.9996306	-0.9998841
## 6	-0.9999412	-0.9999092	-0.9999413	-0.9999346	-0.9997579	-0.9999423
##	V471	V472	V473	V474	V475	V476
## 1	-0.9856058	-0.9846170	-0.9932692	-0.9927255	-0.9779278	-0.9948522
## 2	-0.9983044	-0.9979313	-0.9971797	-0.9975152	-0.9968460	-0.9989161
## 3	-0.9998523	-0.9999585	-0.9995838	-0.9999251	-0.9996878	-0.9998359
## 4	-0.9998654	-0.9999747	-0.9994198	-0.9999084	-0.9994838	-0.9998841
## 5	-0.9998966	-0.9999362	-0.9996304	-0.9999421	-0.9996190	-0.9998576

## 6	-0.9999237	-0.9999383	-0.9997596	-0.9999445	-0.9995117	-0.9998987
##	V477	V478	V479	V480	V481	V482
## 1	-0.9978191	-0.9948430	-0.9924099	-0.9881227	-0.9904332	-0.9879613
## 2	-0.9995605	-0.9994709	-0.9992927	-0.9992095	-0.9992409	-0.9997139
## 3	-0.9999554	-0.9999810	-0.9999837	-0.9998777	-0.9998408	-0.9998810
## 4	-0.9999566	-0.9999761	-0.9999844	-0.9999282	-0.9999296	-0.9999993
## 5	-0.9999876	-0.9999811	-0.9999695	-0.9998851	-0.9998478	-0.9997894
## 6	-0.9999837	-0.9999896	-0.9999774	-0.9998788	-0.9998721	-0.9998816
##	V483	V484	V485	V486	V487	V488
## 1	-0.9817910	-0.9963992	-0.9914523	-0.9880600	-0.9820484	-0.9933800
## 2	-0.9971722	-0.9994289	-0.9992688	-0.9993426	-0.9971642	-0.9993669
## 3	-0.9996839	-0.9999528	-0.9999622	-0.9998366	-0.9996857	-0.9999741
## 4	-0.9995779	-0.9999524	-0.9999731	-0.9999503	-0.9995879	-0.9999738
## 5	-0.9996517	-0.9999830	-0.9999522	-0.9998018	-0.9996713	-0.9999711
## 6	-0.9996061	-0.9999818	-0.9999574	-0.9998588	-0.9996272	-0.9999791
##	V489	V490	V491	V492	V493	V494
## 1	-0.9988777	-0.9983667	-0.9984673	-0.9983746	-0.9989059	-0.9958936
## 2	-0.9993891	-0.9998141	-0.9998617	-0.9998598	-0.9999190	-0.9998384
## 3	-0.9998160	-0.9994231	-0.9997568	-0.9999271	-0.9998957	-0.9996701
## 4	-0.9992701	-0.9996452	-0.9998461	-0.9999041	-0.9998216	-0.9996561
## 5	-0.9994557	-0.9995796	-0.9999318	-0.9999279	-0.9999171	-0.9998948
## 6	-0.9993233	-0.9995187	-0.9998931	-0.9998788	-0.9997726	-0.9996658
##	V495	V496	V497	V498	V499	V500
## 1	-0.9931284	-0.9954723	-0.9983871	-0.9977543	-0.9980959	-0.9941477
## 2	-0.9991763	-0.9997178	-0.9993585	-0.9998029	-0.9999029	-0.9994119
## 3	-0.9997808	-0.9998930	-0.9996337	-0.9997354	-0.9998404	-0.9998298
## 4	-0.9997864	-0.9999087	-0.9991887	-0.9998094	-0.9997822	-0.9998398
## 5	-0.9998434	-0.9998902	-0.9993433	-0.9999028	-0.9999167	-0.9998640
## 6	-0.9993887	-0.9993844	-0.9991969	-0.9998421	-0.9997489	-0.9993871
##	V501	V502	V503	V504	V505	V506
## 1	-0.9981906	-0.9982901	-0.7909464	-0.7110740	-0.7267070	-0.7776971
## 2	-0.9993448	-0.9998751	-0.9541266	-0.9597458	-0.9606796	-0.9686666
## 3	-0.9996046	-0.9999021	-0.9756497	-0.9837843	-0.9771762	-0.9919076
## 4	-0.9991737	-0.9998682	-0.9733931	-0.9821196	-0.9767960	-0.9883978
## 5	-0.9993391	-0.9999263	-0.9777390	-0.9788381	-0.9757056	-0.9813055
## 6	-0.9991882	-0.9998404	-0.9780025	-0.9798756	-0.9732212	-0.9883724
##	V507	V508	V509	V510	V511	V512
## 1	-0.9448813	-0.7909464	-0.9539836	-0.8735426	-0.1745929	-1.0000000
## 2	-0.9568606	-0.9541266	-0.9984762	-0.9830114	-0.7520557	-0.8620690
## 3	-0.9927818	-0.9756497	-0.9995701	-0.9771582	-0.8166736	-1.0000000
## 4	-0.9878112	-0.9733931	-0.9995038	-0.9777193	-0.8166736	-0.9310345
## 5	-0.9858042	-0.9777390	-0.9995000	-0.9791292	-0.8436706	-0.9310345
## 6	-0.9860785	-0.9780025	-0.9995265	-0.9820440	-0.7919574	-1.0000000
##	V513	V514	V515	V516	V517	V518
## 1	-0.48345254	0.01104068	-0.3845166	-0.8950612	-0.8963596	-0.8881974
## 2	0.20346524	-0.20658816	-0.5994275	-0.9454372	-0.9341520	-0.9293148
## 3	0.34245571	-0.77735763	-0.9454783	-0.9710690	-0.9703078	-0.9685501
## 4	0.33120550	-0.65138646	-0.8709753	-0.9716545	-0.9784844	-0.9740796
## 5	0.07111154	-0.31124142	-0.5906516	-0.9874888	-0.9897160	-0.9884710
## 6	-0.04345482	-0.63988722	-0.8998080	-0.9912947	-0.9917440	-0.9897721
##	V519	V520	V521	V522	V523	V524
## 1	-0.9284657	-0.8980998	-0.8950612	-0.9934714	-0.9214767	-0.4846193
## 2	-0.9499730	-0.9677052	-0.9454372	-0.9976100	-0.9571776	-0.7236420
## 3	-0.9754550	-0.9763576	-0.9710690	-0.9992692	-0.9782217	-0.8980000

```

## 4 -0.9849154 -0.9955081 -0.9716545 -0.9994004 -0.9803647 -1.0000000
## 5 -0.9912647 -0.9884531 -0.9874888 -0.9998120 -0.9899957 -1.0000000
## 6 -0.9924966 -0.9869830 -0.9912947 -0.9998775 -0.9903375 -1.0000000
##      V525      V526      V527      V528      V529      V530
## 1 -1.0000000 -0.03535579 -0.2542483 -0.7003257 -0.7706100 -0.7971128
## 2 -1.0000000 -0.49121253 -0.2154044 -0.6660041 -0.9244608 -0.9167741
## 3 -1.0000000  0.14072902 -0.2060621 -0.6398087 -0.9752095 -0.9739984
## 4 -0.9682540  0.14864853 -0.6199051 -0.8871780 -0.9762973 -0.9712482
## 5 -0.8095238  0.42224872 -0.5430957 -0.8313127 -0.9770070 -0.9696193
## 6 -0.8412698  0.40441535 -0.5857248 -0.8279573 -0.9770345 -0.9750513
##      V531      V532      V533      V534      V535      V536
## 1 -0.7644846 -0.8201876 -0.9379593 -0.7706100 -0.9709580 -0.7983865
## 2 -0.9193828 -0.9179834 -0.9911214 -0.9244608 -0.9957270 -0.9331273
## 3 -0.9670974 -0.9828492 -0.9976631 -0.9752095 -0.9995036 -0.9682600
## 4 -0.9660294 -0.9748783 -0.9961290 -0.9762973 -0.9994580 -0.9751742
## 5 -0.9689152 -0.9737461 -0.9969696 -0.9770070 -0.9994290 -0.9761111
## 6 -0.9697838 -0.9831224 -0.9937615 -0.9770345 -0.9995504 -0.9745522
##      V537      V538      V539      V540      V541      V542
## 1  0.1794352 -1.0000000 -0.04739130 -0.46784901 -0.7613258 -0.8901655
## 2 -0.2188602 -1.0000000 -0.03147392 -0.09065485 -0.4618011 -0.9519774
## 3 -0.5612657 -0.8974359 -0.16880542 -0.66231704 -0.9253638 -0.9856888
## 4 -0.5667333 -0.9487180 -0.28563574 -0.44647773 -0.7568553 -0.9855619
## 5 -0.5555635 -1.0000000 -0.34906064 -0.31976266 -0.6917388 -0.9904980
## 6 -0.5848877 -1.0000000 -0.17703141 -0.58523513 -0.8890263 -0.9887326
##      V543      V544      V545      V546      V547      V548
## 1 -0.9073076 -0.8953006 -0.9178830 -0.9098288 -0.8901655 -0.9941054
## 2 -0.9382124 -0.9380079 -0.9499222 -0.9869024 -0.9519774 -0.9982715
## 3 -0.9832727 -0.9834216 -0.9868573 -0.9896086 -0.9856888 -0.9998306
## 4 -0.9858429 -0.9842175 -0.9885656 -0.9920207 -0.9855619 -0.9998500
## 5 -0.9905719 -0.9884060 -0.9926528 -0.9925052 -0.9904980 -0.9999253
## 6 -0.9898050 -0.9882873 -0.9927864 -0.9816265 -0.9887326 -0.9999066
##      V549      V550      V551      V552      V553      V554
## 1 -0.8980215 -0.2348153 -1.0000000  0.07164545 -0.3303704 -0.7059739
## 2 -0.9512549 -0.4310534 -1.0000000 -0.40118872 -0.1218451 -0.5949439
## 3 -0.9861480 -0.8099757 -0.9365079  0.06289131 -0.1904219 -0.6407357
## 4 -0.9840150 -0.8490812 -0.9365079  0.11669529 -0.3444180 -0.7361238
## 5 -0.9863760 -0.8958470 -0.9365079 -0.12171128 -0.5346849 -0.8465952
## 6 -0.9896387 -0.8490812 -0.9682540  0.08360294 -0.4935174 -0.8575645
##      V555      V556      V557      V558      V559      V560
## 1  0.006462403  0.16291982 -0.82588562  0.27115145 -0.7200093  0.2768010
## 2 -0.083494968  0.01749957 -0.43437455  0.92059323 -0.6980908  0.2813429
## 3 -0.034956250  0.20230203  0.06410335  0.14506843 -0.7027715  0.2800830
## 4 -0.017067021  0.15443783  0.34013408  0.29640709 -0.6989538  0.2841138
## 5 -0.002222652 -0.04004639  0.73671509 -0.11854473 -0.6922450  0.2907220
## 6 -0.095680522  0.04884881  0.76068392 -0.07221636 -0.6898161  0.2948958
##      V561
## 1 -0.05797830
## 2 -0.08389801
## 3 -0.07934620
## 4 -0.07710800
## 5 -0.07385681
## 6 -0.06847070

```

```
head(train_features)
```

##	V1	V2	V3	V4	V5	V6
## 1	0.2885845	-0.02029417	-0.1329051	-0.9952786	-0.9831106	-0.9135264
## 2	0.2784188	-0.01641057	-0.1235202	-0.9982453	-0.9753002	-0.9603220
## 3	0.2796531	-0.01946716	-0.1134617	-0.9953796	-0.9671870	-0.9789440
## 4	0.2791739	-0.02620065	-0.1232826	-0.9960915	-0.9834027	-0.9906751
## 5	0.2766288	-0.01656965	-0.1153619	-0.9981386	-0.9808173	-0.9904816
## 6	0.2771988	-0.01009785	-0.1051373	-0.9973350	-0.9904868	-0.9954200
##	V7	V8	V9	V10	V11	V12
## 1	-0.9951121	-0.9831846	-0.9235270	-0.9347238	-0.5673781	-0.7444125
## 2	-0.9988072	-0.9749144	-0.9576862	-0.9430675	-0.5578513	-0.8184087
## 3	-0.9965199	-0.9636684	-0.9774686	-0.9386916	-0.5578513	-0.8184087
## 4	-0.9970995	-0.9827498	-0.9893025	-0.9386916	-0.5761589	-0.8297115
## 5	-0.9983211	-0.9796719	-0.9904411	-0.9424691	-0.5691738	-0.8247053
## 6	-0.9976274	-0.9902177	-0.9955489	-0.9424691	-0.5656839	-0.8227661
##	V13	V14	V15	V16	V17	V18
## 1	0.8529474	0.6858446	0.8142628	-0.9655228	-0.9999446	-0.9998630
## 2	0.8493079	0.6858446	0.8226368	-0.9819301	-0.9999913	-0.9997884
## 3	0.8436090	0.6824009	0.8393442	-0.9834778	-0.9999691	-0.9996599
## 4	0.8436090	0.6824009	0.8378693	-0.9860933	-0.9999755	-0.9997360
## 5	0.8490951	0.6832498	0.8378693	-0.9926531	-0.9999906	-0.9998559
## 6	0.8490951	0.6955857	0.8459216	-0.9939277	-0.9999855	-0.9998570
##	V19	V20	V21	V22	V23	V24
## 1	-0.9946122	-0.9942308	-0.9876139	-0.9432200	-0.4077471	-0.6793375
## 2	-0.9984054	-0.9991504	-0.9778655	-0.9482248	-0.7148917	-0.5009300
## 3	-0.9994695	-0.9971301	-0.9648099	-0.9746750	-0.5922351	-0.4858207
## 4	-0.9995037	-0.9971804	-0.9837991	-0.9860068	-0.6274463	-0.8509300
## 5	-0.9997566	-0.9980043	-0.9812319	-0.9913247	-0.7865525	-0.5594769
## 6	-0.9999174	-0.9975839	-0.9918468	-0.9954136	-0.7518691	-0.4547725
##	V25	V26	V27	V28	V29	V30
## 1	-0.6021219	0.92929351	-0.85301114	0.3599098	-0.05852638	0.25689154
## 2	-0.5709791	0.61162716	-0.32954862	0.2842132	0.28459454	0.11570542
## 3	-0.5709791	0.27302484	-0.08630870	0.3372015	-0.16473870	0.01715013
## 4	-0.9118716	0.06143571	0.07483956	0.1982040	-0.26430733	0.07254524
## 5	-0.7614338	0.31327553	-0.13120773	0.1911608	0.08690362	0.25761535
## 6	-0.5508815	0.39005211	-0.18227238	0.1587515	0.18731256	0.25995104
##	V31	V32	V33	V34	V35	V36
## 1	-0.22484763	0.2641057	-0.09524563	0.27885143	-0.46508457	0.49193596
## 2	-0.09096253	0.2943104	-0.28121057	0.08598843	-0.02215269	-0.01665654
## 3	-0.07450693	0.3422563	-0.33256448	0.23928053	-0.13620359	0.17386318
## 4	-0.15531983	0.3231540	-0.17081296	0.29493839	-0.30608099	0.48214783
## 5	-0.27250466	0.4347278	-0.31537507	0.43974437	-0.26906895	0.17941419
## 6	-0.24322958	0.4217361	-0.41846005	0.55846137	-0.21834364	0.16513807
##	V37	V38	V39	V40	V41	V42
## 1	-0.19088356	0.37631389	0.43512919	0.6607903	0.9633961	-0.1408397
## 2	-0.22064350	-0.01342866	-0.07269189	0.5793817	0.9665611	-0.1415513
## 3	-0.29949278	-0.12469839	-0.18110479	0.6089001	0.9668781	-0.1420098
## 4	-0.47012871	-0.30569299	-0.36265405	0.5074589	0.9676152	-0.1439765
## 5	-0.08895195	-0.15580432	-0.18976271	0.5992130	0.9682244	-0.1487502
## 6	0.08092016	-0.20997915	-0.15106365	0.1804244	0.9679482	-0.1482100
##	V43	V44	V45	V46	V47	V48
## 1	0.11537494	-0.9852497	-0.9817084	-0.8776250	-0.9850014	-0.9844162
## 2	0.10937881	-0.9974113	-0.9894474	-0.9316387	-0.9978836	-0.9896137

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## 3 0.10188392 -0.9995740 -0.9928658 -0.9929172 -0.9996353 -0.9926049
## 4 0.09985014 -0.9966456 -0.9813928 -0.9784764 -0.9964569 -0.9809618
## 5 0.09448590 -0.9984293 -0.9880982 -0.9787449 -0.9984112 -0.9886539
## 6 0.09190972 -0.9989793 -0.9867539 -0.9973064 -0.9990540 -0.9865839
##      V49      V50      V51      V52      V53      V54
## 1 -0.8946774 0.8920545 -0.1612655 0.12465977 0.9774363 -0.1232134
## 2 -0.9332404 0.8920603 -0.1613426 0.12258573 0.9845201 -0.1148933
## 3 -0.9929343 0.8924006 -0.1637112 0.09456584 0.9867701 -0.1148933
## 4 -0.9784558 0.8938171 -0.1637112 0.09342467 0.9868210 -0.1213358
## 5 -0.9789355 0.8938171 -0.1667862 0.09168239 0.9874335 -0.1218336
## 6 -0.9974188 0.8936834 -0.1669704 0.08334712 0.9877218 -0.1218336
##      V55      V56      V57      V58      V59      V60
## 1 0.05648273 -0.3754260 0.8994686 -0.9709052 -0.9755104 -0.9843254
## 2 0.10276411 -0.3834296 0.9078289 -0.9705828 -0.9785004 -0.9991884
## 3 0.10276411 -0.4016016 0.9086678 -0.9703681 -0.9816723 -0.9996790
## 4 0.09575265 -0.4002781 0.9106207 -0.9693997 -0.9824196 -0.9959764
## 5 0.09405935 -0.4004765 0.9122347 -0.9670511 -0.9843626 -0.9983182
## 6 0.09405935 -0.4093585 0.9115026 -0.9673206 -0.9852754 -0.9993483
##      V61      V62 V63 V64      V65      V66      V67
## 1 -0.9888491 -0.9177426 -1 -1 0.1138061 -0.590425000 0.59114630
## 2 -0.9900285 -0.9416854 -1 -1 -0.2104936 -0.410055520 0.41385634
## 3 -0.9921044 -0.9926186 -1 -1 -0.9267763 0.002234132 0.02748069
## 4 -0.9806634 -0.9797787 -1 -1 -0.5961008 -0.064934877 0.07542720
## 5 -0.9906113 -0.9804125 -1 -1 -0.6165782 -0.257266810 0.26891819
## 6 -0.9865648 -0.9977279 -1 -1 -1.0000000 -0.302224840 0.37903209
##      V68      V69      V70      V71      V72      V73
## 1 -0.59177346 0.59246928 -0.7454488 0.72086167 -0.7123724 0.7113000
## 2 -0.41756716 0.42132499 -0.1963593 0.12534464 -0.1055677 0.1090901
## 3 -0.05672816 0.08553324 -0.3290230 0.27050025 -0.2544902 0.2575976
## 4 -0.08582296 0.09620771 -0.2950360 0.22830973 -0.2062812 0.2048009
## 5 -0.28066510 0.29261602 -0.1666931 0.08994272 -0.0663267 0.0671311
## 6 -0.45722246 0.53679840 -0.1981248 0.12718522 -0.1075539 0.1113645
##      V74      V75      V76      V77      V78      V79
## 1 -0.9951116 0.9956749 -0.9956676 0.9916527 0.5702216 0.4390273
## 2 -0.8338821 0.8342711 -0.8341844 0.8304639 -0.8312839 -0.8657111
## 3 -0.7050392 0.7143920 -0.7232989 0.7287554 -0.1810899 0.3379359
## 4 -0.3854102 0.3863727 -0.3871199 0.3852631 -0.9913087 -0.9688214
## 5 -0.2374745 0.2392680 -0.2410121 0.2405685 -0.4083304 -0.1848401
## 6 -0.1579059 0.1753748 -0.1927680 0.2079647 -0.5639509 0.4664707
##      V80      V81      V82      V83      V84      V85
## 1 0.9869131 0.07799634 0.005000803 -0.067830808 -0.9935191 -0.9883600
## 2 0.9743856 0.07400671 0.005771104 0.029376633 -0.9955481 -0.9810636
## 3 0.6434170 0.07363596 0.003104037 -0.009045631 -0.9907428 -0.9809556
## 4 0.9842555 0.07732061 0.020057642 -0.009864772 -0.9926974 -0.9875527
## 5 0.9647965 0.07344436 0.019121574 0.016779979 -0.9964202 -0.9883587
## 6 0.4430971 0.07793244 0.018684046 0.009344434 -0.9948136 -0.9887145
##      V86      V87      V88      V89      V90      V91
## 1 -0.9935750 -0.9944876 -0.9862066 -0.9928183 -0.9851801 -0.9919942
## 2 -0.9918457 -0.9956320 -0.9789380 -0.9912766 -0.9945447 -0.9790682
## 3 -0.9896866 -0.9909329 -0.9793002 -0.9872381 -0.9870770 -0.9790682
## 4 -0.9934976 -0.9942660 -0.9857170 -0.9914832 -0.9870770 -0.9917862
## 5 -0.9924549 -0.9965974 -0.9865370 -0.9906864 -0.9969933 -0.9918178
## 6 -0.9922663 -0.9952418 -0.9868467 -0.9910667 -0.9941054 -0.9918178
##      V92      V93      V94      V95      V96      V97

```

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## 1 -0.9931189 0.9898347 0.9919569 0.9905192 -0.9935220 -0.9999349
## 2 -0.9922574 0.9925771 0.9918084 0.9885391 -0.9913937 -0.9999597
## 3 -0.9922574 0.9883902 0.9918084 0.9885391 -0.9881477 -0.9998942
## 4 -0.9897689 0.9883902 0.9925438 0.9932176 -0.9928683 -0.9999236
## 5 -0.9897689 0.9943032 0.9925438 0.9856091 -0.9938320 -0.9999692
## 6 -0.9926493 0.9943032 0.9933463 0.9856091 -0.9934730 -0.9999512
##      V98      V99      V100      V101      V102      V103
## 1 -0.9998204 -0.9998785 -0.9943640 -0.9860249 -0.9892336 -0.8199492
## 2 -0.9996396 -0.9998454 -0.9938627 -0.9794351 -0.9933838 -0.8750964
## 3 -0.9996364 -0.9997950 -0.9878457 -0.9801445 -0.9819108 -0.7536287
## 4 -0.9998029 -0.9998829 -0.9946780 -0.9870330 -0.9888963 -0.8208042
## 5 -0.9998203 -0.9998599 -0.9958878 -0.9865242 -0.9905717 -0.8507439
## 6 -0.9998278 -0.9998560 -0.9952809 -0.9873590 -0.9895520 -0.7787178
##      V104      V105      V106      V107      V108      V109
## 1 -0.7930464 -0.8888529 1.0000000 -0.22074703 0.6368308 0.3876436
## 2 -0.6553621 -0.7673809 0.4896622 0.07099708 0.3627145 0.5273034
## 3 -0.6732736 -0.7471068 0.2652248 0.18839474 0.4645835 0.3717179
## 4 -0.7549682 -0.8252786 0.1228930 0.27641881 0.4574450 0.1934143
## 5 -0.7462578 -0.7969596 0.2409042 0.13491152 0.2969029 0.2871847
## 6 -0.7549682 -0.7908859 0.2806858 0.10044972 0.2597405 0.2019468
##      V110      V111      V112      V113      V114      V115
## 1 0.24140146 -0.052252848 0.2641772 0.3734395 0.3417775 -0.56979119
## 2 0.14939565 0.062925097 0.3704934 0.4135481 0.1222157 0.18061304
## 3 0.08266488 -0.004621675 0.3274702 0.4376232 0.2578909 0.07002964
## 4 0.10240466 -0.099103220 0.1946788 0.4842436 0.3576571 -0.18703248
## 5 0.31897047 -0.143364120 0.4774545 0.4179662 0.3895371 -0.03030909
## 6 0.35057743 -0.077269461 0.5626646 0.3519760 0.3686890 0.04338534
##      V116      V117      V118      V119      V120      V121
## 1 0.2653988 -0.4778749 -0.3853005 0.03364394 -0.12651082 -0.006100849
## 2 0.0474240 0.1665727 -0.2087722 0.08410380 -0.26855390 -0.016111620
## 3 0.1869730 0.2467997 -0.1201047 -0.11002563 -0.03995275 -0.031698294
## 4 0.2980687 0.4518696 -0.1274952 -0.08327836 0.45705983 -0.043409983
## 5 0.1632612 0.1801889 -0.2728836 0.10306475 0.06472931 -0.033960416
## 6 0.1473115 0.2991720 -0.3746109 0.04182570 -0.11178209 -0.028775508
##      V122      V123      V124      V125      V126      V127
## 1 -0.03136479 0.10772540 -0.9853103 -0.9766234 -0.9922053 -0.9845863
## 2 -0.08389378 0.10058429 -0.9831200 -0.9890458 -0.9891212 -0.9868904
## 3 -0.10233542 0.09612688 -0.9762921 -0.9935518 -0.9863787 -0.9749215
## 4 -0.09138618 0.08553770 -0.9913848 -0.9924073 -0.9875542 -0.9915889
## 5 -0.07470803 0.07739203 -0.9851836 -0.9923781 -0.9874019 -0.9869437
## 6 -0.07039311 0.07901214 -0.9851808 -0.9921175 -0.9830768 -0.9857856
##      V128      V129      V130      V131      V132      V133
## 1 -0.9763526 -0.9923616 -0.8670437 -0.9337860 -0.7475662 0.8473080
## 2 -0.9890380 -0.9891846 -0.8649038 -0.9535605 -0.7458700 0.8337211
## 3 -0.9941221 -0.9857862 -0.8649038 -0.9590491 -0.7432771 0.8337211
## 4 -0.9931421 -0.9895849 -0.8853204 -0.9566563 -0.7432771 0.8341640
## 5 -0.9925425 -0.9881628 -0.8701541 -0.9533597 -0.7497799 0.8390906
## 6 -0.9922687 -0.9827049 -0.8701541 -0.9533597 -0.7463994 0.8398080
##      V134      V135      V136      V137      V138      V139
## 1 0.9148953 0.8308405 -0.9671843 -0.9995783 -0.9993543 -0.9997634
## 2 0.9081096 0.8289350 -0.9806131 -0.9997558 -0.9998973 -0.9998224
## 3 0.9057528 0.8289350 -0.9762803 -0.9996934 -0.9998283 -0.9998216
## 4 0.9057528 0.8266338 -0.9822957 -0.9997929 -0.9999023 -0.9998773
## 5 0.9111845 0.8213744 -0.9852620 -0.9998495 -0.9999519 -0.9998443

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## 6 0.9111845 0.8188267 -0.9852143 -0.9998740 -0.9999466 -0.9997780
##      V140      V141      V142      V143      V144      V145
## 1 -0.9834381 -0.9786140 -0.9929656 0.082631682 0.2022676 -0.1687567
## 2 -0.9928328 -0.9893447 -0.9902402 0.007469356 -0.5311566 -0.1774446
## 3 -0.9723536 -0.9951443 -0.9868311 -0.260942670 -1.0000000 -0.2483707
## 4 -0.9910313 -0.9941653 -0.9945820 -0.930551140 -0.8266180 -0.5434217
## 5 -0.9898132 -0.9933367 -0.9911546 -0.628860990 -0.4678076 -0.6508521
## 6 -0.9853373 -0.9929940 -0.9837056 -0.363801070 -0.3705079 -0.4621260
##      V146      V147      V148      V149      V150      V151
## 1 0.09632324 -0.27498511 0.49864419 -0.22031685 1.00000000 -0.97297139
## 2 -0.38768063 0.17913763 0.21078900 -0.14025958 -0.04703181 -0.06494907
## 3 -0.43715568 0.23898137 0.14523773 -0.11391720 0.03231156 -0.12787926
## 4 -0.16588549 -0.01288054 0.32005501 -0.16511393 0.04455323 -0.12519331
## 5 -0.21269027 0.00211118 0.38809860 -0.23327097 -0.16322090 0.18645965
## 6 -0.40282673 0.24203652 0.05913935 0.03028356 -0.11969243 0.15061703
##      V152      V153      V154      V155      V156      V157
## 1 0.31665451 0.37572641 0.72339919 -0.7711120 0.6902132 -0.3318310
## 2 0.11768661 0.08169129 0.04236404 -0.1499284 0.2926189 -0.1494293
## 3 0.11492426 0.12539829 0.11209205 -0.1656450 0.1345544 0.1843490
## 4 0.07832123 0.17702758 0.19340165 -0.2071888 0.1124575 0.2020919
## 5 -0.43491617 0.65013677 0.23995007 -0.3395292 0.1325371 0.4732514
## 6 -0.38093733 0.57330854 0.10377464 -0.2276797 0.1382413 0.3461755
##      V158      V159      V160      V161      V162      V163
## 1 0.70958377 0.13487336 0.3010995 -0.09916740 -0.05551737 -0.06198580
## 2 0.04672124 -0.25692940 0.1693948 -0.11050283 -0.04481873 -0.05924282
## 3 -0.01012957 0.04331158 -0.3506461 -0.10848567 -0.04241031 -0.05582883
## 4 0.21019413 0.14110084 -0.7253011 -0.09116989 -0.03633262 -0.06046466
## 5 -0.14200070 0.48441885 -0.7245575 -0.09077010 -0.03763253 -0.05828932
## 6 -0.44810249 0.64501358 -0.7459792 -0.09424758 -0.04335526 -0.04193600
##      V164      V165      V166      V167      V168      V169
## 1 -0.9921107 -0.9925193 -0.9920553 -0.9921648 -0.9949416 -0.9926190
## 2 -0.9898726 -0.9972926 -0.9938510 -0.9898762 -0.9974917 -0.9937783
## 3 -0.9884618 -0.9956321 -0.9915318 -0.9878680 -0.9957250 -0.9915963
## 4 -0.9911194 -0.9966410 -0.9933289 -0.9912405 -0.9969579 -0.9940195
## 5 -0.9913545 -0.9964730 -0.9945110 -0.9928823 -0.9965406 -0.9943830
## 6 -0.9916216 -0.9960147 -0.9930906 -0.9930196 -0.9960382 -0.9926340
##      V170      V171      V172      V173      V174      V175
## 1 -0.9901558 -0.9867428 -0.9920416 0.9944288 0.9917558 0.9893519
## 2 -0.9919469 -0.9977171 -0.9949208 0.9904860 0.9971222 0.9945031
## 3 -0.9933590 -0.9938002 -0.9889631 0.9892905 0.9971222 0.9941426
## 4 -0.9936763 -0.9938002 -0.9889631 0.9892905 0.9981303 0.9941426
## 5 -0.9798455 -0.9975093 -0.9934198 0.9936848 0.9974531 0.9965279
## 6 -0.9798455 -0.9975093 -0.9934198 0.9938443 0.9974531 0.9965279
##      V176      V177      V178      V179      V180      V181
## 1 -0.9944534 -0.9999375 -0.9999535 -0.9999229 -0.9922997 -0.9969389
## 2 -0.9952984 -0.9999077 -0.9999897 -0.9999459 -0.9907418 -0.9973013
## 3 -0.9934149 -0.9998871 -0.9999798 -0.9999158 -0.9871304 -0.9954278
## 4 -0.9954961 -0.9999251 -0.9999862 -0.9999396 -0.9909086 -0.9970785
## 5 -0.9958778 -0.9999280 -0.9999852 -0.9999535 -0.9945132 -0.9967177
## 6 -0.9952321 -0.9999316 -0.9999824 -0.9999362 -0.9937336 -0.9961224
##      V182      V183      V184      V185      V186      V187
## 1 -0.9922430 -0.5898510 -0.6884590 -0.5721069 0.292376340 -0.36199802
## 2 -0.9938078 -0.6009445 -0.7482472 -0.6089321 -0.193307570 -0.06740646
## 3 -0.9927755 -0.5436348 -0.6729573 -0.5884104 -0.241150980 -0.01137728

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## 4 -0.9954046 -0.5620311 -0.7313321 -0.6614345 0.009894985 -0.13757147
## 5 -0.9939689 -0.6177378 -0.6830932 -0.6329272 -0.025678521 -0.18813916
## 6 -0.9919696 -0.6278635 -0.6805905 -0.5418971 -0.265496090 0.05580409
##      V188      V189      V190      V191      V192
## 1 0.40554269 -0.03900695 0.98928381 -0.414560480 0.39160251
## 2 0.18561907 0.04152181 0.07235255 -0.035377727 0.17760636
## 3 0.11613363 0.08962988 0.09598603 0.009604215 0.09512614
## 4 0.12596517 0.31611970 0.09433295 0.026171325 0.06966099
## 5 0.23094957 0.20025838 -0.14940028 0.271977090 -0.27151547
## 6 -0.04563533 0.23627625 -0.12219895 0.268114140 -0.19369246
##      V193      V194      V195      V196      V197      V198
## 1 0.282250870 0.9272698 -0.5723700 0.69161920 0.468289820 -0.13107697
## 2 0.027498054 0.1827027 -0.1674574 0.25325103 0.132333860 0.29385535
## 3 0.252887040 0.1816489 -0.1693084 0.13200906 0.008197317 0.19332856
## 4 0.246653200 0.2573553 -0.1368088 0.08731557 0.149095580 0.19665725
## 5 -0.009937466 0.2351285 -0.3409670 -0.08571288 0.163956800 0.12059038
## 6 -0.005319577 0.2034059 -0.2967479 0.06993358 -0.012261880 0.01791207
##      V199      V200      V201      V202      V203      V204
## 1 -0.08715969 0.3362475 -0.9594339 -0.9505515 -0.9579929 -0.9463052
## 2 -0.01807517 -0.3433368 -0.9792892 -0.9760571 -0.9782473 -0.9787115
## 3 0.07371786 -0.3148578 -0.9837031 -0.9880196 -0.9883268 -0.9864961
## 4 0.14045188 -0.3058977 -0.9865418 -0.9864213 -0.9864305 -0.9864961
## 5 0.10748923 -0.2825893 -0.9928271 -0.9912754 -0.9911703 -0.9909619
## 6 0.18667289 -0.3211694 -0.9942950 -0.9952490 -0.9950094 -0.9957457
##      V205      V206      V207      V208      V209      V210
## 1 -0.9925557 -0.9594339 -0.9984928 -0.9576374 -0.2325816 -0.17317874
## 2 -0.9953329 -0.9792892 -0.9994880 -0.9812483 -0.4418761 0.08156863
## 3 -0.9953329 -0.9837031 -0.9996821 -0.9857669 -0.5999393 0.03804910
## 4 -0.9970448 -0.9865418 -0.9997374 -0.9835088 -0.5890063 -0.09285588
## 5 -0.9970448 -0.9928271 -0.9998807 -0.9896081 -0.7045988 0.18044105
## 6 -0.9941746 -0.9942950 -0.9999199 -0.9934632 -0.7852715 0.37033862
##      V211      V212      V213      V214      V215      V216
## 1 -0.02289666 0.0948315680 0.19181715 -0.9594339 -0.9505515 -0.9579929
## 2 -0.10936606 0.3117577100 -0.41167480 -0.9792892 -0.9760571 -0.9782473
## 3 -0.07421227 0.2540759900 -0.29612966 -0.9837031 -0.9880196 -0.9883268
## 4 0.04639617 -0.0004664473 0.03714251 -0.9865418 -0.9864213 -0.9864305
## 5 -0.27765672 0.5155624300 -0.35585076 -0.9928271 -0.9912754 -0.9911703
## 6 -0.39345190 0.5634830200 -0.48154569 -0.9942950 -0.9952490 -0.9950094
##      V217      V218      V219      V220      V221      V222
## 1 -0.9463052 -0.9925557 -0.9594339 -0.9984928 -0.9576374 -0.2325816
## 2 -0.9787115 -0.9953329 -0.9792892 -0.9994880 -0.9812483 -0.4418761
## 3 -0.9864961 -0.9953329 -0.9837031 -0.9996821 -0.9857669 -0.5999393
## 4 -0.9864961 -0.9970448 -0.9865418 -0.9997374 -0.9835088 -0.5890063
## 5 -0.9909619 -0.9970448 -0.9928271 -0.9998807 -0.9896081 -0.7045988
## 6 -0.9957457 -0.9941746 -0.9942950 -0.9999199 -0.9934632 -0.7852715
##      V223      V224      V225      V226      V227      V228
## 1 -0.17317874 -0.02289666 0.0948315680 0.19181715 -0.9933059 -0.9943364
## 2 0.08156863 -0.10936606 0.3117577100 -0.41167480 -0.9912535 -0.9916944
## 3 0.03804910 -0.07421227 0.2540759900 -0.29612966 -0.9885313 -0.9903969
## 4 -0.09285588 0.04639617 -0.0004664473 0.03714251 -0.9930780 -0.9933808
## 5 0.18044105 -0.27765672 0.5155624300 -0.35585076 -0.9934800 -0.9958537
## 6 0.37033862 -0.39345190 0.5634830200 -0.48154569 -0.9930177 -0.9954243
##      V229      V230      V231      V232      V233      V234
## 1 -0.9945004 -0.9927840 -0.9912085 -0.9933059 -0.9998919 -0.9929337

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## 2	-0.9927160	-0.9886606	-0.9912085	-0.9912535	-0.9998454	-0.9934851
## 3	-0.9906505	-0.9886606	-0.9930120	-0.9885313	-0.9997899	-0.9899838
## 4	-0.9931945	-0.9934017	-0.9930120	-0.9930780	-0.9998836	-0.9917361
## 5	-0.9961075	-0.9932829	-0.9813245	-0.9934800	-0.9999016	-0.9968463
## 6	-0.9955274	-0.9932829	-0.9931750	-0.9930177	-0.9998927	-0.9950223
##	V235	V236	V237	V238	V239	V240
## 1	-0.8634148	0.28308522	-0.23730869	-0.10543219	-0.03821231	-0.9689591
## 2	-0.8199283	0.45881205	-0.24494134	0.05613927	-0.45834568	-0.9806831
## 3	-0.7948842	0.64970380	-0.26008800	-0.12841598	-0.52054112	-0.9763171
## 4	-0.7923214	0.66160340	-0.24745115	-0.23031491	-0.43645940	-0.9820599
## 5	-0.8500256	0.31160390	-0.17012088	0.13437035	-0.45829909	-0.9852037
## 6	-0.8713030	0.07270727	0.01781662	-0.06858817	-0.16618196	-0.9858944
##	V241	V242	V243	V244	V245	V246
## 1	-0.9643352	-0.9572448	-0.9750599	-0.9915537	-0.9689591	-0.9992865
## 2	-0.9837542	-0.9820027	-0.9847146	-0.9915537	-0.9806831	-0.9997247
## 3	-0.9860515	-0.9844578	-0.9847146	-0.9661929	-0.9763171	-0.9996406
## 4	-0.9873511	-0.9856316	-0.9900291	-0.9816856	-0.9820599	-0.9997679
## 5	-0.9890626	-0.9896134	-0.9870285	-0.9816856	-0.9852037	-0.9998294
## 6	-0.9864403	-0.9863046	-0.9870285	-0.9903605	-0.9858944	-0.9998297
##	V247	V248	V249	V250	V251	V252
## 1	-0.9497658	0.07257904	0.5725114	-0.738602190	0.21257776	0.43340495
## 2	-0.9828568	-0.19289906	-0.2253174	-0.017059623	0.15577724	0.08257521
## 3	-0.9834545	-0.22282926	-0.2268309	0.059680819	0.06147618	0.04170213
## 4	-0.9839660	-0.24071922	-0.2019850	0.054711916	0.11007156	-0.07942259
## 5	-0.9923380	-0.33869914	-0.2369926	0.093820007	0.02333272	0.03903898
## 6	-0.9892783	-0.24494596	-0.1726625	-0.007801159	0.09589124	0.06975596
##	V253	V254	V255	V256	V257	V258
## 1	-0.9942478	-0.9913676	-0.9931430	-0.9889356	-0.9934860	-0.9942478
## 2	-0.9951232	-0.9961016	-0.9958385	-0.9965449	-0.9920060	-0.9951232
## 3	-0.9934032	-0.9950910	-0.9948595	-0.9953595	-0.9976518	-0.9934032
## 4	-0.9955022	-0.9952666	-0.9953048	-0.9953595	-0.9976518	-0.9955022
## 5	-0.9958076	-0.9952580	-0.9963073	-0.9923893	-0.9921927	-0.9958076
## 6	-0.9952748	-0.9952050	-0.9960696	-0.9923893	-0.9927537	-0.9952748
##	V259	V260	V261	V262	V263	V264
## 1	-0.9999490	-0.9945472	-0.6197676	0.2928405	-0.1768892	-0.14577921
## 2	-0.9999698	-0.9948192	-0.7307216	0.2093341	-0.1781126	-0.10308433
## 3	-0.9999549	-0.9939883	-0.6629136	0.3280315	-0.1545600	-0.22058712
## 4	-0.9999702	-0.9950011	-0.6830162	0.5953713	-0.2645688	-0.31572300
## 5	-0.9999721	-0.9964837	-0.7201707	0.3318584	-0.2605620	-0.14566464
## 6	-0.9999686	-0.9961068	-0.7510922	0.1787599	-0.1814449	0.04957464
##	V265	V266	V267	V268	V269	V270
## 1	-0.124072330	-0.9947832	-0.9829841	-0.9392687	-0.9954217	-0.9831330
## 2	-0.043823965	-0.9974507	-0.9768517	-0.9735227	-0.9986803	-0.9749298
## 3	-0.107514160	-0.9935941	-0.9725115	-0.9833040	-0.9963128	-0.9655059
## 4	-0.163825530	-0.9954906	-0.9835697	-0.9910798	-0.9963121	-0.9832444
## 5	-0.007367991	-0.9972859	-0.9823010	-0.9883694	-0.9986065	-0.9801295
## 6	-0.168852760	-0.9966567	-0.9869395	-0.9927386	-0.9976438	-0.9922637
##	V271	V272	V273	V274	V275	V276
## 1	-0.9061650	-0.9968886	-0.9845193	-0.9320820	-0.9937563	-0.9831629
## 2	-0.9554381	-0.9978897	-0.9769239	-0.9683768	-0.9993717	-0.9737703
## 3	-0.9770493	-0.9940974	-0.9716867	-0.9821691	-0.9981585	-0.9630718
## 4	-0.9902291	-0.9945468	-0.9828241	-0.9890073	-0.9974035	-0.9872749
## 5	-0.9919150	-0.9977250	-0.9823528	-0.9909146	-0.9992774	-0.9808482
## 6	-0.9970459	-0.9966048	-0.9898989	-0.9950483	-0.9985979	-0.9934144

##	V277	V278	V279	V280	V281	V282
## 1	-0.8850542	-0.9939619	-0.9934461	-0.9234277	-0.9747327	-0.9999684
## 2	-0.9487768	-0.9982806	-0.9927209	-0.9895135	-0.9858116	-0.9999908
## 3	-0.9685959	-0.9970937	-0.9899236	-0.9908857	-0.9858213	-0.9999693
## 4	-0.9877543	-0.9944319	-0.9902589	-0.9965778	-0.9928120	-0.9999754
## 5	-0.9891165	-0.9949679	-0.9917884	-0.9744938	-0.9924232	-0.9999902
## 6	-0.9983060	-0.9956786	-0.9952322	-0.9863281	-0.9950023	-0.9999849
##	V283	V284	V285	V286	V287	V288
## 1	-0.9996891	-0.9948915	-0.9959260	-0.9897089	-0.9879912	-0.9463569
## 2	-0.9994499	-0.9985691	-0.9948649	-0.9807836	-0.9857747	-1.0000000
## 3	-0.9991374	-0.9994336	-0.9885692	-0.9772424	-0.9813019	-1.0000000
## 4	-0.9996969	-0.9998029	-0.9904425	-0.9919019	-0.9880605	-1.0000000
## 5	-0.9996251	-0.9997979	-0.9937604	-0.9881797	-0.9863589	-1.0000000
## 6	-0.9998596	-0.9999139	-0.9948238	-0.9869223	-0.9878261	-1.0000000
##	V289	V290	V291	V292	V293	V294
## 1	-0.9047478	-0.5913025	-1.0000000	-1	-1	0.25248290
## 2	-0.9047478	-0.7584085	0.09677419	-1	-1	0.27130855
## 3	-0.8157863	-0.8135133	-0.93548387	-1	-1	0.12453124
## 4	-0.8703979	-0.9441902	-1.0000000	-1	-1	0.02904438
## 5	-0.8703979	-0.9441902	0.09677419	-1	-1	0.18108977
## 6	-0.9448704	-1.0000000	-0.61290323	-1	-1	0.15738377
##	V296	V297	V298	V299	V300	V301
## 1	-0.05205025	0.1420506	-0.1506825	-0.2205469	-0.55873853	0.24676868
## 2	-0.01430976	-0.6925409	-0.9540470	-0.0497091	-0.33197386	0.05667537
## 3	0.08267692	-0.7272273	-0.9654192	0.1630629	-0.09215279	-0.04493677
## 4	0.18569468	-0.5991180	-0.9084493	-0.4609145	-0.81305675	-0.56683479
## 5	0.55978632	-0.6769965	-0.9513707	-0.1803828	-0.53372625	-0.58551700
## 6	0.60559943	-0.6310530	-0.9349031	-0.6607821	-0.89938137	-0.88068961
##	V302	V303	V304	V305	V306	V307
## 1	-0.007415521	-0.9999628	-0.9999865	-0.9999791	-0.9999624	-0.9999322
## 2	-0.289001440	-0.9999962	-0.9999818	-0.9999440	-0.9999699	-0.9999189
## 3	-0.288365900	-0.9999894	-0.9999616	-0.9998154	-0.9998473	-0.9999391
## 4	-0.771246060	-0.9999886	-0.9999767	-0.9998343	-0.9998709	-0.9999924
## 5	-0.790432550	-0.9999940	-0.9999860	-0.9999359	-0.9999455	-0.9999694
## 6	-0.963631110	-0.9999903	-0.9999831	-0.9999213	-0.9999267	-0.9999410
##	V308	V309	V310	V311	V312	V313
## 1	-0.9997251	-0.9996704	-0.9999858	-0.9999687	-0.9999769	-0.9998697
## 2	-0.9998657	-0.9999651	-0.9999995	-0.9999939	-0.9999490	-0.9999140
## 3	-0.9999217	-0.9999232	-0.9999966	-0.9999826	-0.9998020	-0.9999476
## 4	-0.9999492	-0.9999645	-0.9999958	-0.9999864	-0.9998253	-0.9999912
## 5	-0.9999349	-0.9999697	-0.9999862	-0.9999934	-0.9999348	-0.9999715
## 6	-0.9999081	-0.9999635	-0.9999974	-0.9999897	-0.9999166	-0.9999438
##	V314	V315	V316	V317	V318	V319
## 1	-0.9997761	-0.9999712	-0.9999193	-0.9996568	-0.9998605	-0.9998670
## 2	-0.9999766	-0.9999921	-0.9999459	-0.9994166	-0.9998133	-0.9995686
## 3	-0.9999478	-0.9999725	-0.9998746	-0.9990060	-0.9997153	-0.9996577
## 4	-0.9999750	-0.9999773	-0.9999124	-0.9997191	-0.9997498	-0.9999442
## 5	-0.9999753	-0.9999911	-0.9999561	-0.9995640	-0.9998597	-0.9998627
## 6	-0.9999749	-0.9999865	-0.9999294	-0.9998785	-0.9999271	-0.9998145
##	V320	V321	V322	V323	V324	V325
## 1	-0.9998630	-0.9997378	-0.9997322	-0.9994926	-0.9998136	-0.9996818
## 2	-0.9998737	-0.9995489	-0.9997371	-0.9995658	-0.9999053	-0.9994735
## 3	-0.9998174	-0.9996359	-0.9996789	-0.9996157	-0.9998796	-0.9991085
## 4	-0.9999397	-0.9995535	-0.9998987	-0.9995122	-0.9998656	-0.9996727

## 5	-0.9998976	-0.9996505	-0.9997118	-0.9995164	-0.9999108	-0.9996103
## 6	-0.9997641	-0.9998370	-0.9997239	-0.9996215	-0.9999073	-0.9998860
##	V326	V327	V328	V329	V330	V331
## 1	-0.9998394	-0.9997382	-0.9996120	-0.9996872	-0.9998386	-0.9935923
## 2	-0.9995542	-0.9996020	-0.9996953	-0.9994442	-0.9998042	-0.9982346
## 3	-0.9996240	-0.9996433	-0.9997150	-0.9991263	-0.9997753	-0.9993882
## 4	-0.9999362	-0.9996673	-0.9996458	-0.9996925	-0.9998733	-0.9998071
## 5	-0.9998453	-0.9996666	-0.9996675	-0.9996211	-0.9998419	-0.9998057
## 6	-0.9997602	-0.9998075	-0.9997302	-0.9998646	-0.9997870	-0.9999423
##	V332	V333	V334	V335	V336	V337
## 1	-0.9994758	-0.9996620	-0.9996423	-0.9992934	-0.9978922	-0.9959325
## 2	-0.9997692	-0.9996922	-0.9998749	-0.9996656	-0.9994483	-0.9989302
## 3	-0.9997249	-0.9997185	-0.9997982	-0.9997528	-0.9996292	-0.9996862
## 4	-0.9997748	-0.9998102	-0.9999293	-0.9998582	-0.9996655	-0.9996813
## 5	-0.9998344	-0.9998251	-0.9997864	-0.9997453	-0.9996557	-0.9990258
## 6	-0.9998171	-0.9998803	-0.9998224	-0.9997649	-0.9994852	-0.9996778
##	V338	V339	V340	V341	V342	V343
## 1	-0.9951464	-0.9947399	-0.9996883	-0.9989246	-0.9956713	-0.9948773
## 2	-0.9987544	-0.9985456	-0.9997918	-0.9996312	-0.9988775	-0.9985534
## 3	-0.9999119	-0.9994535	-0.9997807	-0.9997489	-0.9997604	-0.9994343
## 4	-0.9999836	-0.9998044	-0.9998867	-0.9998438	-0.9997784	-0.9997918
## 5	-0.9994359	-0.9998225	-0.9998445	-0.9997497	-0.9991496	-0.9998123
## 6	-0.9999048	-0.9999262	-0.9998927	-0.9997213	-0.9997523	-0.9999238
##	V344	V345	V346	V347	V348	V349
## 1	-0.9994544	-0.9923325	-0.9871699	-0.9896961	-0.9958207	-0.9909363
## 2	-0.9998221	-0.9950322	-0.9813115	-0.9897398	-0.9966523	-0.9820839
## 3	-0.9998009	-0.9909937	-0.9816423	-0.9875663	-0.9912488	-0.9814148
## 4	-0.9999217	-0.9944466	-0.9887272	-0.9913542	-0.9913783	-0.9869269
## 5	-0.9997927	-0.9962920	-0.9887900	-0.9906244	-0.9969025	-0.9886067
## 6	-0.9998103	-0.9948507	-0.9882443	-0.9901575	-0.9952180	-0.9901788
##	V350	V351	V352	V353	V354	V355
## 1	-0.9970517	-0.9938055	-0.9905187	-0.9969928	-0.9967369	-0.9919752
## 2	-0.9926268	-0.9949767	-0.9829295	-0.9916414	-0.9974245	-0.9849232
## 3	-0.9904159	-0.9877510	-0.9810912	-0.9877232	-0.9951632	-0.9853508
## 4	-0.9943908	-0.9894309	-0.9871450	-0.9937904	-0.9934019	-0.9878742
## 5	-0.9929065	-0.9960914	-0.9888672	-0.9916730	-0.9970095	-0.9903728
## 6	-0.9930667	-0.9931267	-0.9898364	-0.9918185	-0.9969799	-0.9928015
##	V356	V357	V358	V359	V360	V361
## 1	-0.9932417	-0.9983491	-0.9911084	-0.9598854	-0.9905150	-0.9999347
## 2	-0.9931870	-0.9979168	-0.9825186	-0.9868384	-0.9898509	-0.9999596
## 3	-0.9939116	-0.9974823	-0.9985712	-0.9975540	-0.9872372	-0.9998940
## 4	-0.9942012	-0.9979030	-0.9997671	-0.9653808	-0.9926573	-0.9999235
## 5	-0.9951421	-0.9957965	-0.9961128	-0.9959788	-0.9932588	-0.9999691
## 6	-0.9942166	-0.9960982	-0.9990643	-0.9848585	-0.9922249	-0.9999511
##	V362	V363	V364	V365	V366	V367 V368 V369
## 1	-0.9998205	-0.9998845	-0.9930263	-0.9913734	-0.9962396	-1 -1 -1
## 2	-0.9996396	-0.9998466	-0.9928434	-0.9852207	-0.9910493	-1 -1 -1
## 3	-0.9996366	-0.9997951	-0.9818169	-0.9847648	-0.9823642	-1 -1 -1
## 4	-0.9998031	-0.9998830	-0.9917761	-0.9906849	-0.9932884	-1 -1 -1
## 5	-0.9998205	-0.9998604	-0.9961415	-0.9924077	-0.9861788	-1 -1 -1
## 6	-0.9998280	-0.9998562	-0.9913534	-0.9910572	-0.9877527	-1 -1 -1
##	V370	V371	V372	V373	V374	V375 V376
## 1	1.00	-0.24	-1.00	0.87038451	0.21069700	0.26370789 -0.7036858
## 2	-0.32	-0.12	-0.32	0.60851352	-0.05367561	0.06314827 -0.6303049

## 3	-0.16	-0.48	-0.28	0.11543400	-0.19343634	0.03825433	-0.5947588
## 4	-0.12	-0.56	-0.28	0.03579805	-0.09303585	0.16809523	-0.2638514
## 5	-0.32	-0.08	0.04	0.27335020	0.07913538	0.29238418	-0.5221571
## 6	-0.32	-0.36	0.52	0.32883589	0.05477140	0.32094497	-0.5946287
##	V377	V378	V379	V380	V381	V382	
## 1	-0.9037425	-0.5825736	-0.9363101	-0.5073447	-0.8055359	-0.9999865	
## 2	-0.9103945	-0.4144235	-0.8505864	-0.6555347	-0.9159869	-0.9999963	
## 3	-0.9235410	-0.5289342	-0.9129851	-0.8034065	-0.9801332	-0.9999936	
## 4	-0.7572285	-0.3960393	-0.8296347	-0.5770384	-0.8933748	-0.9999978	
## 5	-0.8129873	-0.4965600	-0.9039084	-0.7643694	-0.9662039	-0.9999953	
## 6	-0.9053384	-0.6649723	-0.9564599	-0.7225990	-0.9432911	-0.9999878	
##	V383	V384	V385	V386	V387	V388	
## 1	-0.9999796	-0.9999748	-0.9999551	-0.9999186	-0.9996401	-0.9994833	
## 2	-0.9999797	-0.9999489	-0.9999683	-0.9999101	-0.9998137	-0.9999203	
## 3	-0.9999443	-0.9998274	-0.9998414	-0.9999222	-0.9999058	-0.9998736	
## 4	-0.9999651	-0.9998432	-0.9998654	-0.9999959	-0.9999304	-0.9999417	
## 5	-0.9999829	-0.9999466	-0.9999388	-0.9999616	-0.9999289	-0.9999581	
## 6	-0.9999855	-0.9999309	-0.9999155	-0.9999256	-0.9998590	-0.9999402	
##	V389	V390	V391	V392	V393	V394	
## 1	-0.9999609	-0.9999823	-0.9999707	-0.9998110	-0.9994847	-0.9999808	
## 2	-0.9999607	-0.9999867	-0.9999560	-0.9998767	-0.9999141	-0.9999744	
## 3	-0.9999965	-0.9999628	-0.9998038	-0.9999227	-0.9998752	-0.9999085	
## 4	-0.9999992	-0.9999781	-0.9998269	-0.9999824	-0.9999426	-0.9999268	
## 5	-0.9999949	-0.9999883	-0.9999412	-0.9999587	-0.9999579	-0.9999748	
## 6	-0.9999969	-0.9999866	-0.9999185	-0.9999058	-0.9999407	-0.9999674	
##	V395	V396	V397	V398	V399	V400	
## 1	-0.9998519	-0.9999326	-0.9998999	-0.9998244	-0.9998598	-0.9997275	
## 2	-0.9999058	-0.9998610	-0.9998272	-0.9994565	-0.9998303	-0.9996093	
## 3	-0.9998430	-0.9998203	-0.9997439	-0.9995591	-0.9998386	-0.9996673	
## 4	-0.9999009	-0.9998950	-0.9997965	-0.9998881	-0.9999061	-0.9996812	
## 5	-0.9999391	-0.9999254	-0.9998775	-0.9998104	-0.9999321	-0.9997284	
## 6	-0.9998864	-0.9999001	-0.9999422	-0.9997838	-0.9998103	-0.9998735	
##	V401	V402	V403	V404	V405	V406	
## 1	-0.9997288	-0.9995671	-0.9997652	-0.9999002	-0.9998149	-0.9997098	
## 2	-0.9996855	-0.9995761	-0.9999370	-0.9998174	-0.9995325	-0.9995952	
## 3	-0.9996275	-0.9997037	-0.9999934	-0.9997323	-0.9996112	-0.9996175	
## 4	-0.9998463	-0.9996932	-0.9999999	-0.9997976	-0.9998832	-0.9997223	
## 5	-0.9997694	-0.9995027	-0.9999921	-0.9998782	-0.9998387	-0.9997279	
## 6	-0.9996886	-0.9995826	-0.9999992	-0.9999309	-0.9997619	-0.9998114	
##	V407	V408	V409	V410	V411	V412	
## 1	-0.9995961	-0.9998522	-0.9998221	-0.9993999	-0.9997656	-0.9999585	
## 2	-0.9996257	-0.9996299	-0.9997593	-0.9998589	-0.9998465	-0.9997949	
## 3	-0.9997442	-0.9996132	-0.9997732	-0.9998709	-0.9997839	-0.9997397	
## 4	-0.9997359	-0.9998056	-0.9998560	-0.9998848	-0.9997237	-0.9998414	
## 5	-0.9995684	-0.9998299	-0.9998744	-0.9998451	-0.9998530	-0.9998899	
## 6	-0.9996392	-0.9998566	-0.9998302	-0.9998633	-0.9997931	-0.9999047	
##	V413	V414	V415	V416	V417	V418	
## 1	-0.9999495	-0.9998385	-0.9998135	-0.9987805	-0.9985778	-0.9996197	
## 2	-0.9998009	-0.9998193	-0.9997692	-0.9996370	-0.9999545	-0.9998519	
## 3	-0.9997866	-0.9997722	-0.9996260	-0.9994874	-0.9999957	-0.9998025	
## 4	-0.9999425	-0.9998694	-0.9997353	-0.9992040	-0.9996620	-0.9997560	
## 5	-0.9998177	-0.9997595	-0.9996878	-0.9991695	-0.9999823	-0.9998525	
## 6	-0.9998218	-0.9997550	-0.9996238	-0.9993829	-0.9999102	-0.9998077	
##	V419	V420	V421	V422	V423	V424	

## 1	-0.9999836	-0.9998281	-0.9986807	-0.9998442	-0.9999279	-0.9865744
## 2	-0.9998273	-0.9998001	-0.9996510	-0.9998350	-0.9998267	-0.9773867
## 3	-0.9997921	-0.9997208	-0.9995138	-0.9997753	-0.9997868	-0.9754332
## 4	-0.9999203	-0.9998281	-0.9992066	-0.9998244	-0.9999237	-0.9871096
## 5	-0.9998841	-0.9997297	-0.9992106	-0.9999004	-0.9998092	-0.9824465
## 6	-0.9998937	-0.9997069	-0.9994048	-0.9998907	-0.9998027	-0.9848902
##	V425	V426	V427	V428	V429	V430
## 1	-0.9817615	-0.9895148	-0.9850326	-0.9738861	-0.9940349	-0.9865308
## 2	-0.9925300	-0.9896058	-0.9849043	-0.9871681	-0.9897847	-0.9793612
## 3	-0.9937147	-0.9867557	-0.9766422	-0.9933990	-0.9873282	-0.9756091
## 4	-0.9936015	-0.9871913	-0.9928104	-0.9916460	-0.9886776	-0.9896713
## 5	-0.9929838	-0.9886664	-0.9859818	-0.9919558	-0.9879443	-0.9825810
## 6	-0.9927862	-0.9807784	-0.9852871	-0.9916595	-0.9853661	-0.9834343
##	V431	V432	V433	V434	V435	V436
## 1	-0.9836164	-0.9923520	-0.9804984	-0.9722709	-0.9949443	-0.9975686
## 2	-0.9918368	-0.9879651	-0.9873538	-0.9847864	-0.9901508	-0.9868918
## 3	-0.9937071	-0.9850303	-0.9729012	-0.9949860	-0.9912830	-0.9883117
## 4	-0.9934607	-0.9865264	-0.9945184	-0.9918014	-0.9922807	-0.9897006
## 5	-0.9933426	-0.9864612	-0.9879502	-0.9932283	-0.9914436	-0.9937381
## 6	-0.9929105	-0.9840883	-0.9829656	-0.9931990	-0.9876443	-0.9993609
##	V437	V438	V439	V440	V441	V442
## 1	-0.9840851	-0.9943354	-0.9852762	-0.9998637	-0.9996661	-0.9999346
## 2	-0.9990535	-0.9944137	-0.9868687	-0.9998249	-0.9999115	-0.9998921
## 3	-0.9972327	-0.9936360	-0.9860087	-0.9996733	-0.9999624	-0.9998463
## 4	-0.9943438	-0.9931436	-0.9903443	-0.9999462	-0.9999514	-0.9998668
## 5	-0.9937253	-0.9948352	-0.9887062	-0.9998616	-0.9999510	-0.9998642
## 6	-0.9978452	-0.9816007	-0.9876105	-0.9998615	-0.9999484	-0.9997811
##	V443	V444	V445	V446	V447	V448
## 1	-0.9903439	-0.9948357	-0.9944116	-0.7124023	-0.6448424	-0.8389930
## 2	-0.9870994	-0.9955637	-0.9872545	-0.6111119	-0.7646030	-0.7510797
## 3	-0.9855365	-0.9953921	-0.9925506	-0.5909865	-0.8082872	-0.7510797
## 4	-0.9928778	-0.9962888	-0.9902236	-0.7236655	-0.8037541	-0.8172859
## 5	-0.9904644	-0.9961228	-0.9974263	-0.6526168	-0.8272124	-0.7374578
## 6	-0.9883218	-0.9940861	-0.9904452	-0.6781863	-0.8082872	-0.7510797
##	V449	V450	V451	V452	V453	V454
## 1	-1.0000000	-1.0000000	-1.0000000	-0.25754888	0.09794711	0.54715105
## 2	-1.0000000	-1.0000000	-1.0000000	-0.04816744	-0.40160791	-0.06817833
## 3	-1.0000000	-0.8709677	-1.0000000	-0.21668507	-0.01726417	-0.11072029
## 4	-1.0000000	-1.0000000	-0.7931035	0.21686246	-0.13524536	-0.04972798
## 5	-1.0000000	-0.8064516	-1.0000000	-0.15334258	-0.08840273	-0.16223039
## 6	-0.9333333	-0.9354839	-0.9310345	-0.36303968	-0.13323831	0.19483324
##	V455	V456	V457	V458	V459	V460
## 1	0.377311210	0.1340915	0.2733720	-0.09126183	-0.4843465	-0.7828507
## 2	-0.458553310	-0.7970135	0.3875689	0.14866483	-0.1569093	-0.4517759
## 3	0.090519474	-0.2446911	-0.4292724	-0.81263905	-0.3919913	-0.7674824
## 4	-0.572087600	-0.8736179	-0.1351185	-0.54223840	-0.3793527	-0.7565483
## 5	-0.339596820	-0.7226279	-0.2654707	-0.68998825	-0.2679956	-0.6592078
## 6	-0.004027766	-0.3231587	-0.2900701	-0.70538442	-0.2350403	-0.6081425
##	V461	V462	V463	V464	V465	V466
## 1	-0.9998650	-0.9999318	-0.9999729	-0.9999702	-0.9999301	-0.9999586
## 2	-0.9998509	-0.9997943	-0.9999131	-0.9999182	-0.9998964	-0.9998853
## 3	-0.9996805	-0.9998282	-0.9999151	-0.9999324	-0.9998478	-0.9998415
## 4	-0.9999637	-0.9998907	-0.9999465	-0.9999733	-0.9998773	-0.9999031
## 5	-0.9998700	-0.9999117	-0.9999258	-0.9999409	-0.9999356	-0.9998874

## 6	-0.9998650	-0.9999123	-0.9999742	-0.9999722	-0.9999759	-0.9999721
##	V467	V468	V469	V470	V471	V472
## 1	-0.9999290	-0.9999847	-0.9998633	-0.9999681	-0.9999361	-0.9999536
## 2	-0.9997842	-0.9997824	-0.9998299	-0.9998988	-0.9998828	-0.9997834
## 3	-0.9998635	-0.9998622	-0.9996744	-0.9999063	-0.9998314	-0.9998629
## 4	-0.9998334	-0.9998929	-0.9999502	-0.9999481	-0.9998769	-0.9998597
## 5	-0.9998999	-0.9999175	-0.9998651	-0.9999183	-0.9999109	-0.9999077
## 6	-0.9999598	-0.9999847	-0.9998604	-0.9999700	-0.9999733	-0.9999708
##	V473	V474	V475	V476	V477	V478
## 1	-0.9998644	-0.9999610	-0.9994537	-0.9999781	-0.9999915	-0.9999901
## 2	-0.9998283	-0.9999080	-0.9998564	-0.9999885	-0.9999957	-0.9999942
## 3	-0.9996757	-0.9999035	-0.9999544	-0.9999876	-0.9999901	-0.9999943
## 4	-0.9999484	-0.9999461	-0.9999305	-0.9999892	-0.9999924	-0.9999925
## 5	-0.9998636	-0.9999326	-0.9999259	-0.9999927	-0.9999964	-0.9999884
## 6	-0.9998617	-0.9999732	-0.9999263	-0.9999897	-0.9999942	-0.9999842
##	V479	V480	V481	V482	V483	V484
## 1	-0.9999686	-0.9998066	-0.9983460	-0.9989612	-0.9996187	-0.9999893
## 2	-0.9999861	-0.9999845	-0.9999800	-0.9999900	-0.9998966	-0.9999945
## 3	-0.9999730	-0.9999428	-0.9999866	-0.9999933	-0.9999620	-0.9999893
## 4	-0.9999859	-0.9999541	-0.9999898	-0.9999883	-0.9999470	-0.9999908
## 5	-0.9999666	-0.9999737	-0.9999740	-0.9999720	-0.9999462	-0.9999934
## 6	-0.9999678	-0.9999921	-0.9999660	-0.9999886	-0.9999445	-0.9999900
##	V485	V486	V487	V488	V489	V490
## 1	-0.9999354	-0.9983875	-0.9996426	-0.9999727	-0.9999554	-0.9999763
## 2	-0.9999860	-0.9999817	-0.9999026	-0.9999917	-0.9999089	-0.9999594
## 3	-0.9999670	-0.9999877	-0.9999606	-0.9999858	-0.9998701	-0.9999346
## 4	-0.9999796	-0.9999878	-0.9999478	-0.9999884	-0.9998773	-0.9999685
## 5	-0.9999681	-0.9999696	-0.9999490	-0.9999816	-0.9998711	-0.9999554
## 6	-0.9999729	-0.9999712	-0.9999463	-0.9999799	-0.9998227	-0.9998868
##	V491	V492	V493	V494	V495	V496
## 1	-0.9999058	-0.9999855	-0.9999372	-0.9997512	-0.9990723	-0.9999275
## 2	-0.9999281	-0.9999663	-0.9999855	-0.9999264	-0.9999615	-0.9999831
## 3	-0.9999347	-0.9999570	-0.9999522	-0.9999093	-0.9998890	-0.9999885
## 4	-0.9999566	-0.9999556	-0.9999493	-0.9998805	-0.9998793	-0.9999495
## 5	-0.9999962	-0.9999864	-0.9999397	-0.9999068	-0.9999211	-0.9999812
## 6	-0.9999526	-0.9999220	-0.9998569	-0.9998545	-0.9995571	-0.9996430
##	V497	V498	V499	V500	V501	V502
## 1	-0.9999516	-0.9999058	-0.9998927	-0.9994443	-0.9999410	-0.9999586
## 2	-0.9999017	-0.9999178	-0.9999754	-0.9999711	-0.9998943	-0.9999710
## 3	-0.9998565	-0.9999196	-0.9999464	-0.9999325	-0.9998502	-0.9999556
## 4	-0.9998747	-0.9999398	-0.9999364	-0.9999101	-0.9998713	-0.9999516
## 5	-0.9998645	-0.9999925	-0.9999366	-0.9999474	-0.9998664	-0.9999728
## 6	-0.9997954	-0.9999197	-0.9998617	-0.9995947	-0.9997918	-0.9999052
##	V503	V504	V505	V506	V507	V508
## 1	-0.9521547	-0.9561340	-0.9488701	-0.9743206	-0.9257218	-0.9521547
## 2	-0.9808566	-0.9758658	-0.9757769	-0.9782264	-0.9869108	-0.9808566
## 3	-0.9877948	-0.9890155	-0.9855936	-0.9930619	-0.9898364	-0.9877948
## 4	-0.9875187	-0.9867420	-0.9835237	-0.9902299	-0.9981850	-0.9875187
## 5	-0.9935909	-0.9900635	-0.9923241	-0.9905059	-0.9878052	-0.9935909
## 6	-0.9948360	-0.9952833	-0.9938512	-0.9953650	-0.9894722	-0.9948360
##	V509	V510	V511	V512	V513	V514
## 1	-0.9982852	-0.9732732	-0.6463764	-0.7931035	-0.08843612	-0.4364710
## 2	-0.9994719	-0.9844792	-0.8166736	-1.0000000	-0.04414989	-0.1220404
## 3	-0.9998067	-0.9892371	-0.9070143	-0.8620690	0.25789914	-0.6187251


```

## 4 -0.9997702 -0.9832153 -0.9070143 -1.0000000 0.07358150 -0.4684223
## 5 -0.9998731 -0.9973433 -0.9070143 -1.0000000 0.39431033 -0.1126629
## 6 -0.9999390 -0.9921667 -1.0000000 -1.0000000 0.43796212 -0.5946439
##      V515      V516      V517      V518      V519      V520
## 1 -0.7968405 -0.9937257 -0.9937550 -0.9919757 -0.9933647 -0.9881754
## 2 -0.4495219 -0.9903355 -0.9919603 -0.9897320 -0.9944888 -0.9895488
## 3 -0.8796846 -0.9892801 -0.9908667 -0.9872743 -0.9931788 -0.9998898
## 4 -0.7564936 -0.9927689 -0.9916998 -0.9890549 -0.9944546 -0.9955624
## 5 -0.4818052 -0.9955228 -0.9943890 -0.9933055 -0.9954847 -0.9821772
## 6 -0.8091864 -0.9947329 -0.9951562 -0.9942986 -0.9944851 -0.9830483
##      V521      V522      V523 V524      V525      V526      V527
## 1 -0.9937257 -0.9999184 -0.9913637 -1 -0.9365079 0.3469885 -0.5160801
## 2 -0.9903355 -0.9998669 -0.9911339 -1 -0.8412698 0.5320605 -0.6248710
## 3 -0.9892801 -0.9998455 -0.9866576 -1 -0.9047619 0.6607950 -0.7246967
## 4 -0.9927689 -0.9998948 -0.9880552 -1 1.0000000 0.6789213 -0.7011307
## 5 -0.9955228 -0.9999409 -0.9941695 -1 -1.0000000 0.5590577 -0.5289013
## 6 -0.9947329 -0.9999370 -0.9966966 -1 -1.0000000 0.2469096 -0.5208793
##      V528      V529      V530      V531      V532      V533
## 1 -0.8027600 -0.9801349 -0.9613094 -0.9736534 -0.9522638 -0.9894981
## 2 -0.9001600 -0.9882956 -0.9833219 -0.9826593 -0.9863208 -0.9918288
## 3 -0.9285394 -0.9892548 -0.9860277 -0.9842736 -0.9909794 -0.9957030
## 4 -0.9096391 -0.9894128 -0.9878358 -0.9868499 -0.9867488 -0.9961994
## 5 -0.8589325 -0.9914330 -0.9890594 -0.9877436 -0.9914617 -0.9983532
## 6 -0.8025254 -0.9905000 -0.9858609 -0.9855120 -0.9882041 -0.9947578
##      V534      V535      V536      V537      V538      V539
## 1 -0.9801349 -0.9992403 -0.9926555 -0.7012914 -1.0000000 -0.1289889
## 2 -0.9882956 -0.9998112 -0.9939785 -0.7206830 -0.9487180 -0.2719585
## 3 -0.9892548 -0.9998539 -0.9932383 -0.7365215 -0.7948718 -0.2127279
## 4 -0.9894128 -0.9998756 -0.9891355 -0.7208908 -1.0000000 -0.0356842
## 5 -0.9914330 -0.9999018 -0.9893211 -0.7633722 -0.8974359 -0.2735820
## 6 -0.9905000 -0.9998606 -0.9919667 -0.7685767 -1.0000000 -0.2973291
##      V540      V541      V542      V543      V544      V545
## 1 0.5861564 0.3746046 -0.9919904 -0.9906975 -0.9899408 -0.9924478
## 2 -0.3363104 -0.7200151 -0.9958539 -0.9963995 -0.9954421 -0.9968660
## 3 -0.5353521 -0.8719141 -0.9950305 -0.9951274 -0.9946396 -0.9960596
## 4 -0.2300909 -0.5112170 -0.9952207 -0.9952369 -0.9957222 -0.9952731
## 5 -0.5102819 -0.8307018 -0.9950928 -0.9954648 -0.9952787 -0.9956093
## 6 -0.3460445 -0.7272705 -0.9951433 -0.9952387 -0.9943979 -0.9960880
##      V546      V547      V548      V549      V550      V551
## 1 -0.9910477 -0.9919904 -0.9999368 -0.9904579 -0.8713058 -1.0000000
## 2 -0.9944397 -0.9958539 -0.9999807 -0.9945437 -1.0000000 -1.0000000
## 3 -0.9958663 -0.9950305 -0.9999731 -0.9937553 -1.0000000 -0.5555556
## 4 -0.9957318 -0.9952207 -0.9999744 -0.9952260 -0.9556959 -0.9365079
## 5 -0.9974180 -0.9950928 -0.9999745 -0.9954868 -1.0000000 -0.9365079
## 6 -0.9985194 -0.9951433 -0.9999740 -0.9945305 -1.0000000 -1.0000000
##      V552      V553      V554      V555      V556      V557
## 1 -0.07432303 -0.2986764 -0.7103041 -0.11275434 0.030400372 -0.4647614
## 2 0.15807454 -0.5950509 -0.8614993 0.05347695 -0.007434566 -0.7326262
## 3 0.41450281 -0.3907482 -0.7601037 -0.11855926 0.177899480 0.1006992
## 4 0.40457253 -0.1172902 -0.4828445 -0.03678797 -0.012892494 0.6400110
## 5 0.08775301 -0.3514709 -0.6992052 0.12332005 0.122541960 0.6935783
## 6 0.01995331 -0.5454101 -0.8446193 0.08263215 -0.143439010 0.2750408
##      V558      V559      V560      V561
## 1 -0.01844588 -0.8412468 0.1799406 -0.05862692

```

```
## 2  0.70351059 -0.8447876 0.1802889 -0.05431672
## 3  0.80852908 -0.8489335 0.1806373 -0.04911782
## 4 -0.48536645 -0.8486494 0.1819348 -0.04766318
## 5 -0.61597061 -0.8478653 0.1851512 -0.04389225
## 6 -0.36822404 -0.8496316 0.1848225 -0.04212638
```

```
head(test_activity)
```

```
##    V1
## 1  5
## 2  5
## 3  5
## 4  5
## 5  5
## 6  5
```

```
head(train_activity)
```

```
##    V1
## 1  5
## 2  5
## 3  5
## 4  5
## 5  5
## 6  5
```

```
subject <- rbind(train_subject, test_subject)
features <- rbind(train_features, test_features)
activity <- rbind(train_activity, test_activity)
head(subject)
```

```
##    V1
## 1  1
## 2  1
## 3  1
## 4  1
## 5  1
## 6  1
```

```
head(features)
```

```
##           V1           V2           V3           V4           V5           V6
## 1 0.2885845 -0.02029417 -0.1329051 -0.9952786 -0.9831106 -0.9135264
## 2 0.2784188 -0.01641057 -0.1235202 -0.9982453 -0.9753002 -0.9603220
## 3 0.2796531 -0.01946716 -0.1134617 -0.9953796 -0.9671870 -0.9789440
## 4 0.2791739 -0.02620065 -0.1232826 -0.9960915 -0.9834027 -0.9906751
## 5 0.2766288 -0.01656965 -0.1153619 -0.9981386 -0.9808173 -0.9904816
## 6 0.2771988 -0.01009785 -0.1051373 -0.9973350 -0.9904868 -0.9954200
##           V7           V8           V9           V10          V11          V12
## 1 -0.9951121 -0.9831846 -0.9235270 -0.9347238 -0.5673781 -0.7444125
## 2 -0.9988072 -0.9749144 -0.9576862 -0.9430675 -0.5578513 -0.8184087
## 3 -0.9965199 -0.9636684 -0.9774686 -0.9386916 -0.5578513 -0.8184087
## 4 -0.9970995 -0.9827498 -0.9893025 -0.9386916 -0.5761589 -0.8297115
## 5 -0.9983211 -0.9796719 -0.9904411 -0.9424691 -0.5691738 -0.8247053
## 6 -0.9976274 -0.9902177 -0.9955489 -0.9424691 -0.5656839 -0.8227661
##           V13          V14          V15          V16          V17          V18
## 1 0.8529474 0.6858446 0.8142628 -0.9655228 -0.9999446 -0.9998630
```

```

## 2 0.8493079 0.6858446 0.8226368 -0.9819301 -0.9999913 -0.9997884
## 3 0.8436090 0.6824009 0.8393442 -0.9834778 -0.9999691 -0.9996599
## 4 0.8436090 0.6824009 0.8378693 -0.9860933 -0.9999755 -0.9997360
## 5 0.8490951 0.6832498 0.8378693 -0.9926531 -0.9999906 -0.9998559
## 6 0.8490951 0.6955857 0.8459216 -0.9939277 -0.9999855 -0.9998570
##      V19      V20      V21      V22      V23      V24
## 1 -0.9946122 -0.9942308 -0.9876139 -0.9432200 -0.4077471 -0.6793375
## 2 -0.9984054 -0.9991504 -0.9778655 -0.9482248 -0.7148917 -0.5009300
## 3 -0.9994695 -0.9971301 -0.9648099 -0.9746750 -0.5922351 -0.4858207
## 4 -0.9995037 -0.9971804 -0.9837991 -0.9860068 -0.6274463 -0.8509300
## 5 -0.9997566 -0.9980043 -0.9812319 -0.9913247 -0.7865525 -0.5594769
## 6 -0.9999174 -0.9975839 -0.9918468 -0.9954136 -0.7518691 -0.4547725
##      V25      V26      V27      V28      V29      V30
## 1 -0.6021219 0.92929351 -0.85301114 0.3599098 -0.05852638 0.25689154
## 2 -0.5709791 0.61162716 -0.32954862 0.2842132 0.28459454 0.11570542
## 3 -0.5709791 0.27302484 -0.08630870 0.3372015 -0.16473870 0.01715013
## 4 -0.9118716 0.06143571 0.07483956 0.1982040 -0.26430733 0.07254524
## 5 -0.7614338 0.31327553 -0.13120773 0.1911608 0.08690362 0.25761535
## 6 -0.5508815 0.39005211 -0.18227238 0.1587515 0.18731256 0.25995104
##      V31      V32      V33      V34      V35      V36
## 1 -0.22484763 0.2641057 -0.09524563 0.27885143 -0.46508457 0.49193596
## 2 -0.09096253 0.2943104 -0.28121057 0.08598843 -0.02215269 -0.01665654
## 3 -0.07450693 0.3422563 -0.33256448 0.23928053 -0.13620359 0.17386318
## 4 -0.15531983 0.3231540 -0.17081296 0.29493839 -0.30608099 0.48214783
## 5 -0.27250466 0.4347278 -0.31537507 0.43974437 -0.26906895 0.17941419
## 6 -0.24322958 0.4217361 -0.41846005 0.55846137 -0.21834364 0.16513807
##      V37      V38      V39      V40      V41      V42
## 1 -0.19088356 0.37631389 0.43512919 0.6607903 0.9633961 -0.1408397
## 2 -0.22064350 -0.01342866 -0.07269189 0.5793817 0.9665611 -0.1415513
## 3 -0.29949278 -0.12469839 -0.18110479 0.6089001 0.9668781 -0.1420098
## 4 -0.47012871 -0.30569299 -0.36265405 0.5074589 0.9676152 -0.1439765
## 5 -0.08895195 -0.15580432 -0.18976271 0.5992130 0.9682244 -0.1487502
## 6 0.08092016 -0.20997915 -0.15106365 0.1804244 0.9679482 -0.1482100
##      V43      V44      V45      V46      V47      V48
## 1 0.11537494 -0.9852497 -0.9817084 -0.8776250 -0.9850014 -0.9844162
## 2 0.10937881 -0.9974113 -0.9894474 -0.9316387 -0.9978836 -0.9896137
## 3 0.10188392 -0.9995740 -0.9928658 -0.9929172 -0.9996353 -0.9926049
## 4 0.09985014 -0.9966456 -0.9813928 -0.9784764 -0.9964569 -0.9809618
## 5 0.09448590 -0.9984293 -0.9880982 -0.9787449 -0.9984112 -0.9886539
## 6 0.09190972 -0.9989793 -0.9867539 -0.9973064 -0.9990540 -0.9865839
##      V49      V50      V51      V52      V53      V54
## 1 -0.8946774 0.8920545 -0.1612655 0.12465977 0.9774363 -0.1232134
## 2 -0.9332404 0.8920603 -0.1613426 0.12258573 0.9845201 -0.1148933
## 3 -0.9929343 0.8924006 -0.1637112 0.09456584 0.9867701 -0.1148933
## 4 -0.9784558 0.8938171 -0.1637112 0.09342467 0.9868210 -0.1213358
## 5 -0.9789355 0.8938171 -0.1667862 0.09168239 0.9874335 -0.1218336
## 6 -0.9974188 0.8936834 -0.1669704 0.08334712 0.9877218 -0.1218336
##      V55      V56      V57      V58      V59      V60
## 1 0.05648273 -0.3754260 0.8994686 -0.9709052 -0.9755104 -0.9843254
## 2 0.10276411 -0.3834296 0.9078289 -0.9705828 -0.9785004 -0.9991884
## 3 0.10276411 -0.4016016 0.9086678 -0.9703681 -0.9816723 -0.9996790
## 4 0.09575265 -0.4002781 0.9106207 -0.9693997 -0.9824196 -0.9959764
## 5 0.09405935 -0.4004765 0.9122347 -0.9670511 -0.9843626 -0.9983182
## 6 0.09405935 -0.4093585 0.9115026 -0.9673206 -0.9852754 -0.9993483

```

##	V61	V62	V63	V64	V65	V66	V67
## 1	-0.9888491	-0.9177426	-1	-1	0.1138061	-0.590425000	0.59114630
## 2	-0.9900285	-0.9416854	-1	-1	-0.2104936	-0.410055520	0.41385634
## 3	-0.9921044	-0.9926186	-1	-1	-0.9267763	0.002234132	0.02748069
## 4	-0.9806634	-0.9797787	-1	-1	-0.5961008	-0.064934877	0.07542720
## 5	-0.9906113	-0.9804125	-1	-1	-0.6165782	-0.257266810	0.26891819
## 6	-0.9865648	-0.9977279	-1	-1	-1.0000000	-0.302224840	0.37903209
##	V68	V69	V70	V71	V72	V73	
## 1	-0.59177346	0.59246928	-0.7454488	0.72086167	-0.7123724	0.7113000	
## 2	-0.41756716	0.42132499	-0.1963593	0.12534464	-0.1055677	0.1090901	
## 3	-0.05672816	0.08553324	-0.3290230	0.27050025	-0.2544902	0.2575976	
## 4	-0.08582296	0.09620771	-0.2950360	0.22830973	-0.2062812	0.2048009	
## 5	-0.28066510	0.29261602	-0.1666931	0.08994272	-0.0663267	0.0671311	
## 6	-0.45722246	0.53679840	-0.1981248	0.12718522	-0.1075539	0.1113645	
##	V74	V75	V76	V77	V78	V79	
## 1	-0.9951116	0.9956749	-0.9956676	0.9916527	0.5702216	0.4390273	
## 2	-0.8338821	0.8342711	-0.8341844	0.8304639	-0.8312839	-0.8657111	
## 3	-0.7050392	0.7143920	-0.7232989	0.7287554	-0.1810899	0.3379359	
## 4	-0.3854102	0.3863727	-0.3871199	0.3852631	-0.9913087	-0.9688214	
## 5	-0.2374745	0.2392680	-0.2410121	0.2405685	-0.4083304	-0.1848401	
## 6	-0.1579059	0.1753748	-0.1927680	0.2079647	-0.5639509	0.4664707	
##	V80	V81	V82	V83	V84	V85	
## 1	0.9869131	0.07799634	0.005000803	-0.067830808	-0.9935191	-0.9883600	
## 2	0.9743856	0.07400671	0.005771104	0.029376633	-0.9955481	-0.9810636	
## 3	0.6434170	0.07363596	0.003104037	-0.009045631	-0.9907428	-0.9809556	
## 4	0.9842555	0.07732061	0.020057642	-0.009864772	-0.9926974	-0.9875527	
## 5	0.9647965	0.07344436	0.019121574	0.016779979	-0.9964202	-0.9883587	
## 6	0.4430971	0.07793244	0.018684046	0.009344434	-0.9948136	-0.9887145	
##	V86	V87	V88	V89	V90	V91	
## 1	-0.9935750	-0.9944876	-0.9862066	-0.9928183	-0.9851801	-0.9919942	
## 2	-0.9918457	-0.9956320	-0.9789380	-0.9912766	-0.9945447	-0.9790682	
## 3	-0.9896866	-0.9909329	-0.9793002	-0.9872381	-0.9870770	-0.9790682	
## 4	-0.9934976	-0.9942660	-0.9857170	-0.9914832	-0.9870770	-0.9917862	
## 5	-0.9924549	-0.9965974	-0.9865370	-0.9906864	-0.9969933	-0.9918178	
## 6	-0.9922663	-0.9952418	-0.9868467	-0.9910667	-0.9941054	-0.9918178	
##	V92	V93	V94	V95	V96	V97	
## 1	-0.9931189	0.9898347	0.9919569	0.9905192	-0.9935220	-0.9999349	
## 2	-0.9922574	0.9925771	0.9918084	0.9885391	-0.9913937	-0.9999597	
## 3	-0.9922574	0.9883902	0.9918084	0.9885391	-0.9881477	-0.9998942	
## 4	-0.9897689	0.9883902	0.9925438	0.9932176	-0.9928683	-0.9999236	
## 5	-0.9897689	0.9943032	0.9925438	0.9856091	-0.9938320	-0.9999692	
## 6	-0.9926493	0.9943032	0.9933463	0.9856091	-0.9934730	-0.9999512	
##	V98	V99	V100	V101	V102	V103	
## 1	-0.9998204	-0.9998785	-0.9943640	-0.9860249	-0.9892336	-0.8199492	
## 2	-0.9996396	-0.9998454	-0.9938627	-0.9794351	-0.9933838	-0.8750964	
## 3	-0.9996364	-0.9997950	-0.9878457	-0.9801445	-0.9819108	-0.7536287	
## 4	-0.9998029	-0.9998829	-0.9946780	-0.9870330	-0.9888963	-0.8208042	
## 5	-0.9998203	-0.9998599	-0.9958878	-0.9865242	-0.9905717	-0.8507439	
## 6	-0.9998278	-0.9998560	-0.9952809	-0.9873590	-0.9895520	-0.7787178	
##	V104	V105	V106	V107	V108	V109	
## 1	-0.7930464	-0.8888529	1.0000000	-0.22074703	0.6368308	0.3876436	
## 2	-0.6553621	-0.7673809	0.4896622	0.07099708	0.3627145	0.5273034	
## 3	-0.6732736	-0.7471068	0.2652248	0.18839474	0.4645835	0.3717179	
## 4	-0.7549682	-0.8252786	0.1228930	0.27641881	0.4574450	0.1934143	

```

## 5 -0.7462578 -0.7969596 0.2409042 0.13491152 0.2969029 0.2871847
## 6 -0.7549682 -0.7908859 0.2806858 0.10044972 0.2597405 0.2019468
##      V110      V111      V112      V113      V114      V115
## 1 0.24140146 -0.052252848 0.2641772 0.3734395 0.3417775 -0.56979119
## 2 0.14939565 0.062925097 0.3704934 0.4135481 0.1222157 0.18061304
## 3 0.08266488 -0.004621675 0.3274702 0.4376232 0.2578909 0.07002964
## 4 0.10240466 -0.099103220 0.1946788 0.4842436 0.3576571 -0.18703248
## 5 0.31897047 -0.143364120 0.4774545 0.4179662 0.3895371 -0.03030909
## 6 0.35057743 -0.077269461 0.5626646 0.3519760 0.3686890 0.04338534
##      V116      V117      V118      V119      V120      V121
## 1 0.2653988 -0.4778749 -0.3853005 0.03364394 -0.12651082 -0.006100849
## 2 0.0474240 0.1665727 -0.2087722 0.08410380 -0.26855390 -0.016111620
## 3 0.1869730 0.2467997 -0.1201047 -0.11002563 -0.03995275 -0.031698294
## 4 0.2980687 0.4518696 -0.1274952 -0.08327836 0.45705983 -0.043409983
## 5 0.1632612 0.1801889 -0.2728836 0.10306475 0.06472931 -0.033960416
## 6 0.1473115 0.2991720 -0.3746109 0.04182570 -0.11178209 -0.028775508
##      V122      V123      V124      V125      V126      V127
## 1 -0.03136479 0.10772540 -0.9853103 -0.9766234 -0.9922053 -0.9845863
## 2 -0.08389378 0.10058429 -0.9831200 -0.9890458 -0.9891212 -0.9868904
## 3 -0.10233542 0.09612688 -0.9762921 -0.9935518 -0.9863787 -0.9749215
## 4 -0.09138618 0.08553770 -0.9913848 -0.9924073 -0.9875542 -0.9915889
## 5 -0.07470803 0.07739203 -0.9851836 -0.9923781 -0.9874019 -0.9869437
## 6 -0.07039311 0.07901214 -0.9851808 -0.9921175 -0.9830768 -0.9857856
##      V128      V129      V130      V131      V132      V133
## 1 -0.9763526 -0.9923616 -0.8670437 -0.9337860 -0.7475662 0.8473080
## 2 -0.9890380 -0.9891846 -0.8649038 -0.9535605 -0.7458700 0.8337211
## 3 -0.9941221 -0.9857862 -0.8649038 -0.9590491 -0.7432771 0.8337211
## 4 -0.9931421 -0.9895849 -0.8853204 -0.9566563 -0.7432771 0.8341640
## 5 -0.9925425 -0.9881628 -0.8701541 -0.9533597 -0.7497799 0.8390906
## 6 -0.9922687 -0.9827049 -0.8701541 -0.9533597 -0.7463994 0.8398080
##      V134      V135      V136      V137      V138      V139
## 1 0.9148953 0.8308405 -0.9671843 -0.9995783 -0.9993543 -0.9997634
## 2 0.9081096 0.8289350 -0.9806131 -0.9997558 -0.9998973 -0.9998224
## 3 0.9057528 0.8289350 -0.9762803 -0.9996934 -0.9998283 -0.9998216
## 4 0.9057528 0.8266338 -0.9822957 -0.9997929 -0.9999023 -0.9998773
## 5 0.9111845 0.8213744 -0.9852620 -0.9998495 -0.9999519 -0.9998443
## 6 0.9111845 0.8188267 -0.9852143 -0.9998740 -0.9999466 -0.9997780
##      V140      V141      V142      V143      V144      V145
## 1 -0.9834381 -0.9786140 -0.9929656 0.082631682 0.2022676 -0.1687567
## 2 -0.9928328 -0.9893447 -0.9902402 0.007469356 -0.5311566 -0.1774446
## 3 -0.9723536 -0.9951443 -0.9868311 -0.260942670 -1.0000000 -0.2483707
## 4 -0.9910313 -0.9941653 -0.9945820 -0.930551140 -0.8266180 -0.5434217
## 5 -0.9898132 -0.9933367 -0.9911546 -0.628860990 -0.4678076 -0.6508521
## 6 -0.9853373 -0.9929940 -0.9837056 -0.363801070 -0.3705079 -0.4621260
##      V146      V147      V148      V149      V150      V151
## 1 0.09632324 -0.27498511 0.49864419 -0.22031685 1.00000000 -0.97297139
## 2 -0.38768063 0.17913763 0.21078900 -0.14025958 -0.04703181 -0.06494907
## 3 -0.43715568 0.23898137 0.14523773 -0.11391720 0.03231156 -0.12787926
## 4 -0.16588549 -0.01288054 0.32005501 -0.16511393 0.04455323 -0.12519331
## 5 -0.21269027 0.00211118 0.38809860 -0.23327097 -0.16322090 0.18645965
## 6 -0.40282673 0.24203652 0.05913935 0.03028356 -0.11969243 0.15061703
##      V152      V153      V154      V155      V156      V157
## 1 0.31665451 0.37572641 0.72339919 -0.7711120 0.6902132 -0.3318310
## 2 0.11768661 0.08169129 0.04236404 -0.1499284 0.2926189 -0.1494293

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## 3	0.11492426	0.12539829	0.11209205	-0.1656450	0.1345544	0.1843490
## 4	0.07832123	0.17702758	0.19340165	-0.2071888	0.1124575	0.2020919
## 5	-0.43491617	0.65013677	0.23995007	-0.3395292	0.1325371	0.4732514
## 6	-0.38093733	0.57330854	0.10377464	-0.2276797	0.1382413	0.3461755
##	V158	V159	V160	V161	V162	V163
## 1	0.70958377	0.13487336	0.3010995	-0.09916740	-0.05551737	-0.06198580
## 2	0.04672124	-0.25692940	0.1693948	-0.11050283	-0.04481873	-0.05924282
## 3	-0.01012957	0.04331158	-0.3506461	-0.10848567	-0.04241031	-0.05582883
## 4	0.21019413	0.14110084	-0.7253011	-0.09116989	-0.03633262	-0.06046466
## 5	-0.14200070	0.48441885	-0.7245575	-0.09077010	-0.03763253	-0.05828932
## 6	-0.44810249	0.64501358	-0.7459792	-0.09424758	-0.04335526	-0.04193600
##	V164	V165	V166	V167	V168	V169
## 1	-0.9921107	-0.9925193	-0.9920553	-0.9921648	-0.9949416	-0.9926190
## 2	-0.9898726	-0.9972926	-0.9938510	-0.9898762	-0.9974917	-0.9937783
## 3	-0.9884618	-0.9956321	-0.9915318	-0.9878680	-0.9957250	-0.9915963
## 4	-0.9911194	-0.9966410	-0.9933289	-0.9912405	-0.9969579	-0.9940195
## 5	-0.9913545	-0.9964730	-0.9945110	-0.9928823	-0.9965406	-0.9943830
## 6	-0.9916216	-0.9960147	-0.9930906	-0.9930196	-0.9960382	-0.9926340
##	V170	V171	V172	V173	V174	V175
## 1	-0.9901558	-0.9867428	-0.9920416	0.9944288	0.9917558	0.9893519
## 2	-0.9919469	-0.9977171	-0.9949208	0.9904860	0.9971222	0.9945031
## 3	-0.9933590	-0.9938002	-0.9889631	0.9892905	0.9971222	0.9941426
## 4	-0.9936763	-0.9938002	-0.9889631	0.9892905	0.9981303	0.9941426
## 5	-0.9798455	-0.9975093	-0.9934198	0.9936848	0.9974531	0.9965279
## 6	-0.9798455	-0.9975093	-0.9934198	0.9938443	0.9974531	0.9965279
##	V176	V177	V178	V179	V180	V181
## 1	-0.9944534	-0.9999375	-0.9999535	-0.9999229	-0.9922997	-0.9969389
## 2	-0.9952984	-0.9999077	-0.9999897	-0.9999459	-0.9907418	-0.9973013
## 3	-0.9934149	-0.9998871	-0.9999798	-0.9999158	-0.9871304	-0.9954278
## 4	-0.9954961	-0.9999251	-0.9999862	-0.9999396	-0.9909086	-0.9970785
## 5	-0.9958778	-0.9999280	-0.9999852	-0.9999535	-0.9945132	-0.9967177
## 6	-0.9952321	-0.9999316	-0.9999824	-0.9999362	-0.9937336	-0.9961224
##	V182	V183	V184	V185	V186	V187
## 1	-0.9922430	-0.5898510	-0.6884590	-0.5721069	0.292376340	-0.36199802
## 2	-0.9938078	-0.6009445	-0.7482472	-0.6089321	-0.193307570	-0.06740646
## 3	-0.9927755	-0.5436348	-0.6729573	-0.5884104	-0.241150980	-0.01137728
## 4	-0.9954046	-0.5620311	-0.7313321	-0.6614345	0.009894985	-0.13757147
## 5	-0.9939689	-0.6177378	-0.6830932	-0.6329272	-0.025678521	-0.18813916
## 6	-0.9919696	-0.6278635	-0.6805905	-0.5418971	-0.265496090	0.05580409
##	V188	V189	V190	V191	V192	
## 1	0.40554269	-0.03900695	0.98928381	-0.414560480	0.39160251	
## 2	0.18561907	0.04152181	0.07235255	-0.035377727	0.17760636	
## 3	0.11613363	0.08962988	0.09598603	0.009604215	0.09512614	
## 4	0.12596517	0.31611970	0.09433295	0.026171325	0.06966099	
## 5	0.23094957	0.20025838	-0.14940028	0.271977090	-0.27151547	
## 6	-0.04563533	0.23627625	-0.12219895	0.268114140	-0.19369246	
##	V193	V194	V195	V196	V197	V198
## 1	0.282250870	0.9272698	-0.5723700	0.69161920	0.468289820	-0.13107697
## 2	0.027498054	0.1827027	-0.1674574	0.25325103	0.132333860	0.29385535
## 3	0.252887040	0.1816489	-0.1693084	0.13200906	0.008197317	0.19332856
## 4	0.246653200	0.2573553	-0.1368088	0.08731557	0.149095580	0.19665725
## 5	-0.009937466	0.2351285	-0.3409670	-0.08571288	0.163956800	0.12059038
## 6	-0.005319577	0.2034059	-0.2967479	0.06993358	-0.012261880	0.01791207
##	V199	V200	V201	V202	V203	V204

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## 1 -0.08715969 0.3362475 -0.9594339 -0.9505515 -0.9579929 -0.9463052
## 2 -0.01807517 -0.3433368 -0.9792892 -0.9760571 -0.9782473 -0.9787115
## 3 0.07371786 -0.3148578 -0.9837031 -0.9880196 -0.9883268 -0.9864961
## 4 0.14045188 -0.3058977 -0.9865418 -0.9864213 -0.9864305 -0.9864961
## 5 0.10748923 -0.2825893 -0.9928271 -0.9912754 -0.9911703 -0.9909619
## 6 0.18667289 -0.3211694 -0.9942950 -0.9952490 -0.9950094 -0.9957457
##      V205      V206      V207      V208      V209      V210
## 1 -0.9925557 -0.9594339 -0.9984928 -0.9576374 -0.2325816 -0.17317874
## 2 -0.9953329 -0.9792892 -0.9994880 -0.9812483 -0.4418761 0.08156863
## 3 -0.9953329 -0.9837031 -0.9996821 -0.9857669 -0.5999393 0.03804910
## 4 -0.9970448 -0.9865418 -0.9997374 -0.9835088 -0.5890063 -0.09285588
## 5 -0.9970448 -0.9928271 -0.9998807 -0.9896081 -0.7045988 0.18044105
## 6 -0.9941746 -0.9942950 -0.9999199 -0.9934632 -0.7852715 0.37033862
##      V211      V212      V213      V214      V215      V216
## 1 -0.02289666 0.0948315680 0.19181715 -0.9594339 -0.9505515 -0.9579929
## 2 -0.10936606 0.3117577100 -0.41167480 -0.9792892 -0.9760571 -0.9782473
## 3 -0.07421227 0.2540759900 -0.29612966 -0.9837031 -0.9880196 -0.9883268
## 4 0.04639617 -0.0004664473 0.03714251 -0.9865418 -0.9864213 -0.9864305
## 5 -0.27765672 0.5155624300 -0.35585076 -0.9928271 -0.9912754 -0.9911703
## 6 -0.39345190 0.5634830200 -0.48154569 -0.9942950 -0.9952490 -0.9950094
##      V217      V218      V219      V220      V221      V222
## 1 -0.9463052 -0.9925557 -0.9594339 -0.9984928 -0.9576374 -0.2325816
## 2 -0.9787115 -0.9953329 -0.9792892 -0.9994880 -0.9812483 -0.4418761
## 3 -0.9864961 -0.9953329 -0.9837031 -0.9996821 -0.9857669 -0.5999393
## 4 -0.9864961 -0.9970448 -0.9865418 -0.9997374 -0.9835088 -0.5890063
## 5 -0.9909619 -0.9970448 -0.9928271 -0.9998807 -0.9896081 -0.7045988
## 6 -0.9957457 -0.9941746 -0.9942950 -0.9999199 -0.9934632 -0.7852715
##      V223      V224      V225      V226      V227      V228
## 1 -0.17317874 -0.02289666 0.0948315680 0.19181715 -0.9933059 -0.9943364
## 2 0.08156863 -0.10936606 0.3117577100 -0.41167480 -0.9912535 -0.9916944
## 3 0.03804910 -0.07421227 0.2540759900 -0.29612966 -0.9885313 -0.9903969
## 4 -0.09285588 0.04639617 -0.0004664473 0.03714251 -0.9930780 -0.9933808
## 5 0.18044105 -0.27765672 0.5155624300 -0.35585076 -0.9934800 -0.9958537
## 6 0.37033862 -0.39345190 0.5634830200 -0.48154569 -0.9930177 -0.9954243
##      V229      V230      V231      V232      V233      V234
## 1 -0.9945004 -0.9927840 -0.9912085 -0.9933059 -0.9998919 -0.9929337
## 2 -0.9927160 -0.9886606 -0.9912085 -0.9912535 -0.9998454 -0.9934851
## 3 -0.9906505 -0.9886606 -0.9930120 -0.9885313 -0.9997899 -0.9899838
## 4 -0.9931945 -0.9934017 -0.9930120 -0.9930780 -0.9998836 -0.9917361
## 5 -0.9961075 -0.9932829 -0.9813245 -0.9934800 -0.9999016 -0.9968463
## 6 -0.9955274 -0.9932829 -0.9931750 -0.9930177 -0.9998927 -0.9950223
##      V235      V236      V237      V238      V239      V240
## 1 -0.8634148 0.28308522 -0.23730869 -0.10543219 -0.03821231 -0.9689591
## 2 -0.8199283 0.45881205 -0.24494134 0.05613927 -0.45834568 -0.9806831
## 3 -0.7948842 0.64970380 -0.26008800 -0.12841598 -0.52054112 -0.9763171
## 4 -0.7923214 0.66160340 -0.24745115 -0.23031491 -0.43645940 -0.9820599
## 5 -0.8500256 0.31160390 -0.17012088 0.13437035 -0.45829909 -0.9852037
## 6 -0.8713030 0.07270727 0.01781662 -0.06858817 -0.16618196 -0.9858944
##      V241      V242      V243      V244      V245      V246
## 1 -0.9643352 -0.9572448 -0.9750599 -0.9915537 -0.9689591 -0.9992865
## 2 -0.9837542 -0.9820027 -0.9847146 -0.9915537 -0.9806831 -0.9997247
## 3 -0.9860515 -0.9844578 -0.9847146 -0.9661929 -0.9763171 -0.9996406
## 4 -0.9873511 -0.9856316 -0.9900291 -0.9816856 -0.9820599 -0.9997679
## 5 -0.9890626 -0.9896134 -0.9870285 -0.9816856 -0.9852037 -0.9998294

```

## 6	-0.9864403	-0.9863046	-0.9870285	-0.9903605	-0.9858944	-0.9998297
##	V247	V248	V249	V250	V251	V252
## 1	-0.9497658	0.07257904	0.5725114	-0.738602190	0.21257776	0.43340495
## 2	-0.9828568	-0.19289906	-0.2253174	-0.017059623	0.15577724	0.08257521
## 3	-0.9834545	-0.22282926	-0.2268309	0.059680819	0.06147618	0.04170213
## 4	-0.9839660	-0.24071922	-0.2019850	0.054711916	0.11007156	-0.07942259
## 5	-0.9923380	-0.33869914	-0.2369926	0.093820007	0.02333272	0.03903898
## 6	-0.9892783	-0.24494596	-0.1726625	-0.007801159	0.09589124	0.06975596
##	V253	V254	V255	V256	V257	V258
## 1	-0.9942478	-0.9913676	-0.9931430	-0.9889356	-0.9934860	-0.9942478
## 2	-0.9951232	-0.9961016	-0.9958385	-0.9965449	-0.9920060	-0.9951232
## 3	-0.9934032	-0.9950910	-0.9948595	-0.9953595	-0.9976518	-0.9934032
## 4	-0.9955022	-0.9952666	-0.9953048	-0.9953595	-0.9976518	-0.9955022
## 5	-0.9958076	-0.9952580	-0.9963073	-0.9923893	-0.9921927	-0.9958076
## 6	-0.9952748	-0.9952050	-0.9960696	-0.9923893	-0.9927537	-0.9952748
##	V259	V260	V261	V262	V263	V264
## 1	-0.9999490	-0.9945472	-0.6197676	0.2928405	-0.1768892	-0.14577921
## 2	-0.9999698	-0.9948192	-0.7307216	0.2093341	-0.1781126	-0.10308433
## 3	-0.9999549	-0.9939883	-0.6629136	0.3280315	-0.1545600	-0.22058712
## 4	-0.9999702	-0.9950011	-0.6830162	0.5953713	-0.2645688	-0.31572300
## 5	-0.9999721	-0.9964837	-0.7201707	0.3318584	-0.2605620	-0.14566464
## 6	-0.9999686	-0.9961068	-0.7510922	0.1787599	-0.1814449	0.04957464
##	V265	V266	V267	V268	V269	V270
## 1	-0.124072330	-0.9947832	-0.9829841	-0.9392687	-0.9954217	-0.9831330
## 2	-0.043823965	-0.9974507	-0.9768517	-0.9735227	-0.9986803	-0.9749298
## 3	-0.107514160	-0.9935941	-0.9725115	-0.9833040	-0.9963128	-0.9655059
## 4	-0.163825530	-0.9954906	-0.9835697	-0.9910798	-0.9963121	-0.9832444
## 5	-0.007367991	-0.9972859	-0.9823010	-0.9883694	-0.9986065	-0.9801295
## 6	-0.168852760	-0.9966567	-0.9869395	-0.9927386	-0.9976438	-0.9922637
##	V271	V272	V273	V274	V275	V276
## 1	-0.9061650	-0.9968886	-0.9845193	-0.9320820	-0.9937563	-0.9831629
## 2	-0.9554381	-0.9978897	-0.9769239	-0.9683768	-0.9993717	-0.9737703
## 3	-0.9770493	-0.9940974	-0.9716867	-0.9821691	-0.9981585	-0.9630718
## 4	-0.9902291	-0.9945468	-0.9828241	-0.9890073	-0.9974035	-0.9872749
## 5	-0.9919150	-0.9977250	-0.9823528	-0.9909146	-0.9992774	-0.9808482
## 6	-0.9970459	-0.9966048	-0.9898989	-0.9950483	-0.9985979	-0.9934144
##	V277	V278	V279	V280	V281	V282
## 1	-0.8850542	-0.9939619	-0.9934461	-0.9234277	-0.9747327	-0.9999684
## 2	-0.9487768	-0.9982806	-0.9927209	-0.9895135	-0.9858116	-0.9999908
## 3	-0.9685959	-0.9970937	-0.9899236	-0.9908857	-0.9858213	-0.9999693
## 4	-0.9877543	-0.9944319	-0.9902589	-0.9965778	-0.9928120	-0.9999754
## 5	-0.9891165	-0.9949679	-0.9917884	-0.9744938	-0.9924232	-0.9999902
## 6	-0.9983060	-0.9956786	-0.9952322	-0.9863281	-0.9950023	-0.9999849
##	V283	V284	V285	V286	V287	V288
## 1	-0.9996891	-0.9948915	-0.9959260	-0.9897089	-0.9879912	-0.9463569
## 2	-0.9994499	-0.9985691	-0.9948649	-0.9807836	-0.9857747	-1.0000000
## 3	-0.9991374	-0.9994336	-0.9885692	-0.9772424	-0.9813019	-1.0000000
## 4	-0.9996969	-0.9998029	-0.9904425	-0.9919019	-0.9880605	-1.0000000
## 5	-0.9996251	-0.9997979	-0.9937604	-0.9881797	-0.9863589	-1.0000000
## 6	-0.9998596	-0.9999139	-0.9948238	-0.9869223	-0.9878261	-1.0000000
##	V289	V290	V291	V292	V293	V294
## 1	-0.9047478	-0.5913025	-1.00000000	-1	-1	0.25248290
## 2	-0.9047478	-0.7584085	0.09677419	-1	-1	0.27130855
## 3	-0.8157863	-0.8135133	-0.93548387	-1	-1	0.12453124

## 4	-0.8703979	-0.9441902	-1.00000000	-1	-1	0.02904438	0.08030227
## 5	-0.8703979	-0.9441902	0.09677419	-1	-1	0.18108977	0.05798789
## 6	-0.9448704	-1.0000000	-0.61290323	-1	-1	0.15738377	0.31883523
##	V296	V297	V298	V299	V300	V301	
## 1	-0.05205025	0.1420506	-0.1506825	-0.2205469	-0.55873853	0.24676868	
## 2	-0.01430976	-0.6925409	-0.9540470	-0.0497091	-0.33197386	0.05667537	
## 3	0.08267692	-0.7272273	-0.9654192	0.1630629	-0.09215279	-0.04493677	
## 4	0.18569468	-0.5991180	-0.9084493	-0.4609145	-0.81305675	-0.56683479	
## 5	0.55978632	-0.6769965	-0.9513707	-0.1803828	-0.53372625	-0.58551700	
## 6	0.60559943	-0.6310530	-0.9349031	-0.6607821	-0.89938137	-0.88068961	
##	V302	V303	V304	V305	V306	V307	
## 1	-0.007415521	-0.9999628	-0.9999865	-0.9999791	-0.9999624	-0.9999322	
## 2	-0.289001440	-0.9999962	-0.9999818	-0.9999440	-0.9999699	-0.9999189	
## 3	-0.288365900	-0.9999894	-0.9999616	-0.9998154	-0.9998473	-0.9999391	
## 4	-0.771246060	-0.9999886	-0.9999767	-0.9998343	-0.9998709	-0.9999924	
## 5	-0.790432550	-0.9999940	-0.9999860	-0.9999359	-0.9999455	-0.9999694	
## 6	-0.963631110	-0.9999903	-0.9999831	-0.9999213	-0.9999267	-0.9999410	
##	V308	V309	V310	V311	V312	V313	
## 1	-0.9997251	-0.9996704	-0.9999858	-0.9999687	-0.9999769	-0.9998697	
## 2	-0.9998657	-0.9999651	-0.9999995	-0.9999939	-0.9999490	-0.9999140	
## 3	-0.9999217	-0.9999232	-0.9999966	-0.9999826	-0.9998020	-0.9999476	
## 4	-0.9999492	-0.9999645	-0.9999958	-0.9999864	-0.9998253	-0.9999912	
## 5	-0.9999349	-0.9999697	-0.9999862	-0.9999934	-0.9999348	-0.9999715	
## 6	-0.9999081	-0.9999635	-0.9999974	-0.9999897	-0.9999166	-0.9999438	
##	V314	V315	V316	V317	V318	V319	
## 1	-0.9997761	-0.9999712	-0.9999193	-0.9996568	-0.9998605	-0.9998670	
## 2	-0.9999766	-0.9999921	-0.9999459	-0.9994166	-0.9998133	-0.9995686	
## 3	-0.9999478	-0.9999725	-0.9998746	-0.9990060	-0.9997153	-0.9996577	
## 4	-0.9999750	-0.9999773	-0.9999124	-0.9997191	-0.9997498	-0.9999442	
## 5	-0.9999753	-0.9999911	-0.9999561	-0.9995640	-0.9998597	-0.9998627	
## 6	-0.9999749	-0.9999865	-0.9999294	-0.9998785	-0.9999271	-0.9998145	
##	V320	V321	V322	V323	V324	V325	
## 1	-0.9998630	-0.9997378	-0.9997322	-0.9994926	-0.9998136	-0.9996818	
## 2	-0.9998737	-0.9995489	-0.9997371	-0.9995658	-0.9999053	-0.9994735	
## 3	-0.9998174	-0.9996359	-0.9996789	-0.9996157	-0.9998796	-0.9991085	
## 4	-0.9999397	-0.9995535	-0.9998987	-0.9995122	-0.9998656	-0.9996727	
## 5	-0.9998976	-0.9996505	-0.9997118	-0.9995164	-0.9999108	-0.9996103	
## 6	-0.9997641	-0.9998370	-0.9997239	-0.9996215	-0.9999073	-0.9998860	
##	V326	V327	V328	V329	V330	V331	
## 1	-0.9998394	-0.9997382	-0.9996120	-0.9996872	-0.9998386	-0.9935923	
## 2	-0.9995542	-0.9996020	-0.9996953	-0.9994442	-0.9998042	-0.9982346	
## 3	-0.9996240	-0.9996433	-0.9997150	-0.9991263	-0.9997753	-0.9993882	
## 4	-0.9999362	-0.9996673	-0.9996458	-0.9996925	-0.9998733	-0.9998071	
## 5	-0.9998453	-0.9996666	-0.9996675	-0.9996211	-0.9998419	-0.9998057	
## 6	-0.9997602	-0.9998075	-0.9997302	-0.9998646	-0.9997870	-0.9999423	
##	V332	V333	V334	V335	V336	V337	
## 1	-0.9994758	-0.9996620	-0.9996423	-0.9992934	-0.9978922	-0.9959325	
## 2	-0.9997692	-0.9996922	-0.9998749	-0.9996656	-0.9994483	-0.9989302	
## 3	-0.9997249	-0.9997185	-0.9997982	-0.9997528	-0.9996292	-0.9996862	
## 4	-0.9997748	-0.9998102	-0.9999293	-0.9998582	-0.9996655	-0.9996813	
## 5	-0.9998344	-0.9998251	-0.9997864	-0.9997453	-0.9996557	-0.9990258	
## 6	-0.9998171	-0.9998803	-0.9998224	-0.9997649	-0.9994852	-0.9996778	
##	V338	V339	V340	V341	V342	V343	
## 1	-0.9951464	-0.9947399	-0.9996883	-0.9989246	-0.9956713	-0.9948773	

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## 2 -0.9987544 -0.9985456 -0.9997918 -0.9996312 -0.9988775 -0.9985534
## 3 -0.9999119 -0.9994535 -0.9997807 -0.9997489 -0.9997604 -0.9994343
## 4 -0.9999836 -0.9998044 -0.9998867 -0.9998438 -0.9997784 -0.9997918
## 5 -0.9994359 -0.9998225 -0.9998445 -0.9997497 -0.9991496 -0.9998123
## 6 -0.9999048 -0.9999262 -0.9998927 -0.9997213 -0.9997523 -0.9999238
##      V344      V345      V346      V347      V348      V349
## 1 -0.9994544 -0.9923325 -0.9871699 -0.9896961 -0.9958207 -0.9909363
## 2 -0.9998221 -0.9950322 -0.9813115 -0.9897398 -0.9966523 -0.9820839
## 3 -0.9998009 -0.9909937 -0.9816423 -0.9875663 -0.9912488 -0.9814148
## 4 -0.9999217 -0.9944466 -0.9887272 -0.9913542 -0.9913783 -0.9869269
## 5 -0.9997927 -0.9962920 -0.9887900 -0.9906244 -0.9969025 -0.9886067
## 6 -0.9998103 -0.9948507 -0.9882443 -0.9901575 -0.9952180 -0.9901788
##      V350      V351      V352      V353      V354      V355
## 1 -0.9970517 -0.9938055 -0.9905187 -0.9969928 -0.9967369 -0.9919752
## 2 -0.9926268 -0.9949767 -0.9829295 -0.9916414 -0.9974245 -0.9849232
## 3 -0.9904159 -0.9877510 -0.9810912 -0.9877232 -0.9951632 -0.9853508
## 4 -0.9943908 -0.9894309 -0.9871450 -0.9937904 -0.9934019 -0.9878742
## 5 -0.9929065 -0.9960914 -0.9888672 -0.9916730 -0.9970095 -0.9903728
## 6 -0.9930667 -0.9931267 -0.9898364 -0.9918185 -0.9969799 -0.9928015
##      V356      V357      V358      V359      V360      V361
## 1 -0.9932417 -0.9983491 -0.9911084 -0.9598854 -0.9905150 -0.9999347
## 2 -0.9931870 -0.9979168 -0.9825186 -0.9868384 -0.9898509 -0.9999596
## 3 -0.9939116 -0.9974823 -0.9985712 -0.9975540 -0.9872372 -0.9998940
## 4 -0.9942012 -0.9979030 -0.9997671 -0.9653808 -0.9926573 -0.9999235
## 5 -0.9951421 -0.9957965 -0.9961128 -0.9959788 -0.9932588 -0.9999691
## 6 -0.9942166 -0.9960982 -0.9990643 -0.9848585 -0.9922249 -0.9999511
##      V362      V363      V364      V365      V366 V367 V368 V369
## 1 -0.9998205 -0.9998845 -0.9930263 -0.9913734 -0.9962396 -1 -1 -1
## 2 -0.9996396 -0.9998466 -0.9928434 -0.9852207 -0.9910493 -1 -1 -1
## 3 -0.9996366 -0.9997951 -0.9818169 -0.9847648 -0.9823642 -1 -1 -1
## 4 -0.9998031 -0.9998830 -0.9917761 -0.9906849 -0.9932884 -1 -1 -1
## 5 -0.9998205 -0.9998604 -0.9961415 -0.9924077 -0.9861788 -1 -1 -1
## 6 -0.9998280 -0.9998562 -0.9913534 -0.9910572 -0.9877527 -1 -1 -1
##      V370 V371 V372      V373      V374      V375      V376
## 1 1.00 -0.24 -1.00 0.87038451 0.21069700 0.26370789 -0.7036858
## 2 -0.32 -0.12 -0.32 0.60851352 -0.05367561 0.06314827 -0.6303049
## 3 -0.16 -0.48 -0.28 0.11543400 -0.19343634 0.03825433 -0.5947588
## 4 -0.12 -0.56 -0.28 0.03579805 -0.09303585 0.16809523 -0.2638514
## 5 -0.32 -0.08 0.04 0.27335020 0.07913538 0.29238418 -0.5221571
## 6 -0.32 -0.36 0.52 0.32883589 0.05477140 0.32094497 -0.5946287
##      V377      V378      V379      V380      V381      V382
## 1 -0.9037425 -0.5825736 -0.9363101 -0.5073447 -0.8055359 -0.9999865
## 2 -0.9103945 -0.4144235 -0.8505864 -0.6555347 -0.9159869 -0.9999963
## 3 -0.9235410 -0.5289342 -0.9129851 -0.8034065 -0.9801332 -0.9999936
## 4 -0.7572285 -0.3960393 -0.8296347 -0.5770384 -0.8933748 -0.9999978
## 5 -0.8129873 -0.4965600 -0.9039084 -0.7643694 -0.9662039 -0.9999953
## 6 -0.9053384 -0.6649723 -0.9564599 -0.7225990 -0.9432911 -0.9999878
##      V383      V384      V385      V386      V387      V388
## 1 -0.9999796 -0.9999748 -0.9999551 -0.9999186 -0.9996401 -0.9994833
## 2 -0.9999797 -0.9999489 -0.9999683 -0.9999101 -0.9998137 -0.9999203
## 3 -0.9999443 -0.9998274 -0.9998414 -0.9999222 -0.9999058 -0.9998736
## 4 -0.9999651 -0.9998432 -0.9998654 -0.9999959 -0.9999304 -0.9999417
## 5 -0.9999829 -0.9999466 -0.9999388 -0.9999616 -0.9999289 -0.9999581
## 6 -0.9999855 -0.9999309 -0.9999155 -0.9999256 -0.9998590 -0.9999402

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##	V389	V390	V391	V392	V393	V394
## 1	-0.9999609	-0.9999823	-0.9999707	-0.9998110	-0.9994847	-0.9999808
## 2	-0.9999607	-0.9999867	-0.9999560	-0.9998767	-0.9999141	-0.9999744
## 3	-0.9999965	-0.9999628	-0.9998038	-0.9999227	-0.9998752	-0.9999085
## 4	-0.9999992	-0.9999781	-0.9998269	-0.9999824	-0.9999426	-0.9999268
## 5	-0.9999949	-0.9999883	-0.9999412	-0.9999587	-0.9999579	-0.9999748
## 6	-0.9999969	-0.9999866	-0.9999185	-0.9999058	-0.9999407	-0.9999674
##	V395	V396	V397	V398	V399	V400
## 1	-0.9998519	-0.9999326	-0.9998999	-0.9998244	-0.9998598	-0.9997275
## 2	-0.9999058	-0.9998610	-0.9998272	-0.9994565	-0.9998303	-0.9996093
## 3	-0.9998430	-0.9998203	-0.9997439	-0.9995591	-0.9998386	-0.9996673
## 4	-0.9999009	-0.9998950	-0.9997965	-0.9998881	-0.9999061	-0.9996812
## 5	-0.9999391	-0.9999254	-0.9998775	-0.9998104	-0.9999321	-0.9997284
## 6	-0.9998864	-0.9999001	-0.9999422	-0.9997838	-0.9998103	-0.9998735
##	V401	V402	V403	V404	V405	V406
## 1	-0.9997288	-0.9995671	-0.9997652	-0.9999002	-0.9998149	-0.9997098
## 2	-0.9996855	-0.9995761	-0.9999370	-0.9998174	-0.9995325	-0.9995952
## 3	-0.9996275	-0.9997037	-0.9999934	-0.9997323	-0.9996112	-0.9996175
## 4	-0.9998463	-0.9996932	-0.9999999	-0.9997976	-0.9998832	-0.9997223
## 5	-0.9997694	-0.9995027	-0.9999921	-0.9998782	-0.9998387	-0.9997279
## 6	-0.9996886	-0.9995826	-0.9999992	-0.9999309	-0.9997619	-0.9998114
##	V407	V408	V409	V410	V411	V412
## 1	-0.9995961	-0.9998522	-0.9998221	-0.9993999	-0.9997656	-0.9999585
## 2	-0.9996257	-0.9996299	-0.9997593	-0.9998589	-0.9998465	-0.9997949
## 3	-0.9997442	-0.9996132	-0.9997732	-0.9998709	-0.9997839	-0.9997397
## 4	-0.9997359	-0.9998056	-0.9998560	-0.9998848	-0.9997237	-0.9998414
## 5	-0.9995684	-0.9998299	-0.9998744	-0.9998451	-0.9998530	-0.9998899
## 6	-0.9996392	-0.9998566	-0.9998302	-0.9998633	-0.9997931	-0.9999047
##	V413	V414	V415	V416	V417	V418
## 1	-0.9999495	-0.9998385	-0.9998135	-0.9987805	-0.9985778	-0.9996197
## 2	-0.9998009	-0.9998193	-0.9997692	-0.9996370	-0.9999545	-0.9998519
## 3	-0.9997866	-0.9997722	-0.9996260	-0.9994874	-0.9999957	-0.9998025
## 4	-0.9999425	-0.9998694	-0.9997353	-0.9992040	-0.9996620	-0.9997560
## 5	-0.9998177	-0.9997595	-0.9996878	-0.9991695	-0.9999823	-0.9998525
## 6	-0.9998218	-0.9997550	-0.9996238	-0.9993829	-0.9999102	-0.9998077
##	V419	V420	V421	V422	V423	V424
## 1	-0.9999836	-0.9998281	-0.9986807	-0.9998442	-0.9999279	-0.9865744
## 2	-0.9998273	-0.9998001	-0.9996510	-0.9998350	-0.9998267	-0.9773867
## 3	-0.9997921	-0.9997208	-0.9995138	-0.9997753	-0.9997868	-0.9754332
## 4	-0.9999203	-0.9998281	-0.9992066	-0.9998244	-0.9999237	-0.9871096
## 5	-0.9998841	-0.9997297	-0.9992106	-0.9999004	-0.9998092	-0.9824465
## 6	-0.9998937	-0.9997069	-0.9994048	-0.9998907	-0.9998027	-0.9848902
##	V425	V426	V427	V428	V429	V430
## 1	-0.9817615	-0.9895148	-0.9850326	-0.9738861	-0.9940349	-0.9865308
## 2	-0.9925300	-0.9896058	-0.9849043	-0.9871681	-0.9897847	-0.9793612
## 3	-0.9937147	-0.9867557	-0.9766422	-0.9933990	-0.9873282	-0.9756091
## 4	-0.9936015	-0.9871913	-0.9928104	-0.9916460	-0.9886776	-0.9896713
## 5	-0.9929838	-0.9886664	-0.9859818	-0.9919558	-0.9879443	-0.9825810
## 6	-0.9927862	-0.9807784	-0.9852871	-0.9916595	-0.9853661	-0.9834343
##	V431	V432	V433	V434	V435	V436
## 1	-0.9836164	-0.9923520	-0.9804984	-0.9722709	-0.9949443	-0.9975686
## 2	-0.9918368	-0.9879651	-0.9873538	-0.9847864	-0.9901508	-0.9868918
## 3	-0.9937071	-0.9850303	-0.9729012	-0.9949860	-0.9912830	-0.9883117
## 4	-0.9934607	-0.9865264	-0.9945184	-0.9918014	-0.9922807	-0.9897006

## 5	-0.9933426	-0.9864612	-0.9879502	-0.9932283	-0.9914436	-0.9937381
## 6	-0.9929105	-0.9840883	-0.9829656	-0.9931990	-0.9876443	-0.9993609
##	V437	V438	V439	V440	V441	V442
## 1	-0.9840851	-0.9943354	-0.9852762	-0.9998637	-0.9996661	-0.9999346
## 2	-0.9990535	-0.9944137	-0.9868687	-0.9998249	-0.9999115	-0.9998921
## 3	-0.9972327	-0.9936360	-0.9860087	-0.9996733	-0.9999624	-0.9998463
## 4	-0.9943438	-0.9931436	-0.9903443	-0.9999462	-0.9999514	-0.9998668
## 5	-0.9937253	-0.9948352	-0.9887062	-0.9998616	-0.9999510	-0.9998642
## 6	-0.9978452	-0.9816007	-0.9876105	-0.9998615	-0.9999484	-0.9997811
##	V443	V444	V445	V446	V447	V448
## 1	-0.9903439	-0.9948357	-0.9944116	-0.7124023	-0.6448424	-0.8389930
## 2	-0.9870994	-0.9955637	-0.9872545	-0.6111119	-0.7646030	-0.7510797
## 3	-0.9855365	-0.9953921	-0.9925506	-0.5909865	-0.8082872	-0.7510797
## 4	-0.9928778	-0.9962888	-0.9902236	-0.7236655	-0.8037541	-0.8172859
## 5	-0.9904644	-0.9961228	-0.9974263	-0.6526168	-0.8272124	-0.7374578
## 6	-0.9883218	-0.9940861	-0.9904452	-0.6781863	-0.8082872	-0.7510797
##	V449	V450	V451	V452	V453	V454
## 1	-1.0000000	-1.0000000	-1.0000000	-0.25754888	0.09794711	0.54715105
## 2	-1.0000000	-1.0000000	-1.0000000	-0.04816744	-0.40160791	-0.06817833
## 3	-1.0000000	-0.8709677	-1.0000000	-0.21668507	-0.01726417	-0.11072029
## 4	-1.0000000	-1.0000000	-0.7931035	0.21686246	-0.13524536	-0.04972798
## 5	-1.0000000	-0.8064516	-1.0000000	-0.15334258	-0.08840273	-0.16223039
## 6	-0.9333333	-0.9354839	-0.9310345	-0.36303968	-0.13323831	0.19483324
##	V455	V456	V457	V458	V459	V460
## 1	0.377311210	0.1340915	0.2733720	-0.09126183	-0.4843465	-0.7828507
## 2	-0.458553310	-0.7970135	0.3875689	0.14866483	-0.1569093	-0.4517759
## 3	0.090519474	-0.2446911	-0.4292724	-0.81263905	-0.3919913	-0.7674824
## 4	-0.572087600	-0.8736179	-0.1351185	-0.54223840	-0.3793527	-0.7565483
## 5	-0.339596820	-0.7226279	-0.2654707	-0.68998825	-0.2679956	-0.6592078
## 6	-0.004027766	-0.3231587	-0.2900701	-0.70538442	-0.2350403	-0.6081425
##	V461	V462	V463	V464	V465	V466
## 1	-0.9998650	-0.9999318	-0.9999729	-0.9999702	-0.9999301	-0.9999586
## 2	-0.9998509	-0.9997943	-0.9999131	-0.9999182	-0.9998964	-0.9998853
## 3	-0.9996805	-0.9998282	-0.9999151	-0.9999324	-0.9998478	-0.9998415
## 4	-0.9999637	-0.9998907	-0.9999465	-0.9999733	-0.9998773	-0.9999031
## 5	-0.9998700	-0.9999117	-0.9999258	-0.9999409	-0.9999356	-0.9998874
## 6	-0.9998650	-0.9999123	-0.9999742	-0.9999722	-0.9999759	-0.9999721
##	V467	V468	V469	V470	V471	V472
## 1	-0.9999290	-0.9999847	-0.9998633	-0.9999681	-0.9999361	-0.9999536
## 2	-0.9997842	-0.9997824	-0.9998299	-0.9998988	-0.9998828	-0.9997834
## 3	-0.9998635	-0.9998622	-0.9996744	-0.9999063	-0.9998314	-0.9998629
## 4	-0.9998334	-0.9998929	-0.9999502	-0.9999481	-0.9998769	-0.9998597
## 5	-0.9998999	-0.9999175	-0.9998651	-0.9999183	-0.9999109	-0.9999077
## 6	-0.9999598	-0.9999847	-0.9998604	-0.9999700	-0.9999733	-0.9999708
##	V473	V474	V475	V476	V477	V478
## 1	-0.9998644	-0.9999610	-0.9994537	-0.9999781	-0.9999915	-0.9999901
## 2	-0.9998283	-0.9999080	-0.9998564	-0.9999885	-0.9999957	-0.9999942
## 3	-0.9996757	-0.9999035	-0.9999544	-0.9999876	-0.9999901	-0.9999943
## 4	-0.9999484	-0.9999461	-0.9999305	-0.9999892	-0.9999924	-0.9999925
## 5	-0.9998636	-0.9999326	-0.9999259	-0.9999927	-0.9999964	-0.9999884
## 6	-0.9998617	-0.9999732	-0.9999263	-0.9999897	-0.9999942	-0.9999842
##	V479	V480	V481	V482	V483	V484
## 1	-0.9999686	-0.9998066	-0.9983460	-0.9989612	-0.9996187	-0.9999893
## 2	-0.9999861	-0.9999845	-0.9999800	-0.9999900	-0.9998966	-0.9999945

## 3	-0.9999730	-0.9999428	-0.9999866	-0.9999933	-0.9999620	-0.9999893
## 4	-0.9999859	-0.9999541	-0.9999898	-0.9999883	-0.9999470	-0.9999908
## 5	-0.9999666	-0.9999737	-0.9999740	-0.9999720	-0.9999462	-0.9999934
## 6	-0.9999678	-0.9999921	-0.9999660	-0.9999886	-0.9999445	-0.9999900
##	V485	V486	V487	V488	V489	V490
## 1	-0.9999354	-0.9983875	-0.9996426	-0.9999727	-0.9999554	-0.9999763
## 2	-0.9999860	-0.9999817	-0.9999026	-0.9999917	-0.9999089	-0.9999594
## 3	-0.9999670	-0.9999877	-0.9999606	-0.9999858	-0.9998701	-0.9999346
## 4	-0.9999796	-0.9999878	-0.9999478	-0.9999884	-0.9998773	-0.9999685
## 5	-0.9999681	-0.9999696	-0.9999490	-0.9999816	-0.9998711	-0.9999554
## 6	-0.9999729	-0.9999712	-0.9999463	-0.9999799	-0.9998227	-0.9998868
##	V491	V492	V493	V494	V495	V496
## 1	-0.9999058	-0.9999855	-0.9999372	-0.9997512	-0.9990723	-0.9999275
## 2	-0.9999281	-0.9999663	-0.9999855	-0.9999264	-0.9999615	-0.9999831
## 3	-0.9999347	-0.9999570	-0.9999522	-0.9999093	-0.9998890	-0.9999885
## 4	-0.9999566	-0.9999556	-0.9999493	-0.9998805	-0.9998793	-0.9999495
## 5	-0.9999962	-0.9999864	-0.9999397	-0.9999068	-0.9999211	-0.9999812
## 6	-0.9999526	-0.9999220	-0.9998569	-0.9998545	-0.9995571	-0.9996430
##	V497	V498	V499	V500	V501	V502
## 1	-0.9999516	-0.9999058	-0.9998927	-0.9994443	-0.9999410	-0.9999586
## 2	-0.9999017	-0.9999178	-0.9999754	-0.9999711	-0.9998943	-0.9999710
## 3	-0.9998565	-0.9999196	-0.9999464	-0.9999325	-0.9998502	-0.9999556
## 4	-0.9998747	-0.9999398	-0.9999364	-0.9999101	-0.9998713	-0.9999516
## 5	-0.9998645	-0.9999925	-0.9999366	-0.9999474	-0.9998664	-0.9999728
## 6	-0.9997954	-0.9999197	-0.9998617	-0.9995947	-0.9997918	-0.9999052
##	V503	V504	V505	V506	V507	V508
## 1	-0.9521547	-0.9561340	-0.9488701	-0.9743206	-0.9257218	-0.9521547
## 2	-0.9808566	-0.9758658	-0.9757769	-0.9782264	-0.9869108	-0.9808566
## 3	-0.9877948	-0.9890155	-0.9855936	-0.9930619	-0.9898364	-0.9877948
## 4	-0.9875187	-0.9867420	-0.9835237	-0.9902299	-0.9981850	-0.9875187
## 5	-0.9935909	-0.9900635	-0.9923241	-0.9905059	-0.9878052	-0.9935909
## 6	-0.9948360	-0.9952833	-0.9938512	-0.9953650	-0.9894722	-0.9948360
##	V509	V510	V511	V512	V513	V514
## 1	-0.9982852	-0.9732732	-0.6463764	-0.7931035	-0.08843612	-0.4364710
## 2	-0.9994719	-0.9844792	-0.8166736	-1.0000000	-0.04414989	-0.1220404
## 3	-0.9998067	-0.9892371	-0.9070143	-0.8620690	0.25789914	-0.6187251
## 4	-0.9997702	-0.9832153	-0.9070143	-1.0000000	0.07358150	-0.4684223
## 5	-0.9998731	-0.9973433	-0.9070143	-1.0000000	0.39431033	-0.1126629
## 6	-0.9999390	-0.9921667	-1.0000000	-1.0000000	0.43796212	-0.5946439
##	V515	V516	V517	V518	V519	V520
## 1	-0.7968405	-0.9937257	-0.9937550	-0.9919757	-0.9933647	-0.9881754
## 2	-0.4495219	-0.9903355	-0.9919603	-0.9897320	-0.9944888	-0.9895488
## 3	-0.8796846	-0.9892801	-0.9908667	-0.9872743	-0.9931788	-0.9998898
## 4	-0.7564936	-0.9927689	-0.9916998	-0.9890549	-0.9944546	-0.9955624
## 5	-0.4818052	-0.9955228	-0.9943890	-0.9933055	-0.9954847	-0.9821772
## 6	-0.8091864	-0.9947329	-0.9951562	-0.9942986	-0.9944851	-0.9830483
##	V521	V522	V523	V524	V525	V526
## 1	-0.9937257	-0.9999184	-0.9913637	-1	-0.9365079	0.3469885
## 2	-0.9903355	-0.9998669	-0.9911339	-1	-0.8412698	0.5320605
## 3	-0.9892801	-0.9998455	-0.9866576	-1	-0.9047619	0.6607950
## 4	-0.9927689	-0.9998948	-0.9880552	-1	1.0000000	0.6789213
## 5	-0.9955228	-0.9999409	-0.9941695	-1	-1.0000000	0.5590577
## 6	-0.9947329	-0.9999370	-0.9966966	-1	-1.0000000	0.2469096
##	V528	V529	V530	V531	V532	V533

```
## 1 -0.8027600 -0.9801349 -0.9613094 -0.9736534 -0.9522638 -0.9894981
## 2 -0.9001600 -0.9882956 -0.9833219 -0.9826593 -0.9863208 -0.9918288
## 3 -0.9285394 -0.9892548 -0.9860277 -0.9842736 -0.9909794 -0.9957030
## 4 -0.9096391 -0.9894128 -0.9878358 -0.9868499 -0.9867488 -0.9961994
## 5 -0.8589325 -0.9914330 -0.9890594 -0.9877436 -0.9914617 -0.9983532
## 6 -0.8025254 -0.9905000 -0.9858609 -0.9855120 -0.9882041 -0.9947578
##      V534      V535      V536      V537      V538      V539
## 1 -0.9801349 -0.9992403 -0.9926555 -0.7012914 -1.0000000 -0.1289889
## 2 -0.9882956 -0.9998112 -0.9939785 -0.7206830 -0.9487180 -0.2719585
## 3 -0.9892548 -0.9998539 -0.9932383 -0.7365215 -0.7948718 -0.2127279
## 4 -0.9894128 -0.9998756 -0.9891355 -0.7208908 -1.0000000 -0.0356842
## 5 -0.9914330 -0.9999018 -0.9893211 -0.7633722 -0.8974359 -0.2735820
## 6 -0.9905000 -0.9998606 -0.9919667 -0.7685767 -1.0000000 -0.2973291
##      V540      V541      V542      V543      V544      V545
## 1  0.5861564  0.3746046 -0.9919904 -0.9906975 -0.9899408 -0.9924478
## 2 -0.3363104 -0.7200151 -0.9958539 -0.9963995 -0.9954421 -0.9968660
## 3 -0.5353521 -0.8719141 -0.9950305 -0.9951274 -0.9946396 -0.9960596
## 4 -0.2300909 -0.5112170 -0.9952207 -0.9952369 -0.9957222 -0.9952731
## 5 -0.5102819 -0.8307018 -0.9950928 -0.9954648 -0.9952787 -0.9956093
## 6 -0.3460445 -0.7272705 -0.9951433 -0.9952387 -0.9943979 -0.9960880
##      V546      V547      V548      V549      V550      V551
## 1 -0.9910477 -0.9919904 -0.9999368 -0.9904579 -0.8713058 -1.0000000
## 2 -0.9944397 -0.9958539 -0.9999807 -0.9945437 -1.0000000 -1.0000000
## 3 -0.9958663 -0.9950305 -0.9999731 -0.9937553 -1.0000000 -0.5555556
## 4 -0.9957318 -0.9952207 -0.9999744 -0.9952260 -0.9556959 -0.9365079
## 5 -0.9974180 -0.9950928 -0.9999745 -0.9954868 -1.0000000 -0.9365079
## 6 -0.9985194 -0.9951433 -0.9999740 -0.9945305 -1.0000000 -1.0000000
##      V552      V553      V554      V555      V556      V557
## 1 -0.07432303 -0.2986764 -0.7103041 -0.11275434  0.030400372 -0.4647614
## 2  0.15807454 -0.5950509 -0.8614993  0.05347695 -0.007434566 -0.7326262
## 3  0.41450281 -0.3907482 -0.7601037 -0.11855926  0.177899480  0.1006992
## 4  0.40457253 -0.1172902 -0.4828445 -0.03678797 -0.012892494  0.6400110
## 5  0.08775301 -0.3514709 -0.6992052  0.12332005  0.122541960  0.6935783
## 6  0.01995331 -0.5454101 -0.8446193  0.08263215 -0.143439010  0.2750408
##      V558      V559      V560      V561
## 1 -0.01844588 -0.8412468  0.1799406 -0.05862692
## 2  0.70351059 -0.8447876  0.1802889 -0.05431672
## 3  0.80852908 -0.8489335  0.1806373 -0.04911782
## 4 -0.48536645 -0.8486494  0.1819348 -0.04766318
## 5 -0.61597061 -0.8478653  0.1851512 -0.04389225
## 6 -0.36822404 -0.8496316  0.1848225 -0.04212638
```

```
head(activity)
```

```
##      V1
## 1      5
## 2      5
## 3      5
## 4      5
## 5      5
## 6      5
```

```
## factoring activity labels
labels <- read.table("data/activity_labels.txt", header = FALSE)
activity$V1 <- factor(activity$V1, levels = as.integer(labels$V1), labels = labels$V2)
```

```

## naming variables: subject & activity
names(subject) <- c("subject")
names(activity) <- c("activity")

## naming variables: features
features_variables <- read.table("data/features.txt", head=FALSE)
head(features_variables)

##      V1              V2
## 1  1 tBodyAcc-mean()-X
## 2  2 tBodyAcc-mean()-Y
## 3  3 tBodyAcc-mean()-Z
## 4  4 tBodyAcc-std()-X
## 5  5 tBodyAcc-std()-Y
## 6  6 tBodyAcc-std()-Z

names(features)<- features_variables$V2

## subsetting features data with mean and standard deviation
meanstdev <- c(as.character(features_variables$V2[grep("mean\\(\\)|std\\(\\)", features_variables$V2)]))
features_subdata <- subset(features, select = meanstdev)

## combining subject, activity, and features data to a final data frame
subjectactivity <- cbind(subject, activity)
finaldata <- cbind(features_subdata, subjectactivity)

## explicitly naming time and frequency variables
names(finaldata) <- gsub("^t", "time", names(finaldata))
names(finaldata) <- gsub("^f", "frequency", names(finaldata))

## extracting means and standard deviation
suppressWarnings(
  cleandata <- aggregate(finaldata, by = list(finaldata$subject, finaldata$activity), FUN = mean)
)
colnames(cleandata)[1] <- "Subject"
names(cleandata)[2] <- "Activity"

head(cleandata)

##      Subject Activity timeBodyAcc-mean()-X timeBodyAcc-mean()-Y
## 1         1  WALKING          0.2773308          -0.01738382
## 2         2  WALKING          0.2764266          -0.01859492
## 3         3  WALKING          0.2755675          -0.01717678
## 4         4  WALKING          0.2785820          -0.01483995
## 5         5  WALKING          0.2778423          -0.01728503
## 6         6  WALKING          0.2836589          -0.01689542
##      timeBodyAcc-mean()-Z timeBodyAcc-std()-X timeBodyAcc-std()-Y
## 1          -0.1111481          -0.2837403          0.11446134
## 2          -0.1055004          -0.4236428          -0.07809125
## 3          -0.1126749          -0.3603567          -0.06991407
## 4          -0.1114031          -0.4408300          -0.07882674
## 5          -0.1077418          -0.2940985           0.07674840
## 6          -0.1103032          -0.2965387           0.16421388
##      timeBodyAcc-std()-Z timeGravityAcc-mean()-X timeGravityAcc-mean()-Y
## 1          -0.2600279           0.9352232          -0.28216502
## 2          -0.4252575           0.9130173          -0.34660709

```

```

## 3      -0.3874120      0.9365067      -0.26198636
## 4      -0.5862528      0.9639997      -0.08585403
## 5      -0.4570214      0.9726250      -0.10044029
## 6      -0.5043242      0.9580675      -0.21469485
##      timeGravityAcc-mean()-Z timeGravityAcc-std()-X timeGravityAcc-std()-Y
## 1      -0.068102864      -0.9766096      -0.9713060
## 2      0.084727087      -0.9726932      -0.9721169
## 3      -0.138107866      -0.9777716      -0.9623556
## 4      0.127764113      -0.9838265      -0.9679632
## 5      0.002476236      -0.9793484      -0.9615855
## 6      0.033188883      -0.9777799      -0.9642486
##      timeGravityAcc-std()-Z timeBodyAccJerk-mean()-X timeBodyAccJerk-mean()-Y
## 1      -0.9477172      0.07404163      0.028272110
## 2      -0.9720728      0.06180807      0.018249268
## 3      -0.9520918      0.08147459      0.010059149
## 4      -0.9629681      0.07835291      0.002956024
## 5      -0.9645808      0.08458888      -0.016319410
## 6      -0.9572050      0.06995859      -0.016483172
##      timeBodyAccJerk-mean()-Z timeBodyAccJerk-std()-X timeBodyAccJerk-std()-Y
## 1      -4.168406e-03      -0.1136156      0.067002501
## 2      7.895337e-03      -0.2775305      -0.016602236
## 3      -5.622646e-03      -0.2686796      -0.044961959
## 4      -7.676793e-04      -0.2970426      -0.221165132
## 5      8.321594e-05      -0.3028910      -0.091039743
## 6      -7.389312e-03      -0.1327848      0.008088974
##      timeBodyAccJerk-std()-Z timeBodyGyro-mean()-X timeBodyGyro-mean()-Y
## 1      -0.5026998      -0.04183096      -0.06953005
## 2      -0.5860904      -0.05302582      -0.04823823
## 3      -0.5294861      -0.02564052      -0.07791509
## 4      -0.7513914      -0.03179826      -0.07269053
## 5      -0.6128953      -0.04889199      -0.06901352
## 6      -0.5757775      -0.02550962      -0.07444625
##      timeBodyGyro-mean()-Z timeBodyGyro-std()-X timeBodyGyro-std()-Y
## 1      0.08494482      -0.4735355      -0.05460777
## 2      0.08283366      -0.5615503      -0.53845367
## 3      0.08134859      -0.5718696      -0.56379326
## 4      0.08056772      -0.5009167      -0.66539409
## 5      0.08154355      -0.4908775      -0.50462203
## 6      0.08388088      -0.4460210      -0.33170227
##      timeBodyGyro-std()-Z timeBodyGyroJerk-mean()-X timeBodyGyroJerk-mean()-Y
## 1      -0.3442666      -0.08999754      -0.03984287
## 2      -0.4810855      -0.08188334      -0.05382994
## 3      -0.4766964      -0.09523982      -0.03878747
## 4      -0.6626082      -0.11532156      -0.03934745
## 5      -0.3187006      -0.08884084      -0.04495595
## 6      -0.3831393      -0.08788911      -0.03623090
##      timeBodyGyroJerk-mean()-Z timeBodyGyroJerk-std()-X
## 1      -0.04613093      -0.2074219
## 2      -0.05149392      -0.3895498
## 3      -0.05036161      -0.3859230
## 4      -0.05511669      -0.4923411
## 5      -0.04826796      -0.3576814
## 6      -0.05395973      -0.1826009
##      timeBodyGyroJerk-std()-Y timeBodyGyroJerk-std()-Z timeBodyAccMag-mean()

```



```

## 1          -0.3044685          -0.4042555          -0.1369712
## 2          -0.6341404          -0.4354927          -0.2904076
## 3          -0.6390880          -0.5366641          -0.2546903
## 4          -0.8074199          -0.6404541          -0.3120506
## 5          -0.5714381          -0.1576825          -0.1583387
## 6          -0.4163902          -0.1666844          -0.1668407
##  timeBodyAccMag-std() timeGravityAccMag-mean() timeGravityAccMag-std()
## 1          -0.2196886          -0.1369712          -0.2196886
## 2          -0.4225442          -0.2904076          -0.4225442
## 3          -0.3284289          -0.2546903          -0.3284289
## 4          -0.5276791          -0.3120506          -0.5276791
## 5          -0.3771787          -0.1583387          -0.3771787
## 6          -0.2667342          -0.1668407          -0.2667342
##  timeBodyAccJerkMag-mean() timeBodyAccJerkMag-std()
## 1          -0.1414288          -0.07447175
## 2          -0.2814242          -0.16415099
## 3          -0.2800093          -0.13991636
## 4          -0.3667009          -0.31691896
## 5          -0.2883330          -0.28224228
## 6          -0.1951170          -0.07060296
##  timeBodyGyroMag-mean() timeBodyGyroMag-std() timeBodyGyroJerkMag-mean()
## 1          -0.1609796          -0.1869784          -0.2987037
## 2          -0.4465491          -0.5530199          -0.5479120
## 3          -0.4664118          -0.5615107          -0.5661352
## 4          -0.4977922          -0.5531161          -0.6813040
## 5          -0.3559331          -0.4921768          -0.4445325
## 6          -0.2812078          -0.3656029          -0.3212905
##  timeBodyGyroJerkMag-std() frequencyBodyAcc-mean()-X
## 1          -0.3253249          -0.2027943
## 2          -0.5577982          -0.3460482
## 3          -0.5673716          -0.3166140
## 4          -0.7301464          -0.4267194
## 5          -0.4891997          -0.2877826
## 6          -0.3647083          -0.1879343
##  frequencyBodyAcc-mean()-Y frequencyBodyAcc-mean()-Z
## 1          0.089712726          -0.3315601
## 2          -0.021904810          -0.4538064
## 3          -0.081302435          -0.4123741
## 4          -0.149399633          -0.6310055
## 5          0.009460378          -0.4902511
## 6          0.140781622          -0.4985202
##  frequencyBodyAcc-std()-X frequencyBodyAcc-std()-Y
## 1          -0.3191347          0.05604001
## 2          -0.4576514          -0.16921969
## 3          -0.3792768          -0.12403083
## 4          -0.4472349          -0.10179945
## 5          -0.2975174          0.04260268
## 6          -0.3452277          0.10169964
##  frequencyBodyAcc-std()-Z frequencyBodyAccJerk-mean()-X
## 1          -0.2796868          -0.1705470
## 2          -0.4552221          -0.3046153
## 3          -0.4229985          -0.3046944
## 4          -0.5941983          -0.3588834
## 5          -0.4830600          -0.3449548

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## 6          -0.5504746          -0.1509429
## frequencyBodyAccJerk-mean()-Y frequencyBodyAccJerk-mean()-Z
## 1          -0.03522552          -0.4689992
## 2          -0.07876408          -0.5549567
## 3          -0.14050859          -0.5141373
## 4          -0.27955339          -0.7289916
## 5          -0.18105555          -0.5904966
## 6          -0.07537423          -0.5414386
## frequencyBodyAccJerk-std()-X frequencyBodyAccJerk-std()-Y
## 1          -0.1335866          0.106739857
## 2          -0.3143131          -0.015332952
## 3          -0.2965966          -0.005614988
## 4          -0.2973261          -0.209900006
## 5          -0.3213903          -0.054521360
## 6          -0.1926947          0.031445068
## frequencyBodyAccJerk-std()-Z frequencyBodyGyro-mean()-X
## 1          -0.5347134          -0.3390322
## 2          -0.6158982          -0.4297135
## 3          -0.5435291          -0.4378458
## 4          -0.7723591          -0.3733845
## 5          -0.6334300          -0.3726687
## 6          -0.6086244          -0.2396507
## frequencyBodyGyro-mean()-Y frequencyBodyGyro-mean()-Z
## 1          -0.1030594          -0.2559409
## 2          -0.5547721          -0.3966599
## 3          -0.5615263          -0.4181262
## 4          -0.6884601          -0.6013811
## 5          -0.5139517          -0.2131270
## 6          -0.3413784          -0.2035755
## frequencyBodyGyro-std()-X frequencyBodyGyro-std()-Y
## 1          -0.5166919          -0.03350816
## 2          -0.6040530          -0.53304695
## 3          -0.6151214          -0.56888867
## 4          -0.5426468          -0.65465777
## 5          -0.5293928          -0.50268338
## 6          -0.5153239          -0.33200871
## frequencyBodyGyro-std()-Z frequencyBodyAccMag-mean()
## 1          -0.4365622          -0.1286235
## 2          -0.5598566          -0.3242894
## 3          -0.5458964          -0.2900315
## 4          -0.7164585          -0.4508046
## 5          -0.4203671          -0.3049925
## 6          -0.5122092          -0.2013866
## frequencyBodyAccMag-std() frequencyBodyBodyAccJerkMag-mean()
## 1          -0.3980326          -0.05711940
## 2          -0.5771052          -0.16906435
## 3          -0.4563731          -0.18676452
## 4          -0.6511726          -0.31858781
## 5          -0.5196369          -0.26948166
## 6          -0.4216831          -0.05540142
## frequencyBodyBodyAccJerkMag-std() frequencyBodyBodyGyroMag-mean()
## 1          -0.10349240          -0.1992526
## 2          -0.16409197          -0.5307048
## 3          -0.08985199          -0.5697558

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## 4          -0.32045870          -0.6092856
## 5          -0.30568538          -0.4842628
## 6          -0.09649997          -0.3296811
## frequencyBodyBodyGyroMag-std() frequencyBodyBodyGyroJerkMag-mean()
## 1          -0.3210180          -0.3193086
## 2          -0.6517928          -0.5832493
## 3          -0.6326433          -0.6077516
## 4          -0.5939372          -0.7243274
## 5          -0.5897415          -0.5480536
## 6          -0.5106483          -0.3665005
## frequencyBodyBodyGyroJerkMag-std() subject activity
## 1          -0.3816019          1          NA
## 2          -0.5581046          2          NA
## 3          -0.5490870          3          NA
## 4          -0.7577681          4          NA
## 5          -0.4556653          5          NA
## 6          -0.4080789          6          NA
## writing clean data to text file
write.table(cleandata, file = "cleandata.txt", row.name = FALSE)

```