

ĐỒ ÁN MÔN HỌC

PHÂN TÍCH VÀ TRỰC QUAN HOÁ DỮ LIỆU

Ngành: **KHOA HỌC DỮ LIỆU**

Chuyên ngành: **KHOA HỌC DỮ LIỆU**

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LỜI CAM ĐOAN

Chúng tôi, **Bùi Minh Huy, Trần Lê Văn, Nguyễn Thị Thanh Tâm** xin cam đoan rằng: Tất cả thông tin và phân tích trình bày trong báo cáo này được thực hiện một cách chính xác và trung thực. Mọi dữ liệu, nhận định hoặc ý kiến được trích dẫn từ các nguồn khác đều đã được nêu rõ nguồn gốc và trích dẫn đúng quy định. Chúng tôi cam đoan rằng không có bất kỳ hành vi sao chép hoặc sử dụng thông tin không hợp pháp nào từ các nguồn khác. Bài báo cáo này là kết quả của công trình nghiên cứu độc lập của chúng tôi và chưa từng được công bố tại bất kỳ nơi nào khác. Chúng tôi cam đoan đã tuân thủ nghiêm ngặt các quy tắc và quy định của môn học, bao gồm việc tham khảo và áp dụng các công cụ nghiên cứu một cách hợp lệ. Nếu phát hiện có bất kỳ sự gian lận nào, chúng tôi xin hoàn toàn chịu trách nhiệm về nội dung bài báo cáo của mình. Chúng tôi hy vọng rằng bài báo cáo này sẽ cung cấp những thông tin hữu ích cho các nhà nghiên cứu, doanh nghiệp, góp phần vào việc hiểu rõ hơn về mạng xã hội ngày nay.

TP. Hồ Chí Minh, ngày 28 tháng 3 năm 2025

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1 Chương 1: Giới thiệu

1.1 Giới thiệu dữ liệu

Bộ dữ liệu **Human Activity Recognition (HAR)** được thu thập từ 30 người tham gia (gọi là *subjects*), thực hiện các hoạt động hằng ngày như đi bộ, ngồi, nằm, đứng, v.v... Dữ liệu được ghi lại bằng một điện thoại thông minh đeo ở thắt lưng của người dùng. Các cảm biến gồm **accelerometer** và **gyroscope** được sử dụng để ghi lại chuyển động theo 3 trục X, Y, Z với tần suất 50Hz.

Mỗi chuỗi tín hiệu được chia thành các **cửa sổ trượt** có độ dài 2.56 giây, tương ứng với 128 lần đo. Từ mỗi cửa sổ, các đặc trưng (features) đã được trích xuất từ **miền thời gian** và **miền tần số** để tạo ra một tập hợp dữ liệu có cấu trúc sẵn sàng cho mô hình học máy.

Các nhóm tín hiệu chính bao gồm:

- tBodyAcc-XYZ: Gia tốc cơ thể theo 3 trục trong miền thời gian
- tGravityAcc-XYZ: Gia tốc do trọng lực
- tBodyGyro-XYZ: Tốc độ quay từ con quay hồi chuyển
- tBodyAccJerk-XYZ, tBodyGyroJerk-XYZ: Jerk - đo sự thay đổi đột ngột của chuyển động
- Mag: Độ lớn vector gia tốc, được tính bằng chuẩn Euclidean:

$$\text{Mag} = \sqrt{X^2 + Y^2 + Z^2}$$

- fBodyAcc-XYZ, fBodyGyro-XYZ: Biến miền tần số được tạo từ FFT

Từ các tín hiệu trên, một loạt đặc trưng thống kê được tính toán như:

- mean(), std(), mad(), max(), min()
- sma(): Signal Magnitude Area
- energy(): Tổng bình phương chia số phần tử
- entropy(), iqr(), arCoeff(), correlation()
- meanFreq(), skewness(), kurtosis(), bandsEnergy(), angle()

Tập dữ liệu gồm **561 biến đầu vào (features)**, mỗi dòng tương ứng với một cửa sổ thời gian, và một nhãn phân lớp từ 1 đến 6:

Giá trị nhãn	Hoạt động
1	WALKING
2	WALKING_UPSTAIRS
3	WALKING_DOWNSTAIRS
4	SITTING
5	STANDING
6	LAYING

```
#install.packages("showtext")  
#install.packages("ggplot2")
```

```
train <-read.csv('/Users/huy/Documents/doanthaytung/archive/train.csv')
head(train)
```

```
##      tBodyAcc.mean...X tBodyAcc.mean...Y tBodyAcc.mean...Z tBodyAcc.std...X
## 1      0.2885845      -0.02029417      -0.1329051      -0.9952786
## 2      0.2784188      -0.01641057      -0.1235202      -0.9982453
## 3      0.2796531      -0.01946716      -0.1134617      -0.9953796
## 4      0.2791739      -0.02620065      -0.1232826      -0.9960915
## 5      0.2766288      -0.01656965      -0.1153619      -0.9981386
## 6      0.2771988      -0.01009785      -0.1051373      -0.9973350
##      tBodyAcc.std...Y tBodyAcc.std...Z tBodyAcc.mad...X tBodyAcc.mad...Y
## 1      -0.9831106      -0.9135264      -0.9951121      -0.9831846
## 2      -0.9753002      -0.9603220      -0.9988072      -0.9749144
## 3      -0.9671870      -0.9789440      -0.9965199      -0.9636684
## 4      -0.9834027      -0.9906751      -0.9970995      -0.9827498
## 5      -0.9808173      -0.9904816      -0.9983211      -0.9796719
## 6      -0.9904868      -0.9954200      -0.9976274      -0.9902177
##      tBodyAcc.mad...Z tBodyAcc.max...X tBodyAcc.max...Y tBodyAcc.max...Z
## 1      -0.9235270      -0.9347238      -0.5673781      -0.7444125
## 2      -0.9576862      -0.9430675      -0.5578513      -0.8184087
## 3      -0.9774686      -0.9386916      -0.5578513      -0.8184087
## 4      -0.9893025      -0.9386916      -0.5761589      -0.8297115
## 5      -0.9904411      -0.9424691      -0.5691738      -0.8247053
## 6      -0.9955489      -0.9424691      -0.5656839      -0.8227661
##      tBodyAcc.min...X tBodyAcc.min...Y tBodyAcc.min...Z tBodyAcc.sma..
## 1      0.8529474      0.6858446      0.8142628      -0.9655228
## 2      0.8493079      0.6858446      0.8226368      -0.9819301
## 3      0.8436090      0.6824009      0.8393442      -0.9834778
## 4      0.8436090      0.6824009      0.8378693      -0.9860933
## 5      0.8490951      0.6832498      0.8378693      -0.9926531
## 6      0.8490951      0.6955857      0.8459216      -0.9939277
##      tBodyAcc.energy...X tBodyAcc.energy...Y tBodyAcc.energy...Z tBodyAcc.iqr...X
## 1      -0.9999446      -0.9998630      -0.9946122      -0.9942308
## 2      -0.9999913      -0.9997884      -0.9984054      -0.9991504
## 3      -0.9999691      -0.9996599      -0.9994695      -0.9971301
## 4      -0.9999755      -0.9997360      -0.9995037      -0.9971804
## 5      -0.9999906      -0.9998559      -0.9997566      -0.9980043
## 6      -0.9999855      -0.9998570      -0.9999174      -0.9975839
##      tBodyAcc.iqr...Y tBodyAcc.iqr...Z tBodyAcc.entropy...X tBodyAcc.entropy...Y
## 1      -0.9876139      -0.9432200      -0.4077471      -0.6793375
## 2      -0.9778655      -0.9482248      -0.7148917      -0.5009300
## 3      -0.9648099      -0.9746750      -0.5922351      -0.4858207
## 4      -0.9837991      -0.9860068      -0.6274463      -0.8509300
## 5      -0.9812319      -0.9913247      -0.7865525      -0.5594769
## 6      -0.9918468      -0.9954136      -0.7518691      -0.4547725
##      tBodyAcc.entropy...Z tBodyAcc.arCoeff...X.1 tBodyAcc.arCoeff...X.2
## 1      -0.6021219      0.92929351      -0.85301114
## 2      -0.5709791      0.61162716      -0.32954862
## 3      -0.5709791      0.27302484      -0.08630870
## 4      -0.9118716      0.06143571      0.07483956
## 5      -0.7614338      0.31327553      -0.13120773
## 6      -0.5508815      0.39005211      -0.18227238
##      tBodyAcc.arCoeff...X.3 tBodyAcc.arCoeff...X.4 tBodyAcc.arCoeff...Y.1
```

## 1	0.3599098	-0.05852638	0.25689154
## 2	0.2842132	0.28459454	0.11570542
## 3	0.3372015	-0.16473870	0.01715013
## 4	0.1982040	-0.26430733	0.07254524
## 5	0.1911608	0.08690362	0.25761535
## 6	0.1587515	0.18731256	0.25995104
##	tBodyAcc.arCoeff...Y.2	tBodyAcc.arCoeff...Y.3	tBodyAcc.arCoeff...Y.4
## 1	-0.22484763	0.2641057	-0.09524563
## 2	-0.09096253	0.2943104	-0.28121057
## 3	-0.07450693	0.3422563	-0.33256448
## 4	-0.15531983	0.3231540	-0.17081296
## 5	-0.27250466	0.4347278	-0.31537507
## 6	-0.24322958	0.4217361	-0.41846005
##	tBodyAcc.arCoeff...Z.1	tBodyAcc.arCoeff...Z.2	tBodyAcc.arCoeff...Z.3
## 1	0.27885143	-0.46508457	0.49193596
## 2	0.08598843	-0.02215269	-0.01665654
## 3	0.23928053	-0.13620359	0.17386318
## 4	0.29493839	-0.30608099	0.48214783
## 5	0.43974437	-0.26906895	0.17941419
## 6	0.55846137	-0.21834364	0.16513807
##	tBodyAcc.arCoeff...Z.4	tBodyAcc.correlation...X.Y	tBodyAcc.correlation...X.Z
## 1	-0.19088356	0.37631389	0.43512919
## 2	-0.22064350	-0.01342866	-0.07269189
## 3	-0.29949278	-0.12469839	-0.18110479
## 4	-0.47012871	-0.30569299	-0.36265405
## 5	-0.08895195	-0.15580432	-0.18976271
## 6	0.08092016	-0.20997915	-0.15106365
##	tBodyAcc.correlation...Y.Z	tGravityAcc.mean...X	tGravityAcc.mean...Y
## 1	0.6607903	0.9633961	-0.1408397
## 2	0.5793817	0.9665611	-0.1415513
## 3	0.6089001	0.9668781	-0.1420098
## 4	0.5074589	0.9676152	-0.1439765
## 5	0.5992130	0.9682244	-0.1487502
## 6	0.1804244	0.9679482	-0.1482100
##	tGravityAcc.mean...Z	tGravityAcc.std...X	tGravityAcc.std...Y
## 1	0.11537494	-0.9852497	-0.9817084
## 2	0.10937881	-0.9974113	-0.9894474
## 3	0.10188392	-0.9995740	-0.9928658
## 4	0.09985014	-0.9966456	-0.9813928
## 5	0.09448590	-0.9984293	-0.9880982
## 6	0.09190972	-0.9989793	-0.9867539
##	tGravityAcc.std...Z	tGravityAcc.mad...X	tGravityAcc.mad...Y
## 1	-0.8776250	-0.9850014	-0.9844162
## 2	-0.9316387	-0.9978836	-0.9896137
## 3	-0.9929172	-0.9996353	-0.9926049
## 4	-0.9784764	-0.9964569	-0.9809618
## 5	-0.9787449	-0.9984112	-0.9886539
## 6	-0.9973064	-0.9990540	-0.9865839
##	tGravityAcc.mad...Z	tGravityAcc.max...X	tGravityAcc.max...Y
## 1	-0.8946774	0.8920545	-0.1612655
## 2	-0.9332404	0.8920603	-0.1613426
## 3	-0.9929343	0.8924006	-0.1637112
## 4	-0.9784558	0.8938171	-0.1637112
## 5	-0.9789355	0.8938171	-0.1667862

## 6	-0.9974188	0.8936834	-0.1669704
##	tGravityAcc.max...Z	tGravityAcc.min...X	tGravityAcc.min...Y
## 1	0.12465977	0.9774363	-0.1232134
## 2	0.12258573	0.9845201	-0.1148933
## 3	0.09456584	0.9867701	-0.1148933
## 4	0.09342467	0.9868210	-0.1213358
## 5	0.09168239	0.9874335	-0.1218336
## 6	0.08334712	0.9877218	-0.1218336
##	tGravityAcc.min...Z	tGravityAcc.sma..	tGravityAcc.energy...X
## 1	0.05648273	-0.3754260	0.8994686
## 2	0.10276411	-0.3834296	0.9078289
## 3	0.10276411	-0.4016016	0.9086678
## 4	0.09575265	-0.4002781	0.9106207
## 5	0.09405935	-0.4004765	0.9122347
## 6	0.09405935	-0.4093585	0.9115026
##	tGravityAcc.energy...Y	tGravityAcc.energy...Z	tGravityAcc.iqr...X
## 1	-0.9709052	-0.9755104	-0.9843254
## 2	-0.9705828	-0.9785004	-0.9991884
## 3	-0.9703681	-0.9816723	-0.9996790
## 4	-0.9693997	-0.9824196	-0.9959764
## 5	-0.9670511	-0.9843626	-0.9983182
## 6	-0.9673206	-0.9852754	-0.9993483
##	tGravityAcc.iqr...Y	tGravityAcc.iqr...Z	tGravityAcc.entropy...X
## 1	-0.9888491	-0.9177426	-1
## 2	-0.9900285	-0.9416854	-1
## 3	-0.9921044	-0.9926186	-1
## 4	-0.9806634	-0.9797787	-1
## 5	-0.9906113	-0.9804125	-1
## 6	-0.9865648	-0.9977279	-1
##	tGravityAcc.entropy...Y	tGravityAcc.entropy...Z	tGravityAcc.arCoeff...X.1
## 1	-1	0.1138061	-0.590425000
## 2	-1	-0.2104936	-0.410055520
## 3	-1	-0.9267763	0.002234132
## 4	-1	-0.5961008	-0.064934877
## 5	-1	-0.6165782	-0.257266810
## 6	-1	-1.0000000	-0.302224840
##	tGravityAcc.arCoeff...X.2	tGravityAcc.arCoeff...X.3	tGravityAcc.arCoeff...X.4
## 1	0.59114630	-0.59177346	0.59246928
## 2	0.41385634	-0.41756716	0.42132499
## 3	0.02748069	-0.05672816	0.08553324
## 4	0.07542720	-0.08582296	0.09620771
## 5	0.26891819	-0.28066510	0.29261602
## 6	0.37903209	-0.45722246	0.53679840
##	tGravityAcc.arCoeff...Y.1	tGravityAcc.arCoeff...Y.2	tGravityAcc.arCoeff...Y.3
## 1	-0.7454488	0.72086167	-0.7123724
## 2	-0.1963593	0.12534464	-0.1055677
## 3	-0.3290230	0.27050025	-0.2544902
## 4	-0.2950360	0.22830973	-0.2062812
## 5	-0.1666931	0.08994272	-0.0663267
## 6	-0.1981248	0.12718522	-0.1075539
##	tGravityAcc.arCoeff...Y.4	tGravityAcc.arCoeff...Z.1	tGravityAcc.arCoeff...Z.2
## 1	0.7113000	-0.9951116	0.9956749
## 2	0.1090901	-0.8338821	0.8342711
## 3	0.2575976	-0.7050392	0.7143920

## 4	0.2048009	-0.3854102	0.3863727
## 5	0.0671311	-0.2374745	0.2392680
## 6	0.1113645	-0.1579059	0.1753748
##	tGravityAcc.arCoeff...Z.3	tGravityAcc.arCoeff...Z.4	
## 1	-0.9956676	0.9916527	
## 2	-0.8341844	0.8304639	
## 3	-0.7232989	0.7287554	
## 4	-0.3871199	0.3852631	
## 5	-0.2410121	0.2405685	
## 6	-0.1927680	0.2079647	
##	tGravityAcc.correlation...X.Y	tGravityAcc.correlation...X.Z	
## 1	0.5702216	0.4390273	
## 2	-0.8312839	-0.8657111	
## 3	-0.1810899	0.3379359	
## 4	-0.9913087	-0.9688214	
## 5	-0.4083304	-0.1848401	
## 6	-0.5639509	0.4664707	
##	tGravityAcc.correlation...Y.Z	tBodyAccJerk.mean...X	tBodyAccJerk.mean...Y
## 1	0.9869131	0.07799634	0.005000803
## 2	0.9743856	0.07400671	0.005771104
## 3	0.6434170	0.07363596	0.003104037
## 4	0.9842555	0.07732061	0.020057642
## 5	0.9647965	0.07344436	0.019121574
## 6	0.4430971	0.07793244	0.018684046
##	tBodyAccJerk.mean...Z	tBodyAccJerk.std...X	tBodyAccJerk.std...Y
## 1	-0.067830808	-0.9935191	-0.9883600
## 2	0.029376633	-0.9955481	-0.9810636
## 3	-0.009045631	-0.9907428	-0.9809556
## 4	-0.009864772	-0.9926974	-0.9875527
## 5	0.016779979	-0.9964202	-0.9883587
## 6	0.009344434	-0.9948136	-0.9887145
##	tBodyAccJerk.std...Z	tBodyAccJerk.mad...X	tBodyAccJerk.mad...Y
## 1	-0.9935750	-0.9944876	-0.9862066
## 2	-0.9918457	-0.9956320	-0.9789380
## 3	-0.9896866	-0.9909329	-0.9793002
## 4	-0.9934976	-0.9942660	-0.9857170
## 5	-0.9924549	-0.9965974	-0.9865370
## 6	-0.9922663	-0.9952418	-0.9868467
##	tBodyAccJerk.mad...Z	tBodyAccJerk.max...X	tBodyAccJerk.max...Y
## 1	-0.9928183	-0.9851801	-0.9919942
## 2	-0.9912766	-0.9945447	-0.9790682
## 3	-0.9872381	-0.9870770	-0.9790682
## 4	-0.9914832	-0.9870770	-0.9917862
## 5	-0.9906864	-0.9969933	-0.9918178
## 6	-0.9910667	-0.9941054	-0.9918178
##	tBodyAccJerk.max...Z	tBodyAccJerk.min...X	tBodyAccJerk.min...Y
## 1	-0.9931189	0.9898347	0.9919569
## 2	-0.9922574	0.9925771	0.9918084
## 3	-0.9922574	0.9883902	0.9918084
## 4	-0.9897689	0.9883902	0.9925438
## 5	-0.9897689	0.9943032	0.9925438
## 6	-0.9926493	0.9943032	0.9933463
##	tBodyAccJerk.min...Z	tBodyAccJerk.sma...	tBodyAccJerk.energy...X
## 1	0.9905192	-0.9935220	-0.9999349

## 2	0.9885391	-0.9913937	-0.9999597
## 3	0.9885391	-0.9881477	-0.9998942
## 4	0.9932176	-0.9928683	-0.9999236
## 5	0.9856091	-0.9938320	-0.9999692
## 6	0.9856091	-0.9934730	-0.9999512
##	tBodyAccJerk.energy...Y tBodyAccJerk.energy...Z tBodyAccJerk.iqr...X		
## 1	-0.9998204	-0.9998785	-0.9943640
## 2	-0.9996396	-0.9998454	-0.9938627
## 3	-0.9996364	-0.9997950	-0.9878457
## 4	-0.9998029	-0.9998829	-0.9946780
## 5	-0.9998203	-0.9998599	-0.9958878
## 6	-0.9998278	-0.9998560	-0.9952809
##	tBodyAccJerk.iqr...Y tBodyAccJerk.iqr...Z tBodyAccJerk.entropy...X		
## 1	-0.9860249	-0.9892336	-0.8199492
## 2	-0.9794351	-0.9933838	-0.8750964
## 3	-0.9801445	-0.9819108	-0.7536287
## 4	-0.9870330	-0.9888963	-0.8208042
## 5	-0.9865242	-0.9905717	-0.8507439
## 6	-0.9873590	-0.9895520	-0.7787178
##	tBodyAccJerk.entropy...Y tBodyAccJerk.entropy...Z tBodyAccJerk.arCoeff...X.1		
## 1	-0.7930464	-0.8888529	1.0000000
## 2	-0.6553621	-0.7673809	0.4896622
## 3	-0.6732736	-0.7471068	0.2652248
## 4	-0.7549682	-0.8252786	0.1228930
## 5	-0.7462578	-0.7969596	0.2409042
## 6	-0.7549682	-0.7908859	0.2806858
##	tBodyAccJerk.arCoeff...X.2 tBodyAccJerk.arCoeff...X.3		
## 1	-0.22074703	0.6368308	
## 2	0.07099708	0.3627145	
## 3	0.18839474	0.4645835	
## 4	0.27641881	0.4574450	
## 5	0.13491152	0.2969029	
## 6	0.10044972	0.2597405	
##	tBodyAccJerk.arCoeff...X.4 tBodyAccJerk.arCoeff...Y.1		
## 1	0.3876436	0.24140146	
## 2	0.5273034	0.14939565	
## 3	0.3717179	0.08266488	
## 4	0.1934143	0.10240466	
## 5	0.2871847	0.31897047	
## 6	0.2019468	0.35057743	
##	tBodyAccJerk.arCoeff...Y.2 tBodyAccJerk.arCoeff...Y.3		
## 1	-0.052252848	0.2641772	
## 2	0.062925097	0.3704934	
## 3	-0.004621675	0.3274702	
## 4	-0.099103220	0.1946788	
## 5	-0.143364120	0.4774545	
## 6	-0.077269461	0.5626646	
##	tBodyAccJerk.arCoeff...Y.4 tBodyAccJerk.arCoeff...Z.1		
## 1	0.3734395	0.3417775	
## 2	0.4135481	0.1222157	
## 3	0.4376232	0.2578909	
## 4	0.4842436	0.3576571	
## 5	0.4179662	0.3895371	
## 6	0.3519760	0.3686890	

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## tBodyAccJerk.arCoeff...Z.2 tBodyAccJerk.arCoeff...Z.3
## 1 -0.56979119 0.2653988
## 2 0.18061304 0.0474240
## 3 0.07002964 0.1869730
## 4 -0.18703248 0.2980687
## 5 -0.03030909 0.1632612
## 6 0.04338534 0.1473115
## tBodyAccJerk.arCoeff...Z.4 tBodyAccJerk.correlation...X.Y
## 1 -0.4778749 -0.3853005
## 2 0.1665727 -0.2087722
## 3 0.2467997 -0.1201047
## 4 0.4518696 -0.1274952
## 5 0.1801889 -0.2728836
## 6 0.2991720 -0.3746109
## tBodyAccJerk.correlation...X.Z tBodyAccJerk.correlation...Y.Z
## 1 0.03364394 -0.12651082
## 2 0.08410380 -0.26855390
## 3 -0.11002563 -0.03995275
## 4 -0.08327836 0.45705983
## 5 0.10306475 0.06472931
## 6 0.04182570 -0.11178209
## tBodyGyro.mean...X tBodyGyro.mean...Y tBodyGyro.mean...Z tBodyGyro.std...X
## 1 -0.006100849 -0.03136479 0.10772540 -0.9853103
## 2 -0.016111620 -0.08389378 0.10058429 -0.9831200
## 3 -0.031698294 -0.10233542 0.09612688 -0.9762921
## 4 -0.043409983 -0.09138618 0.08553770 -0.9913848
## 5 -0.033960416 -0.07470803 0.07739203 -0.9851836
## 6 -0.028775508 -0.07039311 0.07901214 -0.9851808
## tBodyGyro.std...Y tBodyGyro.std...Z tBodyGyro.mad...X tBodyGyro.mad...Y
## 1 -0.9766234 -0.9922053 -0.9845863 -0.9763526
## 2 -0.9890458 -0.9891212 -0.9868904 -0.9890380
## 3 -0.9935518 -0.9863787 -0.9749215 -0.9941221
## 4 -0.9924073 -0.9875542 -0.9915889 -0.9931421
## 5 -0.9923781 -0.9874019 -0.9869437 -0.9925425
## 6 -0.9921175 -0.9830768 -0.9857856 -0.9922687
## tBodyGyro.mad...Z tBodyGyro.max...X tBodyGyro.max...Y tBodyGyro.max...Z
## 1 -0.9923616 -0.8670437 -0.9337860 -0.7475662
## 2 -0.9891846 -0.8649038 -0.9535605 -0.7458700
## 3 -0.9857862 -0.8649038 -0.9590491 -0.7432771
## 4 -0.9895849 -0.8853204 -0.9566563 -0.7432771
## 5 -0.9881628 -0.8701541 -0.9533597 -0.7497799
## 6 -0.9827049 -0.8701541 -0.9533597 -0.7463994
## tBodyGyro.min...X tBodyGyro.min...Y tBodyGyro.min...Z tBodyGyro.sma...
## 1 0.8473080 0.9148953 0.8308405 -0.9671843
## 2 0.8337211 0.9081096 0.8289350 -0.9806131
## 3 0.8337211 0.9057528 0.8289350 -0.9762803
## 4 0.8341640 0.9057528 0.8266338 -0.9822957
## 5 0.8390906 0.9111845 0.8213744 -0.9852620
## 6 0.8398080 0.9111845 0.8188267 -0.9852143
## tBodyGyro.energy...X tBodyGyro.energy...Y tBodyGyro.energy...Z
## 1 -0.9995783 -0.9993543 -0.9997634
## 2 -0.9997558 -0.9998973 -0.9998224
## 3 -0.9996934 -0.9998283 -0.9998216
## 4 -0.9997929 -0.9999023 -0.9998773

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## 5      -0.9998495      -0.9999519      -0.9998443
## 6      -0.9998740      -0.9999466      -0.9997780
##  tBodyGyro.iqr...X tBodyGyro.iqr...Y tBodyGyro.iqr...Z tBodyGyro.entropy...X
## 1      -0.9834381      -0.9786140      -0.9929656      0.082631682
## 2      -0.9928328      -0.9893447      -0.9902402      0.007469356
## 3      -0.9723536      -0.9951443      -0.9868311      -0.260942670
## 4      -0.9910313      -0.9941653      -0.9945820      -0.930551140
## 5      -0.9898132      -0.9933367      -0.9911546      -0.628860990
## 6      -0.9853373      -0.9929940      -0.9837056      -0.363801070
##  tBodyGyro.entropy...Y tBodyGyro.entropy...Z tBodyGyro.arCoeff...X.1
## 1      0.2022676      -0.1687567      0.09632324
## 2      -0.5311566      -0.1774446      -0.38768063
## 3      -1.0000000      -0.2483707      -0.43715568
## 4      -0.8266180      -0.5434217      -0.16588549
## 5      -0.4678076      -0.6508521      -0.21269027
## 6      -0.3705079      -0.4621260      -0.40282673
##  tBodyGyro.arCoeff...X.2 tBodyGyro.arCoeff...X.3 tBodyGyro.arCoeff...X.4
## 1      -0.27498511      0.49864419      -0.22031685
## 2      0.17913763      0.21078900      -0.14025958
## 3      0.23898137      0.14523773      -0.11391720
## 4      -0.01288054      0.32005501      -0.16511393
## 5      0.00211118      0.38809860      -0.23327097
## 6      0.24203652      0.05913935      0.03028356
##  tBodyGyro.arCoeff...Y.1 tBodyGyro.arCoeff...Y.2 tBodyGyro.arCoeff...Y.3
## 1      1.00000000      -0.97297139      0.31665451
## 2      -0.04703181      -0.06494907      0.11768661
## 3      0.03231156      -0.12787926      0.11492426
## 4      0.04455323      -0.12519331      0.07832123
## 5      -0.16322090      0.18645965      -0.43491617
## 6      -0.11969243      0.15061703      -0.38093733
##  tBodyGyro.arCoeff...Y.4 tBodyGyro.arCoeff...Z.1 tBodyGyro.arCoeff...Z.2
## 1      0.37572641      0.72339919      -0.7711120
## 2      0.08169129      0.04236404      -0.1499284
## 3      0.12539829      0.11209205      -0.1656450
## 4      0.17702758      0.19340165      -0.2071888
## 5      0.65013677      0.23995007      -0.3395292
## 6      0.57330854      0.10377464      -0.2276797
##  tBodyGyro.arCoeff...Z.3 tBodyGyro.arCoeff...Z.4 tBodyGyro.correlation...X.Y
## 1      0.6902132      -0.3318310      0.70958377
## 2      0.2926189      -0.1494293      0.04672124
## 3      0.1345544      0.1843490      -0.01012957
## 4      0.1124575      0.2020919      0.21019413
## 5      0.1325371      0.4732514      -0.14200070
## 6      0.1382413      0.3461755      -0.44810249
##  tBodyGyro.correlation...X.Z tBodyGyro.correlation...Y.Z
## 1      0.13487336      0.3010995
## 2      -0.25692940      0.1693948
## 3      0.04331158      -0.3506461
## 4      0.14110084      -0.7253011
## 5      0.48441885      -0.7245575
## 6      0.64501358      -0.7459792
##  tBodyGyroJerk.mean...X tBodyGyroJerk.mean...Y tBodyGyroJerk.mean...Z
## 1      -0.09916740      -0.05551737      -0.06198580
## 2      -0.11050283      -0.04481873      -0.05924282

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## 3	-0.10848567	-0.04241031	-0.05582883
## 4	-0.09116989	-0.03633262	-0.06046466
## 5	-0.09077010	-0.03763253	-0.05828932
## 6	-0.09424758	-0.04335526	-0.04193600
##	tBodyGyroJerk.std...X	tBodyGyroJerk.std...Y	tBodyGyroJerk.std...Z
## 1	-0.9921107	-0.9925193	-0.9920553
## 2	-0.9898726	-0.9972926	-0.9938510
## 3	-0.9884618	-0.9956321	-0.9915318
## 4	-0.9911194	-0.9966410	-0.9933289
## 5	-0.9913545	-0.9964730	-0.9945110
## 6	-0.9916216	-0.9960147	-0.9930906
##	tBodyGyroJerk.mad...X	tBodyGyroJerk.mad...Y	tBodyGyroJerk.mad...Z
## 1	-0.9921648	-0.9949416	-0.9926190
## 2	-0.9898762	-0.9974917	-0.9937783
## 3	-0.9878680	-0.9957250	-0.9915963
## 4	-0.9912405	-0.9969579	-0.9940195
## 5	-0.9928823	-0.9965406	-0.9943830
## 6	-0.9930196	-0.9960382	-0.9926340
##	tBodyGyroJerk.max...X	tBodyGyroJerk.max...Y	tBodyGyroJerk.max...Z
## 1	-0.9901558	-0.9867428	-0.9920416
## 2	-0.9919469	-0.9977171	-0.9949208
## 3	-0.9933590	-0.9938002	-0.9889631
## 4	-0.9936763	-0.9938002	-0.9889631
## 5	-0.9798455	-0.9975093	-0.9934198
## 6	-0.9798455	-0.9975093	-0.9934198
##	tBodyGyroJerk.min...X	tBodyGyroJerk.min...Y	tBodyGyroJerk.min...Z
## 1	0.9944288	0.9917558	0.9893519
## 2	0.9904860	0.9971222	0.9945031
## 3	0.9892905	0.9971222	0.9941426
## 4	0.9892905	0.9981303	0.9941426
## 5	0.9936848	0.9974531	0.9965279
## 6	0.9938443	0.9974531	0.9965279
##	tBodyGyroJerk.sma..	tBodyGyroJerk.energy...X	tBodyGyroJerk.energy...Y
## 1	-0.9944534	-0.9999375	-0.9999535
## 2	-0.9952984	-0.9999077	-0.9999897
## 3	-0.9934149	-0.9998871	-0.9999798
## 4	-0.9954961	-0.9999251	-0.9999862
## 5	-0.9958778	-0.9999280	-0.9999852
## 6	-0.9952321	-0.9999316	-0.9999824
##	tBodyGyroJerk.energy...Z	tBodyGyroJerk.iqr...X	tBodyGyroJerk.iqr...Y
## 1	-0.9999229	-0.9922997	-0.9969389
## 2	-0.9999459	-0.9907418	-0.9973013
## 3	-0.9999158	-0.9871304	-0.9954278
## 4	-0.9999396	-0.9909086	-0.9970785
## 5	-0.9999535	-0.9945132	-0.9967177
## 6	-0.9999362	-0.9937336	-0.9961224
##	tBodyGyroJerk.iqr...Z	tBodyGyroJerk.entropy...X	tBodyGyroJerk.entropy...Y
## 1	-0.9922430	-0.5898510	-0.6884590
## 2	-0.9938078	-0.6009445	-0.7482472
## 3	-0.9927755	-0.5436348	-0.6729573
## 4	-0.9954046	-0.5620311	-0.7313321
## 5	-0.9939689	-0.6177378	-0.6830932
## 6	-0.9919696	-0.6278635	-0.6805905
##	tBodyGyroJerk.entropy...Z	tBodyGyroJerk.arCoeff...X.1	

## 1	-0.5721069	0.292376340
## 2	-0.6089321	-0.193307570
## 3	-0.5884104	-0.241150980
## 4	-0.6614345	0.009894985
## 5	-0.6329272	-0.025678521
## 6	-0.5418971	-0.265496090
##	tBodyGyroJerk.arCoeff...X.2	tBodyGyroJerk.arCoeff...X.3
## 1	-0.36199802	0.40554269
## 2	-0.06740646	0.18561907
## 3	-0.01137728	0.11613363
## 4	-0.13757147	0.12596517
## 5	-0.18813916	0.23094957
## 6	0.05580409	-0.04563533
##	tBodyGyroJerk.arCoeff...X.4	tBodyGyroJerk.arCoeff...Y.1
## 1	-0.03900695	0.98928381
## 2	0.04152181	0.07235255
## 3	0.08962988	0.09598603
## 4	0.31611970	0.09433295
## 5	0.20025838	-0.14940028
## 6	0.23627625	-0.12219895
##	tBodyGyroJerk.arCoeff...Y.2	tBodyGyroJerk.arCoeff...Y.3
## 1	-0.414560480	0.39160251
## 2	-0.035377727	0.17760636
## 3	0.009604215	0.09512614
## 4	0.026171325	0.06966099
## 5	0.271977090	-0.27151547
## 6	0.268114140	-0.19369246
##	tBodyGyroJerk.arCoeff...Y.4	tBodyGyroJerk.arCoeff...Z.1
## 1	0.282250870	0.9272698
## 2	0.027498054	0.1827027
## 3	0.252887040	0.1816489
## 4	0.246653200	0.2573553
## 5	-0.009937466	0.2351285
## 6	-0.005319577	0.2034059
##	tBodyGyroJerk.arCoeff...Z.2	tBodyGyroJerk.arCoeff...Z.3
## 1	-0.5723700	0.69161920
## 2	-0.1674574	0.25325103
## 3	-0.1693084	0.13200906
## 4	-0.1368088	0.08731557
## 5	-0.3409670	-0.08571288
## 6	-0.2967479	0.06993358
##	tBodyGyroJerk.arCoeff...Z.4	tBodyGyroJerk.correlation...X.Y
## 1	0.468289820	-0.13107697
## 2	0.132333860	0.29385535
## 3	0.008197317	0.19332856
## 4	0.149095580	0.19665725
## 5	0.163956800	0.12059038
## 6	-0.012261880	0.01791207
##	tBodyGyroJerk.correlation...X.Z	tBodyGyroJerk.correlation...Y.Z
## 1	-0.08715969	0.3362475
## 2	-0.01807517	-0.3433368
## 3	0.07371786	-0.3148578
## 4	0.14045188	-0.3058977
## 5	0.10748923	-0.2825893

## 6		0.18667289		-0.3211694
##	tBodyAccMag.mean..	tBodyAccMag.std..	tBodyAccMag.mad..	tBodyAccMag.max..
## 1	-0.9594339	-0.9505515	-0.9579929	-0.9463052
## 2	-0.9792892	-0.9760571	-0.9782473	-0.9787115
## 3	-0.9837031	-0.9880196	-0.9883268	-0.9864961
## 4	-0.9865418	-0.9864213	-0.9864305	-0.9864961
## 5	-0.9928271	-0.9912754	-0.9911703	-0.9909619
## 6	-0.9942950	-0.9952490	-0.9950094	-0.9957457
##	tBodyAccMag.min..	tBodyAccMag.sma..	tBodyAccMag.energy..	tBodyAccMag.iqr..
## 1	-0.9925557	-0.9594339	-0.9984928	-0.9576374
## 2	-0.9953329	-0.9792892	-0.9994880	-0.9812483
## 3	-0.9953329	-0.9837031	-0.9996821	-0.9857669
## 4	-0.9970448	-0.9865418	-0.9997374	-0.9835088
## 5	-0.9970448	-0.9928271	-0.9998807	-0.9896081
## 6	-0.9941746	-0.9942950	-0.9999199	-0.9934632
##	tBodyAccMag.entropy..	tBodyAccMag.arCoeff..1	tBodyAccMag.arCoeff..2	
## 1	-0.2325816	-0.17317874	-0.02289666	
## 2	-0.4418761	0.08156863	-0.10936606	
## 3	-0.5999393	0.03804910	-0.07421227	
## 4	-0.5890063	-0.09285588	0.04639617	
## 5	-0.7045988	0.18044105	-0.27765672	
## 6	-0.7852715	0.37033862	-0.39345190	
##	tBodyAccMag.arCoeff..3	tBodyAccMag.arCoeff..4	tGravityAccMag.mean..	
## 1	0.0948315680	0.19181715	-0.9594339	
## 2	0.3117577100	-0.41167480	-0.9792892	
## 3	0.2540759900	-0.29612966	-0.9837031	
## 4	-0.0004664473	0.03714251	-0.9865418	
## 5	0.5155624300	-0.35585076	-0.9928271	
## 6	0.5634830200	-0.48154569	-0.9942950	
##	tGravityAccMag.std..	tGravityAccMag.mad..	tGravityAccMag.max..	
## 1	-0.9505515	-0.9579929	-0.9463052	
## 2	-0.9760571	-0.9782473	-0.9787115	
## 3	-0.9880196	-0.9883268	-0.9864961	
## 4	-0.9864213	-0.9864305	-0.9864961	
## 5	-0.9912754	-0.9911703	-0.9909619	
## 6	-0.9952490	-0.9950094	-0.9957457	
##	tGravityAccMag.min..	tGravityAccMag.sma..	tGravityAccMag.energy..	
## 1	-0.9925557	-0.9594339	-0.9984928	
## 2	-0.9953329	-0.9792892	-0.9994880	
## 3	-0.9953329	-0.9837031	-0.9996821	
## 4	-0.9970448	-0.9865418	-0.9997374	
## 5	-0.9970448	-0.9928271	-0.9998807	
## 6	-0.9941746	-0.9942950	-0.9999199	
##	tGravityAccMag.iqr..	tGravityAccMag.entropy..	tGravityAccMag.arCoeff..1	
## 1	-0.9576374	-0.2325816	-0.17317874	
## 2	-0.9812483	-0.4418761	0.08156863	
## 3	-0.9857669	-0.5999393	0.03804910	
## 4	-0.9835088	-0.5890063	-0.09285588	
## 5	-0.9896081	-0.7045988	0.18044105	
## 6	-0.9934632	-0.7852715	0.37033862	
##	tGravityAccMag.arCoeff..2	tGravityAccMag.arCoeff..3	tGravityAccMag.arCoeff..4	
## 1	-0.02289666	0.0948315680	0.19181715	
## 2	-0.10936606	0.3117577100	-0.41167480	
## 3	-0.07421227	0.2540759900	-0.29612966	

## 4	0.04639617	-0.0004664473	0.03714251
## 5	-0.27765672	0.5155624300	-0.35585076
## 6	-0.39345190	0.5634830200	-0.48154569
##	tBodyAccJerkMag.mean..	tBodyAccJerkMag.std..	tBodyAccJerkMag.mad..
## 1	-0.9933059	-0.9943364	-0.9945004
## 2	-0.9912535	-0.9916944	-0.9927160
## 3	-0.9885313	-0.9903969	-0.9906505
## 4	-0.9930780	-0.9933808	-0.9931945
## 5	-0.9934800	-0.9958537	-0.9961075
## 6	-0.9930177	-0.9954243	-0.9955274
##	tBodyAccJerkMag.max..	tBodyAccJerkMag.min..	tBodyAccJerkMag.sma..
## 1	-0.9927840	-0.9912085	-0.9933059
## 2	-0.9886606	-0.9912085	-0.9912535
## 3	-0.9886606	-0.9930120	-0.9885313
## 4	-0.9934017	-0.9930120	-0.9930780
## 5	-0.9932829	-0.9813245	-0.9934800
## 6	-0.9932829	-0.9931750	-0.9930177
##	tBodyAccJerkMag.energy..	tBodyAccJerkMag.iqr..	tBodyAccJerkMag.entropy..
## 1	-0.9998919	-0.9929337	-0.8634148
## 2	-0.9998454	-0.9934851	-0.8199283
## 3	-0.9997899	-0.9899838	-0.7948842
## 4	-0.9998836	-0.9917361	-0.7923214
## 5	-0.9999016	-0.9968463	-0.8500256
## 6	-0.9998927	-0.9950223	-0.8713030
##	tBodyAccJerkMag.arCoeff..1	tBodyAccJerkMag.arCoeff..2	
## 1	0.28308522	-0.23730869	
## 2	0.45881205	-0.24494134	
## 3	0.64970380	-0.26008800	
## 4	0.66160340	-0.24745115	
## 5	0.31160390	-0.17012088	
## 6	0.07270727	0.01781662	
##	tBodyAccJerkMag.arCoeff..3	tBodyAccJerkMag.arCoeff..4	tBodyGyroMag.mean..
## 1	-0.10543219	-0.03821231	-0.9689591
## 2	0.05613927	-0.45834568	-0.9806831
## 3	-0.12841598	-0.52054112	-0.9763171
## 4	-0.23031491	-0.43645940	-0.9820599
## 5	0.13437035	-0.45829909	-0.9852037
## 6	-0.06858817	-0.16618196	-0.9858944
##	tBodyGyroMag.std..	tBodyGyroMag.mad..	tBodyGyroMag.max..
## 1	-0.9643352	-0.9572448	-0.9750599
## 2	-0.9837542	-0.9820027	-0.9847146
## 3	-0.9860515	-0.9844578	-0.9847146
## 4	-0.9873511	-0.9856316	-0.9900291
## 5	-0.9890626	-0.9896134	-0.9870285
## 6	-0.9864403	-0.9863046	-0.9870285
##	tBodyGyroMag.min..		
## 1	-0.9643352		-0.9915537
## 2	-0.9837542		-0.9915537
## 3	-0.9860515		-0.9661929
## 4	-0.9873511		-0.9816856
## 5	-0.9890626		-0.9816856
## 6	-0.9864403		-0.9903605
##	tBodyGyroMag.sma..	tBodyGyroMag.energy..	tBodyGyroMag.iqr..
## 1	-0.9689591	-0.9992865	-0.9497658
## 2	-0.9806831	-0.9997247	-0.9828568
## 3	-0.9763171	-0.9996406	-0.9834545
## 4	-0.9820599	-0.9997679	-0.9839660
## 5	-0.9852037	-0.9998294	-0.9923380
## 6	-0.9858944	-0.9998297	-0.9892783
##	tBodyGyroMag.entropy..	tBodyGyroMag.arCoeff..1	tBodyGyroMag.arCoeff..2
## 1	0.07257904	0.5725114	-0.738602190

## 2	-0.19289906	-0.2253174	-0.017059623
## 3	-0.22282926	-0.2268309	0.059680819
## 4	-0.24071922	-0.2019850	0.054711916
## 5	-0.33869914	-0.2369926	0.093820007
## 6	-0.24494596	-0.1726625	-0.007801159
##	tBodyGyroMag.arCoeff..3	tBodyGyroMag.arCoeff..4	tBodyGyroJerkMag.mean..
## 1	0.21257776	0.43340495	-0.9942478
## 2	0.15577724	0.08257521	-0.9951232
## 3	0.06147618	0.04170213	-0.9934032
## 4	0.11007156	-0.07942259	-0.9955022
## 5	0.02333272	0.03903898	-0.9958076
## 6	0.09589124	0.06975596	-0.9952748
##	tBodyGyroJerkMag.std..	tBodyGyroJerkMag.mad..	tBodyGyroJerkMag.max..
## 1	-0.9913676	-0.9931430	-0.9889356
## 2	-0.9961016	-0.9958385	-0.9965449
## 3	-0.9950910	-0.9948595	-0.9953595
## 4	-0.9952666	-0.9953048	-0.9953595
## 5	-0.9952580	-0.9963073	-0.9923893
## 6	-0.9952050	-0.9960696	-0.9923893
##	tBodyGyroJerkMag.min..	tBodyGyroJerkMag.sma..	tBodyGyroJerkMag.energy..
## 1	-0.9934860	-0.9942478	-0.9999490
## 2	-0.9920060	-0.9951232	-0.9999698
## 3	-0.9976518	-0.9934032	-0.9999549
## 4	-0.9976518	-0.9955022	-0.9999702
## 5	-0.9921927	-0.9958076	-0.9999721
## 6	-0.9927537	-0.9952748	-0.9999686
##	tBodyGyroJerkMag.iqr..	tBodyGyroJerkMag.entropy..	tBodyGyroJerkMag.arCoeff..1
## 1	-0.9945472	-0.6197676	0.2928405
## 2	-0.9948192	-0.7307216	0.2093341
## 3	-0.9939883	-0.6629136	0.3280315
## 4	-0.9950011	-0.6830162	0.5953713
## 5	-0.9964837	-0.7201707	0.3318584
## 6	-0.9961068	-0.7510922	0.1787599
##	tBodyGyroJerkMag.arCoeff..2	tBodyGyroJerkMag.arCoeff..3	
## 1	-0.1768892	-0.14577921	
## 2	-0.1781126	-0.10308433	
## 3	-0.1545600	-0.22058712	
## 4	-0.2645688	-0.31572300	
## 5	-0.2605620	-0.14566464	
## 6	-0.1814449	0.04957464	
##	tBodyGyroJerkMag.arCoeff..4	fBodyAcc.mean...X	fBodyAcc.mean...Y
## 1	-0.124072330	-0.9947832	-0.9829841
## 2	-0.043823965	-0.9974507	-0.9768517
## 3	-0.107514160	-0.9935941	-0.9725115
## 4	-0.163825530	-0.9954906	-0.9835697
## 5	-0.007367991	-0.9972859	-0.9823010
## 6	-0.168852760	-0.9966567	-0.9869395
##	fBodyAcc.mean...Z	fBodyAcc.std...X	fBodyAcc.std...Y
## 1	-0.9392687	-0.9954217	-0.9831330
## 2	-0.9735227	-0.9986803	-0.9749298
## 3	-0.9833040	-0.9963128	-0.9655059
## 4	-0.9910798	-0.9963121	-0.9832444
## 5	-0.9883694	-0.9986065	-0.9801295
## 6	-0.9927386	-0.9976438	-0.9922637

##	fBodyAcc.mad...X	fBodyAcc.mad...Y	fBodyAcc.mad...Z	fBodyAcc.max...X
## 1	-0.9968886	-0.9845193	-0.9320820	-0.9937563
## 2	-0.9978897	-0.9769239	-0.9683768	-0.9993717
## 3	-0.9940974	-0.9716867	-0.9821691	-0.9981585
## 4	-0.9945468	-0.9828241	-0.9890073	-0.9974035
## 5	-0.9977250	-0.9823528	-0.9909146	-0.9992774
## 6	-0.9966048	-0.9898989	-0.9950483	-0.9985979
##	fBodyAcc.max...Y	fBodyAcc.max...Z	fBodyAcc.min...X	fBodyAcc.min...Y
## 1	-0.9831629	-0.8850542	-0.9939619	-0.9934461
## 2	-0.9737703	-0.9487768	-0.9982806	-0.9927209
## 3	-0.9630718	-0.9685959	-0.9970937	-0.9899236
## 4	-0.9872749	-0.9877543	-0.9944319	-0.9902589
## 5	-0.9808482	-0.9891165	-0.9949679	-0.9917884
## 6	-0.9934144	-0.9983060	-0.9956786	-0.9952322
##	fBodyAcc.min...Z	fBodyAcc.sma..	fBodyAcc.energy...X	fBodyAcc.energy...Y
## 1	-0.9234277	-0.9747327	-0.9999684	-0.9996891
## 2	-0.9895135	-0.9858116	-0.9999908	-0.9994499
## 3	-0.9908857	-0.9858213	-0.9999693	-0.9991374
## 4	-0.9965778	-0.9928120	-0.9999754	-0.9996969
## 5	-0.9744938	-0.9924232	-0.9999902	-0.9996251
## 6	-0.9863281	-0.9950023	-0.9999849	-0.9998596
##	fBodyAcc.energy...Z	fBodyAcc.iqr...X	fBodyAcc.iqr...Y	fBodyAcc.iqr...Z
## 1	-0.9948915	-0.9959260	-0.9897089	-0.9879912
## 2	-0.9985691	-0.9948649	-0.9807836	-0.9857747
## 3	-0.9994336	-0.9885692	-0.9772424	-0.9813019
## 4	-0.9998029	-0.9904425	-0.9919019	-0.9880605
## 5	-0.9997979	-0.9937604	-0.9881797	-0.9863589
## 6	-0.9999139	-0.9948238	-0.9869223	-0.9878261
##	fBodyAcc.entropy...X	fBodyAcc.entropy...Y	fBodyAcc.entropy...Z	
## 1	-0.9463569	-0.9047478	-0.5913025	
## 2	-1.0000000	-0.9047478	-0.7584085	
## 3	-1.0000000	-0.8157863	-0.8135133	
## 4	-1.0000000	-0.8703979	-0.9441902	
## 5	-1.0000000	-0.8703979	-0.9441902	
## 6	-1.0000000	-0.9448704	-1.0000000	
##	fBodyAcc.maxInds.X	fBodyAcc.maxInds.Y	fBodyAcc.maxInds.Z	
## 1	-1.00000000	-1	-1	
## 2	0.09677419	-1	-1	
## 3	-0.93548387	-1	-1	
## 4	-1.00000000	-1	-1	
## 5	0.09677419	-1	-1	
## 6	-0.61290323	-1	-1	
##	fBodyAcc.meanFreq...X	fBodyAcc.meanFreq...Y	fBodyAcc.meanFreq...Z	
## 1	0.25248290	0.13183575	-0.05205025	
## 2	0.27130855	0.04286364	-0.01430976	
## 3	0.12453124	-0.06461056	0.08267692	
## 4	0.02904438	0.08030227	0.18569468	
## 5	0.18108977	0.05798789	0.55978632	
## 6	0.15738377	0.31883523	0.60559943	
##	fBodyAcc.skewness...X	fBodyAcc.kurtosis...X	fBodyAcc.skewness...Y	
## 1	0.1420506	-0.1506825	-0.2205469	
## 2	-0.6925409	-0.9540470	-0.0497091	
## 3	-0.7272273	-0.9654192	0.1630629	
## 4	-0.5991180	-0.9084493	-0.4609145	

## 5	-0.6769965	-0.9513707	-0.1803828
## 6	-0.6310530	-0.9349031	-0.6607821
##	fBodyAcc.kurtosis...Y	fBodyAcc.skewness...Z	fBodyAcc.kurtosis...Z
## 1	-0.55873853	0.24676868	-0.007415521
## 2	-0.33197386	0.05667537	-0.289001440
## 3	-0.09215279	-0.04493677	-0.288365900
## 4	-0.81305675	-0.56683479	-0.771246060
## 5	-0.53372625	-0.58551700	-0.790432550
## 6	-0.89938137	-0.88068961	-0.963631110
##	fBodyAcc.bandsEnergy...1.8	fBodyAcc.bandsEnergy...9.16	
## 1	-0.9999628	-0.9999865	
## 2	-0.9999962	-0.9999818	
## 3	-0.9999894	-0.9999616	
## 4	-0.9999886	-0.9999767	
## 5	-0.9999940	-0.9999860	
## 6	-0.9999903	-0.9999831	
##	fBodyAcc.bandsEnergy...17.24	fBodyAcc.bandsEnergy...25.32	
## 1	-0.9999791	-0.9999624	
## 2	-0.9999440	-0.9999699	
## 3	-0.9998154	-0.9998473	
## 4	-0.9998343	-0.9998709	
## 5	-0.9999359	-0.9999455	
## 6	-0.9999213	-0.9999267	
##	fBodyAcc.bandsEnergy...33.40	fBodyAcc.bandsEnergy...41.48	
## 1	-0.9999322	-0.9997251	
## 2	-0.9999189	-0.9998657	
## 3	-0.9999391	-0.9999217	
## 4	-0.9999924	-0.9999492	
## 5	-0.9999694	-0.9999349	
## 6	-0.9999410	-0.9999081	
##	fBodyAcc.bandsEnergy...49.56	fBodyAcc.bandsEnergy...57.64	
## 1	-0.9996704	-0.9999858	
## 2	-0.9999651	-0.9999995	
## 3	-0.9999232	-0.9999966	
## 4	-0.9999645	-0.9999958	
## 5	-0.9999697	-0.9999862	
## 6	-0.9999635	-0.9999974	
##	fBodyAcc.bandsEnergy...1.16	fBodyAcc.bandsEnergy...17.32	
## 1	-0.9999687	-0.9999769	
## 2	-0.9999939	-0.9999490	
## 3	-0.9999826	-0.9998020	
## 4	-0.9999864	-0.9998253	
## 5	-0.9999934	-0.9999348	
## 6	-0.9999897	-0.9999166	
##	fBodyAcc.bandsEnergy...33.48	fBodyAcc.bandsEnergy...49.64	
## 1	-0.9998697	-0.9997761	
## 2	-0.9999140	-0.9999766	
## 3	-0.9999476	-0.9999478	
## 4	-0.9999912	-0.9999750	
## 5	-0.9999715	-0.9999753	
## 6	-0.9999438	-0.9999749	
##	fBodyAcc.bandsEnergy...1.24	fBodyAcc.bandsEnergy...25.48	
## 1	-0.9999712	-0.9999193	
## 2	-0.9999921	-0.9999459	

## 3	-0.9999725	-0.9998746
## 4	-0.9999773	-0.9999124
## 5	-0.9999911	-0.9999561
## 6	-0.9999865	-0.9999294
## fBodyAcc.bandsEnergy...1.8.1	fBodyAcc.bandsEnergy...9.16.1	
## 1	-0.9996568	-0.9998605
## 2	-0.9994166	-0.9998133
## 3	-0.9990060	-0.9997153
## 4	-0.9997191	-0.9997498
## 5	-0.9995640	-0.9998597
## 6	-0.9998785	-0.9999271
## fBodyAcc.bandsEnergy...17.24.1	fBodyAcc.bandsEnergy...25.32.1	
## 1	-0.9998670	-0.9998630
## 2	-0.9995686	-0.9998737
## 3	-0.9996577	-0.9998174
## 4	-0.9999442	-0.9999397
## 5	-0.9998627	-0.9998976
## 6	-0.9998145	-0.9997641
## fBodyAcc.bandsEnergy...33.40.1	fBodyAcc.bandsEnergy...41.48.1	
## 1	-0.9997378	-0.9997322
## 2	-0.9995489	-0.9997371
## 3	-0.9996359	-0.9996789
## 4	-0.9995535	-0.9998987
## 5	-0.9996505	-0.9997118
## 6	-0.9998370	-0.9997239
## fBodyAcc.bandsEnergy...49.56.1	fBodyAcc.bandsEnergy...57.64.1	
## 1	-0.9994926	-0.9998136
## 2	-0.9995658	-0.9999053
## 3	-0.9996157	-0.9998796
## 4	-0.9995122	-0.9998656
## 5	-0.9995164	-0.9999108
## 6	-0.9996215	-0.9999073
## fBodyAcc.bandsEnergy...1.16.1	fBodyAcc.bandsEnergy...17.32.1	
## 1	-0.9996818	-0.9998394
## 2	-0.9994735	-0.9995542
## 3	-0.9991085	-0.9996240
## 4	-0.9996727	-0.9999362
## 5	-0.9996103	-0.9998453
## 6	-0.9998860	-0.9997602
## fBodyAcc.bandsEnergy...33.48.1	fBodyAcc.bandsEnergy...49.64.1	
## 1	-0.9997382	-0.9996120
## 2	-0.9996020	-0.9996953
## 3	-0.9996433	-0.9997150
## 4	-0.9996673	-0.9996458
## 5	-0.9996666	-0.9996675
## 6	-0.9998075	-0.9997302
## fBodyAcc.bandsEnergy...1.24.1	fBodyAcc.bandsEnergy...25.48.1	
## 1	-0.9996872	-0.9998386
## 2	-0.9994442	-0.9998042
## 3	-0.9991263	-0.9997753
## 4	-0.9996925	-0.9998733
## 5	-0.9996211	-0.9998419
## 6	-0.9998646	-0.9997870
## fBodyAcc.bandsEnergy...1.8.2	fBodyAcc.bandsEnergy...9.16.2	

## 1	-0.9935923	-0.9994758	
## 2	-0.9982346	-0.9997692	
## 3	-0.9993882	-0.9997249	
## 4	-0.9998071	-0.9997748	
## 5	-0.9998057	-0.9998344	
## 6	-0.9999423	-0.9998171	
## fBodyAcc.bandsEnergy...17.24.2	fBodyAcc.bandsEnergy...25.32.2		
## 1	-0.9996620	-0.9996423	
## 2	-0.9996922	-0.9998749	
## 3	-0.9997185	-0.9997982	
## 4	-0.9998102	-0.9999293	
## 5	-0.9998251	-0.9997864	
## 6	-0.9998803	-0.9998224	
## fBodyAcc.bandsEnergy...33.40.2	fBodyAcc.bandsEnergy...41.48.2		
## 1	-0.9992934	-0.9978922	
## 2	-0.9996656	-0.9994483	
## 3	-0.9997528	-0.9996292	
## 4	-0.9998582	-0.9996655	
## 5	-0.9997453	-0.9996557	
## 6	-0.9997649	-0.9994852	
## fBodyAcc.bandsEnergy...49.56.2	fBodyAcc.bandsEnergy...57.64.2		
## 1	-0.9959325	-0.9951464	
## 2	-0.9989302	-0.9987544	
## 3	-0.9996862	-0.9999119	
## 4	-0.9996813	-0.9999836	
## 5	-0.9990258	-0.9994359	
## 6	-0.9996778	-0.9999048	
## fBodyAcc.bandsEnergy...1.16.2	fBodyAcc.bandsEnergy...17.32.2		
## 1	-0.9947399	-0.9996883	
## 2	-0.9985456	-0.9997918	
## 3	-0.9994535	-0.9997807	
## 4	-0.9998044	-0.9998867	
## 5	-0.9998225	-0.9998445	
## 6	-0.9999262	-0.9998927	
## fBodyAcc.bandsEnergy...33.48.2	fBodyAcc.bandsEnergy...49.64.2		
## 1	-0.9989246	-0.9956713	
## 2	-0.9996312	-0.9988775	
## 3	-0.9997489	-0.9997604	
## 4	-0.9998438	-0.9997784	
## 5	-0.9997497	-0.9991496	
## 6	-0.9997213	-0.9997523	
## fBodyAcc.bandsEnergy...1.24.2	fBodyAcc.bandsEnergy...25.48.2		
## 1	-0.9948773	-0.9994544	
## 2	-0.9985534	-0.9998221	
## 3	-0.9994343	-0.9998009	
## 4	-0.9997918	-0.9999217	
## 5	-0.9998123	-0.9997927	
## 6	-0.9999238	-0.9998103	
## fBodyAccJerk.mean...X	fBodyAccJerk.mean...Y	fBodyAccJerk.mean...Z	
## 1	-0.9923325	-0.9871699	-0.9896961
## 2	-0.9950322	-0.9813115	-0.9897398
## 3	-0.9909937	-0.9816423	-0.9875663
## 4	-0.9944466	-0.9887272	-0.9913542
## 5	-0.9962920	-0.9887900	-0.9906244

## 6	-0.9948507	-0.9882443	-0.9901575
##	fBodyAccJerk.std...X	fBodyAccJerk.std...Y	fBodyAccJerk.std...Z
## 1	-0.9958207	-0.9909363	-0.9970517
## 2	-0.9966523	-0.9820839	-0.9926268
## 3	-0.9912488	-0.9814148	-0.9904159
## 4	-0.9913783	-0.9869269	-0.9943908
## 5	-0.9969025	-0.9886067	-0.9929065
## 6	-0.9952180	-0.9901788	-0.9930667
##	fBodyAccJerk.mad...X	fBodyAccJerk.mad...Y	fBodyAccJerk.mad...Z
## 1	-0.9938055	-0.9905187	-0.9969928
## 2	-0.9949767	-0.9829295	-0.9916414
## 3	-0.9877510	-0.9810912	-0.9877232
## 4	-0.9894309	-0.9871450	-0.9937904
## 5	-0.9960914	-0.9888672	-0.9916730
## 6	-0.9931267	-0.9898364	-0.9918185
##	fBodyAccJerk.max...X	fBodyAccJerk.max...Y	fBodyAccJerk.max...Z
## 1	-0.9967369	-0.9919752	-0.9932417
## 2	-0.9974245	-0.9849232	-0.9931870
## 3	-0.9951632	-0.9853508	-0.9939116
## 4	-0.9934019	-0.9878742	-0.9942012
## 5	-0.9970095	-0.9903728	-0.9951421
## 6	-0.9969799	-0.9928015	-0.9942166
##	fBodyAccJerk.min...X	fBodyAccJerk.min...Y	fBodyAccJerk.min...Z
## 1	-0.9983491	-0.9911084	-0.9598854
## 2	-0.9979168	-0.9825186	-0.9868384
## 3	-0.9974823	-0.9985712	-0.9975540
## 4	-0.9979030	-0.9997671	-0.9653808
## 5	-0.9957965	-0.9961128	-0.9959788
## 6	-0.9960982	-0.9990643	-0.9848585
##	fBodyAccJerk.sma..	fBodyAccJerk.energy...X	fBodyAccJerk.energy...Y
## 1	-0.9905150	-0.9999347	-0.9998205
## 2	-0.9898509	-0.9999596	-0.9996396
## 3	-0.9872372	-0.9998940	-0.9996366
## 4	-0.9926573	-0.9999235	-0.9998031
## 5	-0.9932588	-0.9999691	-0.9998205
## 6	-0.9922249	-0.9999511	-0.9998280
##	fBodyAccJerk.energy...Z	fBodyAccJerk.iqr...X	fBodyAccJerk.iqr...Y
## 1	-0.9998845	-0.9930263	-0.9913734
## 2	-0.9998466	-0.9928434	-0.9852207
## 3	-0.9997951	-0.9818169	-0.9847648
## 4	-0.9998830	-0.9917761	-0.9906849
## 5	-0.9998604	-0.9961415	-0.9924077
## 6	-0.9998562	-0.9913534	-0.9910572
##	fBodyAccJerk.iqr...Z	fBodyAccJerk.entropy...X	fBodyAccJerk.entropy...Y
## 1	-0.9962396	-1	-1
## 2	-0.9910493	-1	-1
## 3	-0.9823642	-1	-1
## 4	-0.9932884	-1	-1
## 5	-0.9861788	-1	-1
## 6	-0.9877527	-1	-1
##	fBodyAccJerk.entropy...Z	fBodyAccJerk.maxInds.X	fBodyAccJerk.maxInds.Y
## 1	-1	1.00	-0.24
## 2	-1	-0.32	-0.12
## 3	-1	-0.16	-0.48

## 4	-1	-0.12	-0.56
## 5	-1	-0.32	-0.08
## 6	-1	-0.32	-0.36
##	fBodyAccJerk.maxInds.Z	fBodyAccJerk.meanFreq...X	fBodyAccJerk.meanFreq...Y
## 1	-1.00	0.87038451	0.21069700
## 2	-0.32	0.60851352	-0.05367561
## 3	-0.28	0.11543400	-0.19343634
## 4	-0.28	0.03579805	-0.09303585
## 5	0.04	0.27335020	0.07913538
## 6	0.52	0.32883589	0.05477140
##	fBodyAccJerk.meanFreq...Z	fBodyAccJerk.skewness...X	fBodyAccJerk.kurtosis...X
## 1	0.26370789	-0.7036858	-0.9037425
## 2	0.06314827	-0.6303049	-0.9103945
## 3	0.03825433	-0.5947588	-0.9235410
## 4	0.16809523	-0.2638514	-0.7572285
## 5	0.29238418	-0.5221571	-0.8129873
## 6	0.32094497	-0.5946287	-0.9053384
##	fBodyAccJerk.skewness...Y	fBodyAccJerk.kurtosis...Y	fBodyAccJerk.skewness...Z
## 1	-0.5825736	-0.9363101	-0.5073447
## 2	-0.4144235	-0.8505864	-0.6555347
## 3	-0.5289342	-0.9129851	-0.8034065
## 4	-0.3960393	-0.8296347	-0.5770384
## 5	-0.4965600	-0.9039084	-0.7643694
## 6	-0.6649723	-0.9564599	-0.7225990
##	fBodyAccJerk.kurtosis...Z	fBodyAccJerk.bandsEnergy...1.8	
## 1	-0.8055359	-0.9999865	
## 2	-0.9159869	-0.9999963	
## 3	-0.9801332	-0.9999936	
## 4	-0.8933748	-0.9999978	
## 5	-0.9662039	-0.9999953	
## 6	-0.9432911	-0.9999878	
##	fBodyAccJerk.bandsEnergy...9.16	fBodyAccJerk.bandsEnergy...17.24	
## 1	-0.9999796	-0.9999748	
## 2	-0.9999797	-0.9999489	
## 3	-0.9999443	-0.9998274	
## 4	-0.9999651	-0.9998432	
## 5	-0.9999829	-0.9999466	
## 6	-0.9999855	-0.9999309	
##	fBodyAccJerk.bandsEnergy...25.32	fBodyAccJerk.bandsEnergy...33.40	
## 1	-0.9999551	-0.9999186	
## 2	-0.9999683	-0.9999101	
## 3	-0.9998414	-0.9999222	
## 4	-0.9998654	-0.9999959	
## 5	-0.9999388	-0.9999616	
## 6	-0.9999155	-0.9999256	
##	fBodyAccJerk.bandsEnergy...41.48	fBodyAccJerk.bandsEnergy...49.56	
## 1	-0.9996401	-0.9994833	
## 2	-0.9998137	-0.9999203	
## 3	-0.9999058	-0.9998736	
## 4	-0.9999304	-0.9999417	
## 5	-0.9999289	-0.9999581	
## 6	-0.9998590	-0.9999402	
##	fBodyAccJerk.bandsEnergy...57.64	fBodyAccJerk.bandsEnergy...1.16	
## 1	-0.9999609	-0.9999823	

## 2	-0.9999607	-0.9999867
## 3	-0.9999965	-0.9999628
## 4	-0.9999992	-0.9999781
## 5	-0.9999949	-0.9999883
## 6	-0.9999969	-0.9999866
## fBodyAccJerk.bandsEnergy...17.32 fBodyAccJerk.bandsEnergy...33.48		
## 1	-0.9999707	-0.9998110
## 2	-0.9999560	-0.9998767
## 3	-0.9998038	-0.9999227
## 4	-0.9998269	-0.9999824
## 5	-0.9999412	-0.9999587
## 6	-0.9999185	-0.9999058
## fBodyAccJerk.bandsEnergy...49.64 fBodyAccJerk.bandsEnergy...1.24		
## 1	-0.9994847	-0.9999808
## 2	-0.9999141	-0.9999744
## 3	-0.9998752	-0.9999085
## 4	-0.9999426	-0.9999268
## 5	-0.9999579	-0.9999748
## 6	-0.9999407	-0.9999674
## fBodyAccJerk.bandsEnergy...25.48 fBodyAccJerk.bandsEnergy...1.8.1		
## 1	-0.9998519	-0.9999326
## 2	-0.9999058	-0.9998610
## 3	-0.9998430	-0.9998203
## 4	-0.9999009	-0.9998950
## 5	-0.9999391	-0.9999254
## 6	-0.9998864	-0.9999001
## fBodyAccJerk.bandsEnergy...9.16.1 fBodyAccJerk.bandsEnergy...17.24.1		
## 1	-0.9998999	-0.9998244
## 2	-0.9998272	-0.9994565
## 3	-0.9997439	-0.9995591
## 4	-0.9997965	-0.9998881
## 5	-0.9998775	-0.9998104
## 6	-0.9999422	-0.9997838
## fBodyAccJerk.bandsEnergy...25.32.1 fBodyAccJerk.bandsEnergy...33.40.1		
## 1	-0.9998598	-0.9997275
## 2	-0.9998303	-0.9996093
## 3	-0.9998386	-0.9996673
## 4	-0.9999061	-0.9996812
## 5	-0.9999321	-0.9997284
## 6	-0.9998103	-0.9998735
## fBodyAccJerk.bandsEnergy...41.48.1 fBodyAccJerk.bandsEnergy...49.56.1		
## 1	-0.9997288	-0.9995671
## 2	-0.9996855	-0.9995761
## 3	-0.9996275	-0.9997037
## 4	-0.9998463	-0.9996932
## 5	-0.9997694	-0.9995027
## 6	-0.9996886	-0.9995826
## fBodyAccJerk.bandsEnergy...57.64.1 fBodyAccJerk.bandsEnergy...1.16.1		
## 1	-0.9997652	-0.9999002
## 2	-0.9999370	-0.9998174
## 3	-0.9999934	-0.9997323
## 4	-0.9999999	-0.9997976
## 5	-0.9999921	-0.9998782
## 6	-0.9999992	-0.9999309

##	fBodyAccJerk.bandsEnergy...17.32.1	fBodyAccJerk.bandsEnergy...33.48.1
## 1	-0.9998149	-0.9997098
## 2	-0.9995325	-0.9995952
## 3	-0.9996112	-0.9996175
## 4	-0.9998832	-0.9997223
## 5	-0.9998387	-0.9997279
## 6	-0.9997619	-0.9998114
##	fBodyAccJerk.bandsEnergy...49.64.1	fBodyAccJerk.bandsEnergy...1.24.1
## 1	-0.9995961	-0.9998522
## 2	-0.9996257	-0.9996299
## 3	-0.9997442	-0.9996132
## 4	-0.9997359	-0.9998056
## 5	-0.9995684	-0.9998299
## 6	-0.9996392	-0.9998566
##	fBodyAccJerk.bandsEnergy...25.48.1	fBodyAccJerk.bandsEnergy...1.8.2
## 1	-0.9998221	-0.9993999
## 2	-0.9997593	-0.9998589
## 3	-0.9997732	-0.9998709
## 4	-0.9998560	-0.9998848
## 5	-0.9998744	-0.9998451
## 6	-0.9998302	-0.9998633
##	fBodyAccJerk.bandsEnergy...9.16.2	fBodyAccJerk.bandsEnergy...17.24.2
## 1	-0.9997656	-0.9999585
## 2	-0.9998465	-0.9997949
## 3	-0.9997839	-0.9997397
## 4	-0.9997237	-0.9998414
## 5	-0.9998530	-0.9998899
## 6	-0.9997931	-0.9999047
##	fBodyAccJerk.bandsEnergy...25.32.2	fBodyAccJerk.bandsEnergy...33.40.2
## 1	-0.9999495	-0.9998385
## 2	-0.9998009	-0.9998193
## 3	-0.9997866	-0.9997722
## 4	-0.9999425	-0.9998694
## 5	-0.9998177	-0.9997595
## 6	-0.9998218	-0.9997550
##	fBodyAccJerk.bandsEnergy...41.48.2	fBodyAccJerk.bandsEnergy...49.56.2
## 1	-0.9998135	-0.9987805
## 2	-0.9997692	-0.9996370
## 3	-0.9996260	-0.9994874
## 4	-0.9997353	-0.9992040
## 5	-0.9996878	-0.9991695
## 6	-0.9996238	-0.9993829
##	fBodyAccJerk.bandsEnergy...57.64.2	fBodyAccJerk.bandsEnergy...1.16.2
## 1	-0.9985778	-0.9996197
## 2	-0.9999545	-0.9998519
## 3	-0.9999957	-0.9998025
## 4	-0.9996620	-0.9997560
## 5	-0.9999823	-0.9998525
## 6	-0.9999102	-0.9998077
##	fBodyAccJerk.bandsEnergy...17.32.2	fBodyAccJerk.bandsEnergy...33.48.2
## 1	-0.9999836	-0.9998281
## 2	-0.9998273	-0.9998001
## 3	-0.9997921	-0.9997208
## 4	-0.9999203	-0.9998281

## 5	-0.9998841		-0.9997297
## 6	-0.9998937		-0.9997069
## fBodyAccJerk.bandsEnergy...49.64.2	fBodyAccJerk.bandsEnergy...1.24.2		
## 1	-0.9986807		-0.9998442
## 2	-0.9996510		-0.9998350
## 3	-0.9995138		-0.9997753
## 4	-0.9992066		-0.9998244
## 5	-0.9992106		-0.9999004
## 6	-0.9994048		-0.9998907
## fBodyAccJerk.bandsEnergy...25.48.2	fBodyGyro.mean...X	fBodyGyro.mean...Y	
## 1	-0.9999279	-0.9865744	-0.9817615
## 2	-0.9998267	-0.9773867	-0.9925300
## 3	-0.9997868	-0.9754332	-0.9937147
## 4	-0.9999237	-0.9871096	-0.9936015
## 5	-0.9998092	-0.9824465	-0.9929838
## 6	-0.9998027	-0.9848902	-0.9927862
## fBodyGyro.mean...Z	fBodyGyro.std...X	fBodyGyro.std...Y	fBodyGyro.std...Z
## 1	-0.9895148	-0.9850326	-0.9738861
## 2	-0.9896058	-0.9849043	-0.9871681
## 3	-0.9867557	-0.9766422	-0.9933990
## 4	-0.9871913	-0.9928104	-0.9916460
## 5	-0.9886664	-0.9859818	-0.9919558
## 6	-0.9807784	-0.9852871	-0.9916595
## fBodyGyro.mad...X	fBodyGyro.mad...Y	fBodyGyro.mad...Z	fBodyGyro.max...X
## 1	-0.9865308	-0.9836164	-0.9923520
## 2	-0.9793612	-0.9918368	-0.9879651
## 3	-0.9756091	-0.9937071	-0.9850303
## 4	-0.9896713	-0.9934607	-0.9865264
## 5	-0.9825810	-0.9933426	-0.9864612
## 6	-0.9834343	-0.9929105	-0.9840883
## fBodyGyro.max...Y	fBodyGyro.max...Z	fBodyGyro.min...X	fBodyGyro.min...Y
## 1	-0.9722709	-0.9949443	-0.9975686
## 2	-0.9847864	-0.9901508	-0.9868918
## 3	-0.9949860	-0.9912830	-0.9883117
## 4	-0.9918014	-0.9922807	-0.9897006
## 5	-0.9932283	-0.9914436	-0.9937381
## 6	-0.9931990	-0.9876443	-0.9993609
## fBodyGyro.min...Z	fBodyGyro.sma..	fBodyGyro.energy...X	fBodyGyro.energy...Y
## 1	-0.9943354	-0.9852762	-0.9998637
## 2	-0.9944137	-0.9868687	-0.9998249
## 3	-0.9936360	-0.9860087	-0.9996733
## 4	-0.9931436	-0.9903443	-0.9999462
## 5	-0.9948352	-0.9887062	-0.9998616
## 6	-0.9816007	-0.9876105	-0.9998615
## fBodyGyro.energy...Z	fBodyGyro.iqr...X	fBodyGyro.iqr...Y	fBodyGyro.iqr...Z
## 1	-0.9999346	-0.9903439	-0.9948357
## 2	-0.9998921	-0.9870994	-0.9955637
## 3	-0.9998463	-0.9855365	-0.9953921
## 4	-0.9998668	-0.9928778	-0.9962888
## 5	-0.9998642	-0.9904644	-0.9961228
## 6	-0.9997811	-0.9883218	-0.9940861
## fBodyGyro.entropy...X	fBodyGyro.entropy...Y	fBodyGyro.entropy...Z	
## 1	-0.7124023	-0.6448424	-0.8389930
## 2	-0.6111119	-0.7646030	-0.7510797

## 3	-0.5909865	-0.8082872	-0.7510797
## 4	-0.7236655	-0.8037541	-0.8172859
## 5	-0.6526168	-0.8272124	-0.7374578
## 6	-0.6781863	-0.8082872	-0.7510797
##	fBodyGyro.maxInds.X	fBodyGyro.maxInds.Y	fBodyGyro.maxInds.Z
## 1	-1.0000000	-1.0000000	-1.0000000
## 2	-1.0000000	-1.0000000	-1.0000000
## 3	-1.0000000	-0.8709677	-1.0000000
## 4	-1.0000000	-1.0000000	-0.7931035
## 5	-1.0000000	-0.8064516	-1.0000000
## 6	-0.9333333	-0.9354839	-0.9310345
##	fBodyGyro.meanFreq...X	fBodyGyro.meanFreq...Y	fBodyGyro.meanFreq...Z
## 1	-0.25754888	0.09794711	0.54715105
## 2	-0.04816744	-0.40160791	-0.06817833
## 3	-0.21668507	-0.01726417	-0.11072029
## 4	0.21686246	-0.13524536	-0.04972798
## 5	-0.15334258	-0.08840273	-0.16223039
## 6	-0.36303968	-0.13323831	0.19483324
##	fBodyGyro.skewness...X	fBodyGyro.kurtosis...X	fBodyGyro.skewness...Y
## 1	0.377311210	0.1340915	0.2733720
## 2	-0.458553310	-0.7970135	0.3875689
## 3	0.090519474	-0.2446911	-0.4292724
## 4	-0.572087600	-0.8736179	-0.1351185
## 5	-0.339596820	-0.7226279	-0.2654707
## 6	-0.004027766	-0.3231587	-0.2900701
##	fBodyGyro.kurtosis...Y	fBodyGyro.skewness...Z	fBodyGyro.kurtosis...Z
## 1	-0.09126183	-0.4843465	-0.7828507
## 2	0.14866483	-0.1569093	-0.4517759
## 3	-0.81263905	-0.3919913	-0.7674824
## 4	-0.54223840	-0.3793527	-0.7565483
## 5	-0.68998825	-0.2679956	-0.6592078
## 6	-0.70538442	-0.2350403	-0.6081425
##	fBodyGyro.bandsEnergy...1.8	fBodyGyro.bandsEnergy...9.16	
## 1	-0.9998650	-0.9999318	
## 2	-0.9998509	-0.9997943	
## 3	-0.9996805	-0.9998282	
## 4	-0.9999637	-0.9998907	
## 5	-0.9998700	-0.9999117	
## 6	-0.9998650	-0.9999123	
##	fBodyGyro.bandsEnergy...17.24	fBodyGyro.bandsEnergy...25.32	
## 1	-0.9999729	-0.9999702	
## 2	-0.9999131	-0.9999182	
## 3	-0.9999151	-0.9999324	
## 4	-0.9999465	-0.9999733	
## 5	-0.9999258	-0.9999409	
## 6	-0.9999742	-0.9999722	
##	fBodyGyro.bandsEnergy...33.40	fBodyGyro.bandsEnergy...41.48	
## 1	-0.9999301	-0.9999586	
## 2	-0.9998964	-0.9998853	
## 3	-0.9998478	-0.9998415	
## 4	-0.9998773	-0.9999031	
## 5	-0.9999356	-0.9998874	
## 6	-0.9999759	-0.9999721	
##	fBodyGyro.bandsEnergy...49.56	fBodyGyro.bandsEnergy...57.64	

## 1	-0.9999290	-0.9999847
## 2	-0.9997842	-0.9997824
## 3	-0.9998635	-0.9998622
## 4	-0.9998334	-0.9998929
## 5	-0.9998999	-0.9999175
## 6	-0.9999598	-0.9999847
## fBodyGyro.bandsEnergy...1.16	fBodyGyro.bandsEnergy...17.32	
## 1	-0.9998633	-0.9999681
## 2	-0.9998299	-0.9998988
## 3	-0.9996744	-0.9999063
## 4	-0.9999502	-0.9999481
## 5	-0.9998651	-0.9999183
## 6	-0.9998604	-0.9999700
## fBodyGyro.bandsEnergy...33.48	fBodyGyro.bandsEnergy...49.64	
## 1	-0.9999361	-0.9999536
## 2	-0.9998828	-0.9997834
## 3	-0.9998314	-0.9998629
## 4	-0.9998769	-0.9998597
## 5	-0.9999109	-0.9999077
## 6	-0.9999733	-0.9999708
## fBodyGyro.bandsEnergy...1.24	fBodyGyro.bandsEnergy...25.48	
## 1	-0.9998644	-0.9999610
## 2	-0.9998283	-0.9999080
## 3	-0.9996757	-0.9999035
## 4	-0.9999484	-0.9999461
## 5	-0.9998636	-0.9999326
## 6	-0.9998617	-0.9999732
## fBodyGyro.bandsEnergy...1.8.1	fBodyGyro.bandsEnergy...9.16.1	
## 1	-0.9994537	-0.9999781
## 2	-0.9998564	-0.9999885
## 3	-0.9999544	-0.9999876
## 4	-0.9999305	-0.9999892
## 5	-0.9999259	-0.9999927
## 6	-0.9999263	-0.9999897
## fBodyGyro.bandsEnergy...17.24.1	fBodyGyro.bandsEnergy...25.32.1	
## 1	-0.9999915	-0.9999901
## 2	-0.9999957	-0.9999942
## 3	-0.9999901	-0.9999943
## 4	-0.9999924	-0.9999925
## 5	-0.9999964	-0.9999884
## 6	-0.9999942	-0.9999842
## fBodyGyro.bandsEnergy...33.40.1	fBodyGyro.bandsEnergy...41.48.1	
## 1	-0.9999686	-0.9998066
## 2	-0.9999861	-0.9999845
## 3	-0.9999730	-0.9999428
## 4	-0.9999859	-0.9999541
## 5	-0.9999666	-0.9999737
## 6	-0.9999678	-0.9999921
## fBodyGyro.bandsEnergy...49.56.1	fBodyGyro.bandsEnergy...57.64.1	
## 1	-0.9983460	-0.9989612
## 2	-0.9999800	-0.9999900
## 3	-0.9999866	-0.9999933
## 4	-0.9999898	-0.9999883
## 5	-0.9999740	-0.9999720

## 6	-0.9999660	-0.9999886
## fBodyGyro.bandsEnergy...1.16.1	fBodyGyro.bandsEnergy...17.32.1	
## 1	-0.9996187	-0.9999893
## 2	-0.9998966	-0.9999945
## 3	-0.9999620	-0.9999893
## 4	-0.9999470	-0.9999908
## 5	-0.9999462	-0.9999934
## 6	-0.9999445	-0.9999900
## fBodyGyro.bandsEnergy...33.48.1	fBodyGyro.bandsEnergy...49.64.1	
## 1	-0.9999354	-0.9983875
## 2	-0.9999860	-0.9999817
## 3	-0.9999670	-0.9999877
## 4	-0.9999796	-0.9999878
## 5	-0.9999681	-0.9999696
## 6	-0.9999729	-0.9999712
## fBodyGyro.bandsEnergy...1.24.1	fBodyGyro.bandsEnergy...25.48.1	
## 1	-0.9996426	-0.9999727
## 2	-0.9999026	-0.9999917
## 3	-0.9999606	-0.9999858
## 4	-0.9999478	-0.9999884
## 5	-0.9999490	-0.9999816
## 6	-0.9999463	-0.9999799
## fBodyGyro.bandsEnergy...1.8.2	fBodyGyro.bandsEnergy...9.16.2	
## 1	-0.9999554	-0.9999763
## 2	-0.9999089	-0.9999594
## 3	-0.9998701	-0.9999346
## 4	-0.9998773	-0.9999685
## 5	-0.9998711	-0.9999554
## 6	-0.9998227	-0.9998868
## fBodyGyro.bandsEnergy...17.24.2	fBodyGyro.bandsEnergy...25.32.2	
## 1	-0.9999058	-0.9999855
## 2	-0.9999281	-0.9999663
## 3	-0.9999347	-0.9999570
## 4	-0.9999566	-0.9999556
## 5	-0.9999962	-0.9999864
## 6	-0.9999526	-0.9999220
## fBodyGyro.bandsEnergy...33.40.2	fBodyGyro.bandsEnergy...41.48.2	
## 1	-0.9999372	-0.9997512
## 2	-0.9999855	-0.9999264
## 3	-0.9999522	-0.9999093
## 4	-0.9999493	-0.9998805
## 5	-0.9999397	-0.9999068
## 6	-0.9998569	-0.9998545
## fBodyGyro.bandsEnergy...49.56.2	fBodyGyro.bandsEnergy...57.64.2	
## 1	-0.9990723	-0.9999275
## 2	-0.9999615	-0.9999831
## 3	-0.9998890	-0.9999885
## 4	-0.9998793	-0.9999495
## 5	-0.9999211	-0.9999812
## 6	-0.9995571	-0.9996430
## fBodyGyro.bandsEnergy...1.16.2	fBodyGyro.bandsEnergy...17.32.2	
## 1	-0.9999516	-0.9999058
## 2	-0.9999017	-0.9999178
## 3	-0.9998565	-0.9999196

```

## 4          -0.9998747          -0.9999398
## 5          -0.9998645          -0.9999925
## 6          -0.9997954          -0.9999197
## fBodyGyro.bandsEnergy...33.48.2 fBodyGyro.bandsEnergy...49.64.2
## 1          -0.9998927          -0.9994443
## 2          -0.9999754          -0.9999711
## 3          -0.9999464          -0.9999325
## 4          -0.9999364          -0.9999101
## 5          -0.9999366          -0.9999474
## 6          -0.9998617          -0.9995947
## fBodyGyro.bandsEnergy...1.24.2 fBodyGyro.bandsEnergy...25.48.2
## 1          -0.9999410          -0.9999586
## 2          -0.9998943          -0.9999710
## 3          -0.9998502          -0.9999556
## 4          -0.9998713          -0.9999516
## 5          -0.9998664          -0.9999728
## 6          -0.9997918          -0.9999052
## fBodyAccMag.mean.. fBodyAccMag.std.. fBodyAccMag.mad.. fBodyAccMag.max..
## 1          -0.9521547          -0.9561340          -0.9488701          -0.9743206
## 2          -0.9808566          -0.9758658          -0.9757769          -0.9782264
## 3          -0.9877948          -0.9890155          -0.9855936          -0.9930619
## 4          -0.9875187          -0.9867420          -0.9835237          -0.9902299
## 5          -0.9935909          -0.9900635          -0.9923241          -0.9905059
## 6          -0.9948360          -0.9952833          -0.9938512          -0.9953650
## fBodyAccMag.min.. fBodyAccMag.sma.. fBodyAccMag.energy.. fBodyAccMag.iqr..
## 1          -0.9257218          -0.9521547          -0.9982852          -0.9732732
## 2          -0.9869108          -0.9808566          -0.9994719          -0.9844792
## 3          -0.9898364          -0.9877948          -0.9998067          -0.9892371
## 4          -0.9981850          -0.9875187          -0.9997702          -0.9832153
## 5          -0.9878052          -0.9935909          -0.9998731          -0.9973433
## 6          -0.9894722          -0.9948360          -0.9999390          -0.9921667
## fBodyAccMag.entropy.. fBodyAccMag.maxInds fBodyAccMag.meanFreq..
## 1          -0.6463764          -0.7931035          -0.08843612
## 2          -0.8166736          -1.0000000          -0.04414989
## 3          -0.9070143          -0.8620690          0.25789914
## 4          -0.9070143          -1.0000000          0.07358150
## 5          -0.9070143          -1.0000000          0.39431033
## 6          -1.0000000          -1.0000000          0.43796212
## fBodyAccMag.skewness.. fBodyAccMag.kurtosis.. fBodyBodyAccJerkMag.mean..
## 1          -0.4364710          -0.7968405          -0.9937257
## 2          -0.1220404          -0.4495219          -0.9903355
## 3          -0.6187251          -0.8796846          -0.9892801
## 4          -0.4684223          -0.7564936          -0.9927689
## 5          -0.1126629          -0.4818052          -0.9955228
## 6          -0.5946439          -0.8091864          -0.9947329
## fBodyBodyAccJerkMag.std.. fBodyBodyAccJerkMag.mad.. fBodyBodyAccJerkMag.max..
## 1          -0.9937550          -0.9919757          -0.9933647
## 2          -0.9919603          -0.9897320          -0.9944888
## 3          -0.9908667          -0.9872743          -0.9931788
## 4          -0.9916998          -0.9890549          -0.9944546
## 5          -0.9943890          -0.9933055          -0.9954847
## 6          -0.9951562          -0.9942986          -0.9944851
## fBodyBodyAccJerkMag.min.. fBodyBodyAccJerkMag.sma..
## 1          -0.9881754          -0.9937257

```

## 2	-0.9895488	-0.9903355	
## 3	-0.9998898	-0.9892801	
## 4	-0.9955624	-0.9927689	
## 5	-0.9821772	-0.9955228	
## 6	-0.9830483	-0.9947329	
##	fBodyBodyAccJerkMag.energy..	fBodyBodyAccJerkMag.iqr..	
## 1	-0.9999184	-0.9913637	
## 2	-0.9998669	-0.9911339	
## 3	-0.9998455	-0.9866576	
## 4	-0.9998948	-0.9880552	
## 5	-0.9999409	-0.9941695	
## 6	-0.9999370	-0.9966966	
##	fBodyBodyAccJerkMag.entropy..	fBodyBodyAccJerkMag.maxInds	
## 1	-1	-0.9365079	
## 2	-1	-0.8412698	
## 3	-1	-0.9047619	
## 4	-1	1.0000000	
## 5	-1	-1.0000000	
## 6	-1	-1.0000000	
##	fBodyBodyAccJerkMag.meanFreq..	fBodyBodyAccJerkMag.skewness..	
## 1	0.3469885	-0.5160801	
## 2	0.5320605	-0.6248710	
## 3	0.6607950	-0.7246967	
## 4	0.6789213	-0.7011307	
## 5	0.5590577	-0.5289013	
## 6	0.2469096	-0.5208793	
##	fBodyBodyAccJerkMag.kurtosis..	fBodyBodyGyroMag.mean..	fBodyBodyGyroMag.std..
## 1	-0.8027600	-0.9801349	-0.9613094
## 2	-0.9001600	-0.9882956	-0.9833219
## 3	-0.9285394	-0.9892548	-0.9860277
## 4	-0.9096391	-0.9894128	-0.9878358
## 5	-0.8589325	-0.9914330	-0.9890594
## 6	-0.8025254	-0.9905000	-0.9858609
##	fBodyBodyGyroMag.mad..	fBodyBodyGyroMag.max..	fBodyBodyGyroMag.min..
## 1	-0.9736534	-0.9522638	-0.9894981
## 2	-0.9826593	-0.9863208	-0.9918288
## 3	-0.9842736	-0.9909794	-0.9957030
## 4	-0.9868499	-0.9867488	-0.9961994
## 5	-0.9877436	-0.9914617	-0.9983532
## 6	-0.9855120	-0.9882041	-0.9947578
##	fBodyBodyGyroMag.sma..	fBodyBodyGyroMag.energy..	fBodyBodyGyroMag.iqr..
## 1	-0.9801349	-0.9992403	-0.9926555
## 2	-0.9882956	-0.9998112	-0.9939785
## 3	-0.9892548	-0.9998539	-0.9932383
## 4	-0.9894128	-0.9998756	-0.9891355
## 5	-0.9914330	-0.9999018	-0.9893211
## 6	-0.9905000	-0.9998606	-0.9919667
##	fBodyBodyGyroMag.entropy..	fBodyBodyGyroMag.maxInds	
## 1	-0.7012914	-1.0000000	
## 2	-0.7206830	-0.9487180	
## 3	-0.7365215	-0.7948718	
## 4	-0.7208908	-1.0000000	
## 5	-0.7633722	-0.8974359	
## 6	-0.7685767	-1.0000000	

```

## fBodyBodyGyroMag.meanFreq.. fBodyBodyGyroMag.skewness..
## 1 -0.1289889 0.5861564
## 2 -0.2719585 -0.3363104
## 3 -0.2127279 -0.5353521
## 4 -0.0356842 -0.2300909
## 5 -0.2735820 -0.5102819
## 6 -0.2973291 -0.3460445
## fBodyBodyGyroMag.kurtosis.. fBodyBodyGyroJerkMag.mean..
## 1 0.3746046 -0.9919904
## 2 -0.7200151 -0.9958539
## 3 -0.8719141 -0.9950305
## 4 -0.5112170 -0.9952207
## 5 -0.8307018 -0.9950928
## 6 -0.7272705 -0.9951433
## fBodyBodyGyroJerkMag.std.. fBodyBodyGyroJerkMag.mad..
## 1 -0.9906975 -0.9899408
## 2 -0.9963995 -0.9954421
## 3 -0.9951274 -0.9946396
## 4 -0.9952369 -0.9957222
## 5 -0.9954648 -0.9952787
## 6 -0.9952387 -0.9943979
## fBodyBodyGyroJerkMag.max.. fBodyBodyGyroJerkMag.min..
## 1 -0.9924478 -0.9910477
## 2 -0.9968660 -0.9944397
## 3 -0.9960596 -0.9958663
## 4 -0.9952731 -0.9957318
## 5 -0.9956093 -0.9974180
## 6 -0.9960880 -0.9985194
## fBodyBodyGyroJerkMag.sma.. fBodyBodyGyroJerkMag.energy..
## 1 -0.9919904 -0.9999368
## 2 -0.9958539 -0.9999807
## 3 -0.9950305 -0.9999731
## 4 -0.9952207 -0.9999744
## 5 -0.9950928 -0.9999745
## 6 -0.9951433 -0.9999740
## fBodyBodyGyroJerkMag.iqr.. fBodyBodyGyroJerkMag.entropy..
## 1 -0.9904579 -0.8713058
## 2 -0.9945437 -1.0000000
## 3 -0.9937553 -1.0000000
## 4 -0.9952260 -0.9556959
## 5 -0.9954868 -1.0000000
## 6 -0.9945305 -1.0000000
## fBodyBodyGyroJerkMag.maxInds fBodyBodyGyroJerkMag.meanFreq..
## 1 -1.0000000 -0.07432303
## 2 -1.0000000 0.15807454
## 3 -0.5555556 0.41450281
## 4 -0.9365079 0.40457253
## 5 -0.9365079 0.08775301
## 6 -1.0000000 0.01995331
## fBodyBodyGyroJerkMag.skewness.. fBodyBodyGyroJerkMag.kurtosis..
## 1 -0.2986764 -0.7103041
## 2 -0.5950509 -0.8614993
## 3 -0.3907482 -0.7601037
## 4 -0.1172902 -0.4828445

```

```
## 5          -0.3514709          -0.6992052
## 6          -0.5454101          -0.8446193
##   angle.tBodyAccMean.gravity. angle.tBodyAccJerkMean..gravityMean.
## 1          -0.11275434          0.030400372
## 2           0.05347695         -0.007434566
## 3          -0.11855926          0.177899480
## 4          -0.03678797         -0.012892494
## 5           0.12332005          0.122541960
## 6           0.08263215         -0.143439010
##   angle.tBodyGyroMean.gravityMean. angle.tBodyGyroJerkMean.gravityMean.
## 1          -0.4647614          -0.01844588
## 2          -0.7326262           0.70351059
## 3           0.1006992           0.80852908
## 4           0.6400110          -0.48536645
## 5           0.6935783          -0.61597061
## 6           0.2750408          -0.36822404
##   angle.X.gravityMean. angle.Y.gravityMean. angle.Z.gravityMean. subject
## 1          -0.8412468          0.1799406          -0.05862692          1
## 2          -0.8447876          0.1802889          -0.05431672          1
## 3          -0.8489335          0.1806373          -0.04911782          1
## 4          -0.8486494          0.1819348          -0.04766318          1
## 5          -0.8478653          0.1851512          -0.04389225          1
## 6          -0.8496316          0.1848225          -0.04212638          1
##   Activity
## 1 STANDING
## 2 STANDING
## 3 STANDING
## 4 STANDING
## 5 STANDING
## 6 STANDING
```

```
dim(train)
```

```
## [1] 7352 563
```

```
test <-read.csv('/Users/huy/Documents/doanthaytung/archive/test.csv')
head(test)
```

```
##   tBodyAcc.mean...X tBodyAcc.mean...Y tBodyAcc.mean...Z tBodyAcc.std...X
## 1      0.2571778      -0.02328523      -0.01465376      -0.9384040
## 2      0.2860267      -0.01316336      -0.11908252      -0.9754147
## 3      0.2754848      -0.02605042      -0.11815167      -0.9938190
## 4      0.2702982      -0.03261387      -0.11752018      -0.9947428
## 5      0.2748330      -0.02784779      -0.12952716      -0.9938525
## 6      0.2792199      -0.01862040      -0.11390197      -0.9944552
##   tBodyAcc.std...Y tBodyAcc.std...Z tBodyAcc.mad...X tBodyAcc.mad...Y
## 1      -0.9200908      -0.6676833      -0.9525011      -0.9252487
## 2      -0.9674579      -0.9449582      -0.9867988      -0.9684013
## 3      -0.9699255      -0.9627480      -0.9944034      -0.9707350
## 4      -0.9732676      -0.9670907      -0.9952743      -0.9744710
## 5      -0.9674455      -0.9782950      -0.9941114      -0.9659526
## 6      -0.9704169      -0.9653163      -0.9945851      -0.9694806
##   tBodyAcc.mad...Z tBodyAcc.max...X tBodyAcc.max...Y tBodyAcc.max...Z
```


## 1	-0.6743022	-0.8940875	-0.5545772	-0.4662230
## 2	-0.9458234	-0.8940875	-0.5545772	-0.8060133
## 3	-0.9634827	-0.9392603	-0.5685122	-0.7991165
## 4	-0.9688974	-0.9386098	-0.5685122	-0.7991165
## 5	-0.9773460	-0.9386098	-0.5608306	-0.8258941
## 6	-0.9658969	-0.9378563	-0.5608306	-0.8011523
##	tBodyAcc.min...X	tBodyAcc.min...Y	tBodyAcc.min...Z	tBodyAcc.sma..
## 1	0.7172085	0.6355024	0.7894967	-0.8777642
## 2	0.7680313	0.6836980	0.7967058	-0.9690965
## 3	0.8483052	0.6678642	0.8224423	-0.9767823
## 4	0.8483052	0.6678642	0.8224423	-0.9744184
## 5	0.8491794	0.6706998	0.8298973	-0.9752829
## 6	0.8509852	0.6755901	0.8298973	-0.9809815
##	tBodyAcc.energy...X	tBodyAcc.energy...Y	tBodyAcc.energy...Z	tBodyAcc.iqr...X
## 1	-0.9977661	-0.9984138	-0.9343453	-0.9756690
## 2	-0.9995795	-0.9996456	-0.9977203	-0.9940063
## 3	-0.9999539	-0.9995698	-0.9987200	-0.9934559
## 4	-0.9999534	-0.9993302	-0.9989332	-0.9952355
## 5	-0.9999537	-0.9994672	-0.9988233	-0.9934979
## 6	-0.9999607	-0.9997163	-0.9989343	-0.9948603
##	tBodyAcc.iqr...Y	tBodyAcc.iqr...Z	tBodyAcc.entropy...X	tBodyAcc.entropy...Y
## 1	-0.9498237	-0.8304778	-0.1680842	-0.3789955
## 2	-0.9736367	-0.9507199	-0.3024370	-0.3482432
## 3	-0.9742661	-0.9649758	-0.6179159	-0.6954902
## 4	-0.9787394	-0.9699818	-0.7495784	-0.8992260
## 5	-0.9670322	-0.9762567	-0.5905761	-0.7402065
## 6	-0.9763354	-0.9703371	-0.5387699	-0.5054416
##	tBodyAcc.entropy...Z	tBodyAcc.arCoeff...X.1	tBodyAcc.arCoeff...X.2	
## 1	0.2462170	0.5212036	-0.48779311	
## 2	-0.4047853	0.5074924	-0.15649451	
## 3	-0.5366929	0.2421474	-0.11499664	
## 4	-0.5538126	0.1746836	-0.05133189	
## 5	-0.7994187	0.1155703	-0.02892266	
## 6	-0.4788728	0.1842802	-0.19590873	
##	tBodyAcc.arCoeff...X.3	tBodyAcc.arCoeff...X.4	tBodyAcc.arCoeff...Y.1	
## 1	0.48228047	-0.04546211	0.2119550500	
## 2	0.04067368	0.27299122	0.1975658100	
## 3	0.03270297	0.19238524	-0.0119446610	
## 4	0.03419965	0.15363891	0.0307673730	
## 5	-0.03280404	0.29434042	0.0006299078	
## 6	0.22991372	0.09903875	-0.0906301630	
##	tBodyAcc.arCoeff...Y.2	tBodyAcc.arCoeff...Y.3	tBodyAcc.arCoeff...Y.4	
## 1	-0.13489443	0.13085848	-0.01417631	
## 2	-0.19455563	0.41141089	-0.34046620	
## 3	-0.06336285	0.47081883	-0.50739515	
## 4	-0.12927714	0.44610006	-0.41949570	
## 5	-0.04527152	0.16841922	-0.06815647	
## 6	0.09465511	0.02696288	0.10867399	
##	tBodyAcc.arCoeff...Z.1	tBodyAcc.arCoeff...Z.2	tBodyAcc.arCoeff...Z.3	
## 1	-0.10597085	0.07354401	-0.17151642	
## 2	0.07755506	-0.08402448	0.03530499	
## 3	0.18853579	-0.23157509	0.63211960	
## 4	0.27149343	-0.22576856	0.41637605	
## 5	0.07438405	0.02713754	-0.14593145	

## 6	-0.02176199	-0.01669594	0.02645014
##	tBodyAcc.arCoeff...Z.4	tBodyAcc.correlation...X.Y	tBodyAcc.correlation...X.Z
## 1	0.04006298	0.07698893	-0.4905457
## 2	-0.01008253	-0.10498290	-0.4291335
## 3	-0.55070789	0.30565330	-0.3238477
## 4	-0.28644496	-0.06379201	-0.1671111
## 5	-0.05019720	0.23515128	0.2904867
## 6	0.01924324	0.32285286	0.4185400
##	tBodyAcc.correlation...Y.Z	tGravityAcc.mean...X	tGravityAcc.mean...Y
## 1	-0.7090026	0.9364893	-0.2827192
## 2	0.3991770	0.9274036	-0.2892151
## 3	0.2797865	0.9299150	-0.2875128
## 4	0.5449161	0.9288814	-0.2933958
## 5	0.4577181	0.9265997	-0.3029609
## 6	0.7275770	0.9256632	-0.3089397
##	tGravityAcc.mean...Z	tGravityAcc.std...X	tGravityAcc.std...Y
## 1	0.1152882	-0.9254273	-0.9370141
## 2	0.1525683	-0.9890571	-0.9838872
## 3	0.1460856	-0.9959365	-0.9882505
## 4	0.1429259	-0.9931392	-0.9704192
## 5	0.1383067	-0.9955746	-0.9709604
## 6	0.1305608	-0.9988423	-0.9907387
##	tGravityAcc.std...Z	tGravityAcc.mad...X	tGravityAcc.mad...Y
## 1	-0.5642884	-0.9300199	-0.9378220
## 2	-0.9647811	-0.9889996	-0.9831594
## 3	-0.9815796	-0.9959759	-0.9886287
## 4	-0.9915917	-0.9929791	-0.9712240
## 5	-0.9680853	-0.9955278	-0.9709048
## 6	-0.9712319	-0.9988435	-0.9911926
##	tGravityAcc.mad...Z	tGravityAcc.max...X	tGravityAcc.max...Y
## 1	-0.6055877	0.9060826	-0.2792441
## 2	-0.9652063	0.8561758	-0.3048700
## 3	-0.9802547	0.8562691	-0.3048700
## 4	-0.9931267	0.8562691	-0.3051008
## 5	-0.9685948	0.8539417	-0.3125521
## 6	-0.9708445	0.8515732	-0.3237002
##	tGravityAcc.max...Z	tGravityAcc.min...X	tGravityAcc.min...Y
## 1	0.1528952	0.9444614	-0.2621596
## 2	0.1528952	0.9444614	-0.2621596
## 3	0.1394543	0.9487043	-0.2616608
## 4	0.1361241	0.9473090	-0.2729157
## 5	0.1335407	0.9462210	-0.2791896
## 6	0.1292985	0.9461996	-0.2794163
##	tGravityAcc.min...Z	tGravityAcc.sma..	tGravityAcc.energy...X
## 1	-0.07616168	-0.01782692	0.8292968
## 2	0.14901318	0.05767649	0.8055747
## 3	0.14496859	0.04056073	0.8120440
## 4	0.14210730	0.04610593	0.8093794
## 5	0.13093136	0.05535090	0.8035001
## 6	0.12892889	0.04908850	0.8010895
##	tGravityAcc.energy...Y	tGravityAcc.energy...Z	tGravityAcc.iqr...X
## 1	-0.8646206	-0.9677953	-0.9497267
## 2	-0.8581631	-0.9572396	-0.9884034
## 3	-0.8599467	-0.9609650	-0.9959671

## 4	-0.8537132	-0.9627130	-0.9924825
## 5	-0.8433784	-0.9651366	-0.9955685
## 6	-0.8367905	-0.9690918	-0.9988469
##	tGravityAcc.iqr...Y	tGravityAcc.iqr...Z	tGravityAcc.entropy...X
## 1	-0.9461192	-0.7597181	-0.4249753
## 2	-0.9816875	-0.9712152	-0.7288840
## 3	-0.9896235	-0.9787818	-0.8233928
## 4	-0.9726324	-0.9959882	-0.8233928
## 5	-0.9715982	-0.9689766	-0.8301235
## 6	-0.9928763	-0.9718545	-0.7199673
##	tGravityAcc.entropy...Y	tGravityAcc.entropy...Z	tGravityAcc.arCoeff...X.1
## 1	-1	0.2192273	-0.4302536
## 2	-1	-0.4650471	-0.5098819
## 3	-1	-0.5295769	-0.2949863
## 4	-1	-0.7001571	-0.3430160
## 5	-1	-0.3018707	-0.4817419
## 6	-1	-0.3921442	-0.5262082
##	tGravityAcc.arCoeff...X.2	tGravityAcc.arCoeff...X.3	tGravityAcc.arCoeff...X.4
## 1	0.4310483	-0.4318389	0.4327738
## 2	0.5254242	-0.5402447	0.5544470
## 3	0.3050115	-0.3152394	0.3257889
## 4	0.3589749	-0.3751908	0.3917760
## 5	0.5385102	-0.5963212	0.6552316
## 6	0.5823620	-0.6393117	0.6971136
##	tGravityAcc.arCoeff...Y.1	tGravityAcc.arCoeff...Y.2	tGravityAcc.arCoeff...Y.3
## 1	-0.7954677	0.7813139	-0.7803915
## 2	-0.7456869	0.7331707	-0.7373905
## 3	-0.2316402	0.1687004	-0.1552034
## 4	-0.2330360	0.1762410	-0.1693681
## 5	-0.4933308	0.4626772	-0.4654635
## 6	-0.5885098	0.5740407	-0.5873130
##	tGravityAcc.arCoeff...Y.4	tGravityAcc.arCoeff...Z.1	tGravityAcc.arCoeff...Z.2
## 1	0.7852716	-0.9844102	0.9871799
## 2	0.7486983	-0.8451508	0.8692901
## 3	0.1640398	-0.4294592	0.4403016
## 4	0.1848743	-0.2965727	0.3037875
## 5	0.4829400	-0.5355455	0.5443169
## 6	0.6122555	-0.5736824	0.5810748
##	tGravityAcc.arCoeff...Z.3	tGravityAcc.arCoeff...Z.4	
## 1	-0.9894148	0.9876861	
## 2	-0.8930646	0.9131189	
## 3	-0.4506272	0.4578925	
## 4	-0.3106797	0.3149643	
## 5	-0.5529496	0.5587397	
## 6	-0.5882441	0.5924296	
##	tGravityAcc.correlation...X.Y	tGravityAcc.correlation...X.Z	
## 1	0.9805803	-0.9963518	
## 2	0.9452327	-0.9114153	
## 3	0.5484322	-0.3348641	
## 4	0.9855345	0.6531688	
## 5	0.9983455	0.9162361	
## 6	0.7382672	0.5283003	
##	tGravityAcc.correlation...Y.Z	tBodyAccJerk.mean...X	tBodyAccJerk.mean...Y
## 1	-0.9601171	0.07204601	0.045754401

## 2	-0.7385345	0.07018069	-0.017876016
## 3	0.5903015	0.06936778	-0.004908146
## 4	0.7465177	0.07485289	0.032274322
## 5	0.9285952	0.07837679	0.022276764
## 6	0.9527397	0.07598039	0.017519217
##	tBodyAccJerk.mean...Z	tBodyAccJerk.std...X	tBodyAccJerk.std...Y
## 1	-0.106042660	-0.9066828	-0.9380164
## 2	-0.001720629	-0.9492040	-0.9726989
## 3	-0.013672983	-0.9910699	-0.9714041
## 4	0.012141275	-0.9908016	-0.9728957
## 5	0.002748499	-0.9920724	-0.9786700
## 6	0.008208061	-0.9938344	-0.9791029
##	tBodyAccJerk.std...Z	tBodyAccJerk.mad...X	tBodyAccJerk.mad...Y
## 1	-0.9359358	-0.9160809	-0.9367255
## 2	-0.9777267	-0.9693120	-0.9737227
## 3	-0.9728674	-0.9906526	-0.9730043
## 4	-0.9759253	-0.9897889	-0.9729827
## 5	-0.9866120	-0.9910405	-0.9768033
## 6	-0.9876064	-0.9934654	-0.9760191
##	tBodyAccJerk.mad...Z	tBodyAccJerk.max...X	tBodyAccJerk.max...Y
## 1	-0.9490538	-0.9032242	-0.9498183
## 2	-0.9786179	-0.9150930	-0.9812429
## 3	-0.9750370	-0.9918130	-0.9752695
## 4	-0.9782229	-0.9918130	-0.9752695
## 5	-0.9850277	-0.9940122	-0.9864061
## 6	-0.9845059	-0.9933200	-0.9864061
##	tBodyAccJerk.max...Z	tBodyAccJerk.min...X	tBodyAccJerk.min...Y
## 1	-0.8914035	0.8984794	0.9501816
## 2	-0.9776797	0.8984794	0.9677382
## 3	-0.9618553	0.9938499	0.9763493
## 4	-0.9618553	0.9938499	0.9763493
## 5	-0.9855763	0.9938507	0.9802494
## 6	-0.9926030	0.9899897	0.9886713
##	tBodyAccJerk.min...Z	tBodyAccJerk.sma...	tBodyAccJerk.energy...X
## 1	0.9461528	-0.9306729	-0.9950459
## 2	0.9660948	-0.9743072	-0.9983738
## 3	0.9660948	-0.9818289	-0.9998993
## 4	0.9696992	-0.9825311	-0.9998952
## 5	0.9848181	-0.9866601	-0.9999146
## 6	0.9868308	-0.9873007	-0.9999390
##	tBodyAccJerk.energy...Y	tBodyAccJerk.energy...Z	tBodyAccJerk.iqr...X
## 1	-0.9974955	-0.9970156	-0.9364160
## 2	-0.9993648	-0.9994262	-0.9797422
## 3	-0.9993183	-0.9992359	-0.9882860
## 4	-0.9993732	-0.9993582	-0.9852427
## 5	-0.9995684	-0.9997137	-0.9874482
## 6	-0.9995819	-0.9997409	-0.9931457
##	tBodyAccJerk.iqr...Y	tBodyAccJerk.iqr...Z	tBodyAccJerk.entropy...X
## 1	-0.9468741	-0.9687746	-0.08517415
## 2	-0.9790958	-0.9852629	-0.49723319
## 3	-0.9814459	-0.9755409	-0.69983410
## 4	-0.9810848	-0.9796994	-0.69960845
## 5	-0.9777288	-0.9814935	-0.74494966
## 6	-0.9766015	-0.9784103	-0.74826155

##	tBodyAccJerk.entropy...Y	tBodyAccJerk.entropy...Z	tBodyAccJerk.arCoeff...X.1
## 1	-0.3102630	-0.5102876	0.52148173
## 2	-0.6557512	-0.6144241	0.39796610
## 3	-0.6749493	-0.5823873	0.19469165
## 4	-0.6140421	-0.6074465	0.13449752
## 5	-0.6379350	-0.6619097	0.02859357
## 6	-0.6530428	-0.6390231	0.17753084
##	tBodyAccJerk.arCoeff...X.2	tBodyAccJerk.arCoeff...X.3	
## 1	-0.2258897	0.49172843	
## 2	0.2997433	0.23919281	
## 3	0.1986103	0.08525316	
## 4	0.2540127	0.06329948	
## 5	0.1871435	-0.02373467	
## 6	-0.1142666	0.29277690	
##	tBodyAccJerk.arCoeff...X.4	tBodyAccJerk.arCoeff...Y.1	
## 1	0.31275555	0.229796800	
## 2	0.36635961	0.212155920	
## 3	0.37178135	0.086717931	
## 4	0.45968875	0.118920200	
## 5	0.28932844	0.009163829	
## 6	0.05655979	-0.145690300	
##	tBodyAccJerk.arCoeff...Y.2	tBodyAccJerk.arCoeff...Y.3	
## 1	0.11395925	0.21987861	
## 2	-0.18363333	0.50841803	
## 3	-0.01393069	0.41612086	
## 4	-0.11470761	0.37496649	
## 5	0.04877595	0.08521107	
## 6	0.11508604	0.06647843	
##	tBodyAccJerk.arCoeff...Y.4	tBodyAccJerk.arCoeff...Z.1	
## 1	0.4229745	-0.08263318	
## 2	0.2321498	-0.00283189	
## 3	0.5614391	0.25190088	
## 4	0.4783779	0.21230132	
## 5	0.4365061	0.05743768	
## 6	0.2398866	-0.06001174	
##	tBodyAccJerk.arCoeff...Z.2	tBodyAccJerk.arCoeff...Z.3	
## 1	0.14042653	-0.19623228	
## 2	-0.03809703	-0.08265699	
## 3	-0.18650950	0.25974030	
## 4	-0.11206260	0.11319731	
## 5	0.25887807	-0.12067037	
## 6	-0.03963317	-0.11846032	
##	tBodyAccJerk.arCoeff...Z.4	tBodyAccJerk.correlation...X.Y	
## 1	0.07235794	-0.26486023	
## 2	0.10156150	-0.15319717	
## 3	0.70815329	-0.06362439	
## 4	0.56574152	-0.19787553	
## 5	0.26782470	0.08658512	
## 6	0.12273612	-0.06231584	
##	tBodyAccJerk.correlation...X.Z	tBodyAccJerk.correlation...Y.Z	
## 1	0.03585215	-0.3497352	
## 2	-0.27996556	0.4976121	
## 3	0.18278565	0.7563778	
## 4	0.17551832	0.6196289	

## 5	0.42479852		0.3457794	
## 6	0.38781921		0.4895796	
##	tBodyGyro.mean...X	tBodyGyro.mean...Y	tBodyGyro.mean...Z	tBodyGyro.std...X
## 1	0.119976160	-0.09179234	0.18962854	-0.8830891
## 2	-0.001552463	-0.18729119	0.18070522	-0.9255665
## 3	-0.048212671	-0.16627974	0.15417437	-0.9729882
## 4	-0.056641577	-0.12601846	0.11833718	-0.9677905
## 5	-0.059992128	-0.08472343	0.07865926	-0.9746560
## 6	-0.039697949	-0.06682849	0.07054732	-0.9798784
##	tBodyGyro.std...Y	tBodyGyro.std...Z	tBodyGyro.mad...X	tBodyGyro.mad...Y
## 1	-0.8161636	-0.9408812	-0.8886123	-0.8578010
## 2	-0.9295992	-0.9675810	-0.9178548	-0.9500255
## 3	-0.9785106	-0.9756483	-0.9744292	-0.9805577
## 4	-0.9751338	-0.9632327	-0.9694272	-0.9739148
## 5	-0.9779511	-0.9676287	-0.9750224	-0.9795073
## 6	-0.9764628	-0.9634617	-0.9802073	-0.9781896
##	tBodyGyro.mad...Z	tBodyGyro.max...X	tBodyGyro.max...Y	tBodyGyro.max...Z
## 1	-0.9458183	-0.6634106	-0.7134366	-0.6486786
## 2	-0.9670348	-0.8103367	-0.8698789	-0.7032122
## 3	-0.9758503	-0.8737938	-0.9509173	-0.7151697
## 4	-0.9635130	-0.8737938	-0.9509173	-0.7151697
## 5	-0.9684613	-0.8814599	-0.9485043	-0.7317056
## 6	-0.9643120	-0.8814599	-0.9483477	-0.7317056
##	tBodyGyro.min...X	tBodyGyro.min...Y	tBodyGyro.min...Z	tBodyGyro.sma...
## 1	0.8371004	0.8252568	0.8109771	-0.7964999
## 2	0.8230325	0.8707803	0.8440353	-0.8887569
## 3	0.8230325	0.8927145	0.8290852	-0.9326540
## 4	0.8160590	0.8946200	0.8238037	-0.9466141
## 5	0.8160590	0.8992625	0.8163019	-0.9580481
## 6	0.8250607	0.8992625	0.8050707	-0.9685562
##	tBodyGyro.energy...X	tBodyGyro.energy...Y	tBodyGyro.energy...Z	
## 1	-0.9796164	-0.9829001	-0.9940368	
## 2	-0.9969186	-0.9951945	-0.9959479	
## 3	-0.9993514	-0.9982649	-0.9978517	
## 4	-0.9989351	-0.9991736	-0.9988330	
## 5	-0.9989948	-0.9996863	-0.9993630	
## 6	-0.9996887	-0.9996580	-0.9991407	
##	tBodyGyro.iqr...X	tBodyGyro.iqr...Y	tBodyGyro.iqr...Z	tBodyGyro.entropy...X
## 1	-0.8865579	-0.9061043	-0.9580488	0.77403279
## 2	-0.9113224	-0.9606847	-0.9692744	-0.01836119
## 3	-0.9797555	-0.9861989	-0.9783006	-0.63542251
## 4	-0.9752914	-0.9716812	-0.9650716	-0.63542251
## 5	-0.9729662	-0.9815836	-0.9704161	-0.80285329
## 6	-0.9809389	-0.9820461	-0.9708505	-0.58702696
##	tBodyGyro.entropy...Y	tBodyGyro.entropy...Z	tBodyGyro.arCoeff...X.1	
## 1	-0.26770588	0.45224806	-0.07845127	
## 2	-0.85159109	0.30504741	-0.24702630	
## 3	-0.94126738	0.23767246	-0.21228632	
## 4	-0.88593105	0.06872326	-0.32354197	
## 5	-0.37891314	-0.44459155	-0.34014860	
## 6	-0.09849476	-0.39077487	-0.28907719	
##	tBodyGyro.arCoeff...X.2	tBodyGyro.arCoeff...X.3	tBodyGyro.arCoeff...X.4	
## 1	-0.01257862	0.2359816	-0.19904751	
## 2	0.30890640	-0.4820437	0.50874888	

## 3	0.03391515	0.2679298	-0.14283506
## 4	0.16450452	0.1420309	-0.12489415
## 5	0.13414162	0.2583694	-0.23745824
## 6	0.08532431	0.2264042	-0.06752342
##	tBodyGyro.arCoeff...Y.1	tBodyGyro.arCoeff...Y.2	tBodyGyro.arCoeff...Y.3
## 1	0.03391784	-0.08078053	0.006998715
## 2	-0.25023745	0.19068988	-0.136272720
## 3	-0.30612471	0.02332412	0.593764370
## 4	-0.24791417	-0.01145683	0.572775630
## 5	-0.36976146	0.12237332	0.207528190
## 6	-0.34390878	0.18038880	-0.011767740
##	tBodyGyro.arCoeff...Y.4	tBodyGyro.arCoeff...Z.1	tBodyGyro.arCoeff...Z.2
## 1	0.24488551	0.21651661	-0.27968077
## 2	0.19949752	-0.01189863	-0.13845696
## 3	-0.55054445	-0.13900595	-0.06601300
## 4	-0.50481633	0.03607181	-0.20887571
## 5	0.06939742	-0.22727350	0.10070156
## 6	0.32077633	-0.11797291	-0.05364571
##	tBodyGyro.arCoeff...Z.3	tBodyGyro.arCoeff...Z.4	tBodyGyro.correlation...X.Y
## 1	0.2497388	0.01771975	0.648464540
## 2	0.3353709	-0.27653307	-0.002972786
## 3	0.4930217	-0.54922446	-0.200555860
## 4	0.4687120	-0.35510514	-0.630286750
## 5	0.0209894	0.21856856	0.268595960
## 6	0.1893088	0.20638900	0.129553810
##	tBodyGyro.correlation...X.Z	tBodyGyro.correlation...Y.Z	
## 1	-0.23693109	-0.3017347	
## 2	0.54181281	-0.5339624	
## 3	0.31402401	-0.7300501	
## 4	0.58864892	-0.8917357	
## 5	-0.12960656	-0.9183186	
## 6	-0.04322475	-0.8554236	
##	tBodyGyroJerk.mean...X	tBodyGyroJerk.mean...Y	tBodyGyroJerk.mean...Z
## 1	-0.20489621	-0.17448771	-0.09338934
## 2	-0.13866849	-0.02580207	-0.07141841
## 3	-0.09780967	-0.03421327	-0.06002840
## 4	-0.10223178	-0.04471346	-0.05343650
## 5	-0.09184994	-0.02900502	-0.06123535
## 6	-0.09273955	-0.03213821	-0.07257549
##	tBodyGyroJerk.std...X	tBodyGyroJerk.std...Y	tBodyGyroJerk.std...Z
## 1	-0.9012242	-0.9108601	-0.9392504
## 2	-0.9623042	-0.9562894	-0.9813408
## 3	-0.9841669	-0.9879399	-0.9761876
## 4	-0.9841709	-0.9895542	-0.9807240
## 5	-0.9884738	-0.9918773	-0.9819836
## 6	-0.9894167	-0.9894940	-0.9777794
##	tBodyGyroJerk.mad...X	tBodyGyroJerk.mad...Y	tBodyGyroJerk.mad...Z
## 1	-0.9103627	-0.9273567	-0.9535541
## 2	-0.9686141	-0.9740239	-0.9821632
## 3	-0.9837226	-0.9895697	-0.9787070
## 4	-0.9839950	-0.9917047	-0.9836989
## 5	-0.9882437	-0.9924723	-0.9837369
## 6	-0.9894176	-0.9895552	-0.9782051
##	tBodyGyroJerk.max...X	tBodyGyroJerk.max...Y	tBodyGyroJerk.max...Z

## 1	-0.8679143	-0.9134978	-0.8975779
## 2	-0.9592559	-0.9511318	-0.9795697
## 3	-0.9815796	-0.9905711	-0.9673495
## 4	-0.9815796	-0.9905711	-0.9673495
## 5	-0.9883567	-0.9929557	-0.9736173
## 6	-0.9883567	-0.9929557	-0.9736173
##	tBodyGyroJerk.min...X	tBodyGyroJerk.min...Y	tBodyGyroJerk.min...Z
## 1	0.9049367	0.9173084	0.9476122
## 2	0.9497259	0.9298252	0.9770782
## 3	0.9859398	0.9875760	0.9770782
## 4	0.9859398	0.9875760	0.9797098
## 5	0.9909349	0.9947457	0.9843560
## 6	0.9909349	0.9932789	0.9843560
##	tBodyGyroJerk.sma..	tBodyGyroJerk.energy...X	tBodyGyroJerk.energy...Y
## 1	-0.9296091	-0.9946862	-0.9957906
## 2	-0.9751256	-0.9991333	-0.9989404
## 3	-0.9862341	-0.9998120	-0.9998980
## 4	-0.9885511	-0.9998120	-0.9999201
## 5	-0.9900661	-0.9998877	-0.9999471
## 6	-0.9877041	-0.9999019	-0.9999193
##	tBodyGyroJerk.energy...Z	tBodyGyroJerk.iqr...X	tBodyGyroJerk.iqr...Y
## 1	-0.9978126	-0.9365408	-0.9588796
## 2	-0.9997191	-0.9755280	-0.9872757
## 3	-0.9995816	-0.9824186	-0.9901951
## 4	-0.9997049	-0.9831855	-0.9932335
## 5	-0.9997353	-0.9881397	-0.9938023
## 6	-0.9996262	-0.9890131	-0.9903918
##	tBodyGyroJerk.iqr...Z	tBodyGyroJerk.entropy...X	tBodyGyroJerk.entropy...Y
## 1	-0.9703483	0.03661912	0.07645993
## 2	-0.9825260	-0.29249393	-0.14390965
## 3	-0.9820583	-0.41189668	-0.36810437
## 4	-0.9872709	-0.40084865	-0.45529523
## 5	-0.9885212	-0.46306153	-0.45275061
## 6	-0.9779012	-0.49898174	-0.39220479
##	tBodyGyroJerk.entropy...Z	tBodyGyroJerk.arCoeff...X.1	
## 1	-0.1971260	0.10651426	
## 2	-0.3860780	-0.05297410	
## 3	-0.3326342	-0.02177301	
## 4	-0.4164355	-0.13005818	
## 5	-0.4252359	-0.13105286	
## 6	-0.3538400	-0.12842958	
##	tBodyGyroJerk.arCoeff...X.2	tBodyGyroJerk.arCoeff...X.3	
## 1	-0.02081190	0.19325784	
## 2	0.20970463	-0.11165626	
## 3	-0.12252597	0.18054322	
## 4	0.02273893	0.06134586	
## 5	-0.07877794	0.21973274	
## 6	-0.09291511	0.05386602	
##	tBodyGyroJerk.arCoeff...X.4	tBodyGyroJerk.arCoeff...Y.1	
## 1	0.30447875	0.11572923	
## 2	-0.25754483	-0.19712748	
## 3	0.14193330	-0.08592564	
## 4	0.22839658	-0.02570165	
## 5	0.05980249	-0.34191961	


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## 6          0.24286067          -0.38414218
##  tBodyGyroJerk.arCoeff...Y.2 tBodyGyroJerk.arCoeff...Y.3
## 1          0.05414960          0.06895124
## 2          0.25112852          -0.04835748
## 3          -0.08550133          0.34156360
## 4          -0.07972945          0.29777325
## 5          0.01649005          -0.10653608
## 6          0.09741200          -0.18384291
##  tBodyGyroJerk.arCoeff...Y.4 tBodyGyroJerk.arCoeff...Z.1
## 1          0.1970496          0.3099283
## 2          0.1582181          0.1588639
## 3          0.3828919          0.1099679
## 4          0.5397360          0.2120013
## 5          0.4874077          -0.2303126
## 6          0.4596498          -0.1451967
##  tBodyGyroJerk.arCoeff...Z.2 tBodyGyroJerk.arCoeff...Z.3
## 1          -0.21265711          0.17317814
## 2          -0.23110857          0.31568162
## 3          -0.11010236          0.19485266
## 4          -0.21107820          0.19787033
## 5          0.01951718          -0.14803871
## 6          -0.19810251          -0.00880839
##  tBodyGyroJerk.arCoeff...Z.4 tBodyGyroJerk.correlation...X.Y
## 1          0.1458445          0.12400875
## 2          0.1434450          0.28485043
## 3          0.6148686          0.16167166
## 4          0.5749480          0.16704230
## 5          0.2742529          -0.11420864
## 6          0.2274427          0.01573996
##  tBodyGyroJerk.correlation...X.Z tBodyGyroJerk.correlation...Y.Z
## 1          -0.15534634          -0.3234373
## 2          -0.17115207          -0.2481132
## 3          -0.17700262          -0.8353808
## 4          -0.19684429          -0.8156161
## 5          0.11782975          -0.7503226
## 6          0.07658491          -0.7671823
##  tBodyAccMag.mean.. tBodyAccMag.std.. tBodyAccMag.mad.. tBodyAccMag.max..
## 1          -0.8669294          -0.7051911          -0.7440217          -0.7607956
## 2          -0.9689614          -0.9539024          -0.9631648          -0.9376082
## 3          -0.9762282          -0.9790834          -0.9823638          -0.9692116
## 4          -0.9743245          -0.9770159          -0.9811550          -0.9692116
## 5          -0.9758356          -0.9768934          -0.9792374          -0.9759545
## 6          -0.9817163          -0.9777039          -0.9789605          -0.9784902
##  tBodyAccMag.min.. tBodyAccMag.sma.. tBodyAccMag.energy.. tBodyAccMag.iqr..
## 1          -0.9816487          -0.8669294          -0.9801658          -0.8594742
## 2          -0.9859442          -0.9689614          -0.9989199          -0.9762200
## 3          -0.9859442          -0.9762282          -0.9994239          -0.9829047
## 4          -0.9862629          -0.9743245          -0.9993494          -0.9848230
## 5          -0.9932282          -0.9758356          -0.9993951          -0.9790442
## 6          -0.9932282          -0.9817163          -0.9995654          -0.9787186
##  tBodyAccMag.entropy.. tBodyAccMag.arCoeff..1 tBodyAccMag.arCoeff..2
## 1          0.2551044          0.05377970          -0.20414449
## 2          -0.3293450          0.45848929          -0.45648942
## 3          -0.5153616          0.14173151          -0.04885047

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## 4	-0.4863167	0.13108562	-0.07174782
## 5	-0.4470493	-0.07571101	0.06155314
## 6	-0.4926671	-0.13453848	0.02128811
##	tBodyAccMag.arCoeff..3	tBodyAccMag.arCoeff..4	tGravityAccMag.mean..
## 1	0.610527550	-0.564449320	-0.8669294
## 2	0.488122070	-0.348261970	-0.9689614
## 3	0.006845639	-0.155699340	-0.9762282
## 4	0.046840045	-0.134310660	-0.9743245
## 5	-0.035947656	-0.006066411	-0.9758356
## 6	0.236426680	-0.202521190	-0.9817163
##	tGravityAccMag.std..	tGravityAccMag.mad..	tGravityAccMag.max..
## 1	-0.7051911	-0.7440217	-0.7607956
## 2	-0.9539024	-0.9631648	-0.9376082
## 3	-0.9790834	-0.9823638	-0.9692116
## 4	-0.9770159	-0.9811550	-0.9692116
## 5	-0.9768934	-0.9792374	-0.9759545
## 6	-0.9777039	-0.9789605	-0.9784902
##	tGravityAccMag.min..	tGravityAccMag.sma..	tGravityAccMag.energy..
## 1	-0.9816487	-0.8669294	-0.9801658
## 2	-0.9859442	-0.9689614	-0.9989199
## 3	-0.9859442	-0.9762282	-0.9994239
## 4	-0.9862629	-0.9743245	-0.9993494
## 5	-0.9932282	-0.9758356	-0.9993951
## 6	-0.9932282	-0.9817163	-0.9995654
##	tGravityAccMag.iqr..	tGravityAccMag.entropy..	tGravityAccMag.arCoeff..1
## 1	-0.8594742	0.2551044	0.05377970
## 2	-0.9762200	-0.3293450	0.45848929
## 3	-0.9829047	-0.5153616	0.14173151
## 4	-0.9848230	-0.4863167	0.13108562
## 5	-0.9790442	-0.4470493	-0.07571101
## 6	-0.9787186	-0.4926671	-0.13453848
##	tGravityAccMag.arCoeff..2	tGravityAccMag.arCoeff..3	tGravityAccMag.arCoeff..4
## 1	-0.20414449	0.610527550	-0.564449320
## 2	-0.45648942	0.488122070	-0.348261970
## 3	-0.04885047	0.006845639	-0.155699340
## 4	-0.07174782	0.046840045	-0.134310660
## 5	0.06155314	-0.035947656	-0.006066411
## 6	0.02128811	0.236426680	-0.202521190
##	tBodyAccJerkMag.mean..	tBodyAccJerkMag.std..	tBodyAccJerkMag.mad..
## 1	-0.9297665	-0.8959942	-0.9004173
## 2	-0.9737168	-0.9410078	-0.9596534
## 3	-0.9816177	-0.9713710	-0.9776023
## 4	-0.9827121	-0.9748075	-0.9817946
## 5	-0.9869079	-0.9888539	-0.9902561
## 6	-0.9873357	-0.9919970	-0.9929347
##	tBodyAccJerkMag.max..	tBodyAccJerkMag.min..	tBodyAccJerkMag.sma..
## 1	-0.9030044	-0.9750111	-0.9297665
## 2	-0.9288375	-0.9750111	-0.9737168
## 3	-0.9643663	-0.9837072	-0.9816177
## 4	-0.9643663	-0.9837072	-0.9827121
## 5	-0.9891086	-0.9722159	-0.9869079
## 6	-0.9918324	-0.9722159	-0.9873357
##	tBodyAccJerkMag.energy..	tBodyAccJerkMag.iqr..	tBodyAccJerkMag.entropy..
## 1	-0.9956077	-0.9141207	-0.1295523

## 2	-0.9987898	-0.9780807	-0.5277083
## 3	-0.9994780	-0.9875633	-0.6337396
## 4	-0.9995411	-0.9890873	-0.6385587
## 5	-0.9997492	-0.9926297	-0.7643276
## 6	-0.9997765	-0.9952174	-0.8501094
##	tBodyAccJerkMag.arCoeff..1	tBodyAccJerkMag.arCoeff..2	
## 1	0.2389109	-0.34559715	
## 2	-0.3186169	0.18419955	
## 3	0.4180511	0.03234082	
## 4	0.3926791	-0.08744107	
## 5	0.2096274	-0.13119043	
## 6	0.0693537	-0.02824560	
##	tBodyAccJerkMag.arCoeff..3	tBodyAccJerkMag.arCoeff..4	tBodyGyroMag.mean..
## 1	0.32646236	-0.26304800	-0.7955439
## 2	-0.46009650	0.71335686	-0.8984331
## 3	-0.33840962	-0.37629403	-0.9391936
## 4	-0.25171191	-0.22531825	-0.9471844
## 5	-0.09635455	-0.07398238	-0.9574192
## 6	0.12660380	-0.29374478	-0.9697442
##	tBodyGyroMag.std..	tBodyGyroMag.mad..	tBodyGyroMag.max.. tBodyGyroMag.min..
## 1	-0.7620732	-0.7826723	-0.7165936 -0.7641926
## 2	-0.9108583	-0.9011104	-0.9024317 -0.8937527
## 3	-0.9717763	-0.9701844	-0.9705676 -0.9504100
## 4	-0.9703682	-0.9669844	-0.9705676 -0.9504100
## 5	-0.9694995	-0.9638216	-0.9752528 -0.9695732
## 6	-0.9732947	-0.9709561	-0.9769737 -0.9829388
##	tBodyGyroMag.sma..	tBodyGyroMag.energy..	tBodyGyroMag.iqr..
## 1	-0.7955439	-0.9741521	-0.8395810
## 2	-0.8984331	-0.9941803	-0.9101851
## 3	-0.9391936	-0.9980922	-0.9736598
## 4	-0.9471844	-0.9984927	-0.9657706
## 5	-0.9574192	-0.9989345	-0.9601811
## 6	-0.9697442	-0.9993892	-0.9702223
##	tBodyGyroMag.entropy..	tBodyGyroMag.arCoeff..1	tBodyGyroMag.arCoeff..2
## 1	0.66756269	0.03562114	-0.16189398
## 2	0.39460411	0.03012846	-0.03752390
## 3	0.07839758	-0.21718596	-0.03706647
## 4	0.10900203	-0.41378455	0.25149767
## 5	0.10773644	-0.41361067	0.30844362
## 6	0.02449829	-0.25027579	0.09865250
##	tBodyGyroMag.arCoeff..3	tBodyGyroMag.arCoeff..4	tBodyGyroJerkMag.mean..
## 1	0.15325006	-0.006759604	-0.9251949
## 2	0.08112477	-0.222040480	-0.9733934
## 3	0.44928622	-0.430571380	-0.9867480
## 4	-0.01523949	-0.001456836	-0.9888204
## 5	-0.09852761	-0.008311151	-0.9900621
## 6	0.15840493	-0.184694330	-0.9878482
##	tBodyGyroJerkMag.std..	tBodyGyroJerkMag.mad..	tBodyGyroJerkMag.max..
## 1	-0.8943436	-0.9001467	-0.9167371
## 2	-0.9440900	-0.9606210	-0.9292873
## 3	-0.9844015	-0.9870224	-0.9840864
## 4	-0.9855681	-0.9890357	-0.9840864
## 5	-0.9904189	-0.9913670	-0.9911232
## 6	-0.9890428	-0.9888397	-0.9911232

##	tBodyGyroJerkMag.min..	tBodyGyroJerkMag.sma..	tBodyGyroJerkMag.energy..
## 1	-0.9763667	-0.9251949	-0.9958242
## 2	-0.9763667	-0.9733934	-0.9990856
## 3	-0.9746050	-0.9867480	-0.9998399
## 4	-0.9813857	-0.9888204	-0.9998712
## 5	-0.9813857	-0.9900621	-0.9999089
## 6	-0.9802600	-0.9878482	-0.9998786
##	tBodyGyroJerkMag.iqr..	tBodyGyroJerkMag.entropy..	tBodyGyroJerkMag.arCoeff..1
## 1	-0.9118375	0.3316543	0.516953160
## 2	-0.9844092	-0.1862041	0.032238715
## 3	-0.9916139	-0.4241094	0.495272190
## 4	-0.9931473	-0.4998587	0.645559460
## 5	-0.9926822	-0.5176108	-0.064276276
## 6	-0.9893050	-0.4261656	-0.006708336
##	tBodyGyroJerkMag.arCoeff..2	tBodyGyroJerkMag.arCoeff..3	
## 1	-0.51350400	0.04131981	
## 2	0.01025307	-0.65001828	
## 3	-0.21584314	0.24163895	
## 4	-0.30094403	0.29765769	
## 5	-0.01928329	0.39166371	
## 6	-0.01767363	0.30808658	
##	tBodyGyroJerkMag.arCoeff..4	fBodyAcc.mean...X	fBodyAcc.mean...Y
## 1	0.01183501	-0.9185097	-0.9182132
## 2	0.52648944	-0.9609030	-0.9644333
## 3	-0.77077493	-0.9919063	-0.9650336
## 4	-0.88520672	-0.9930298	-0.9682839
## 5	-0.52522965	-0.9924042	-0.9692072
## 6	-0.50086214	-0.9938427	-0.9707293
##	fBodyAcc.mean...Z	fBodyAcc.std...X	fBodyAcc.std...Y
## 1	-0.7890915	-0.9482903	-0.9251369
## 2	-0.9566748	-0.9843500	-0.9701748
## 3	-0.9668996	-0.9947537	-0.9736959
## 4	-0.9669116	-0.9955936	-0.9769176
## 5	-0.9796527	-0.9945037	-0.9674681
## 6	-0.9755771	-0.9946471	-0.9710160
##	fBodyAcc.max...X	fBodyAcc.max...Y	fBodyAcc.max...Z
## 1	-0.9306803	-0.9244385	-0.7249026
## 2	-0.9757642	-0.9702565	-0.9442487
## 3	-0.9939414	-0.9679526	-0.9615674
## 4	-0.9940528	-0.9707264	-0.9649323
## 5	-0.9931035	-0.9708048	-0.9766591
## 6	-0.9930539	-0.9700484	-0.9673953
##	fBodyAcc.min...X	fBodyAcc.min...Y	fBodyAcc.min...Z
## 1	-0.9401367	-0.5971887	-0.9661371
## 2	-0.9743570	-0.9426704	-0.9724499
## 3	-0.9837728	-0.9602915	-0.9922826
## 4	-0.9878870	-0.9715113	-0.9967732
## 5	-0.9720391	-0.9782644	-0.9944123
## 6	-0.9793231	-0.9577877	-0.9980739
##	fBodyAcc.energy...X	fBodyAcc.energy...Y	
## 1	-0.9520871	-0.8650632	-0.9978437
## 2	-0.9995443	-0.9576235	-0.9995923
## 3	-0.9802508	-0.9771138	-0.9999541
## 4	-0.9950586	-0.9786883	-0.9999634

## 5	-0.9857864	-0.9829645	-0.9999545	-0.9991484
## 6	-0.9758857	-0.9827866	-0.9999606	-0.9992696
##	fBodyAcc.energy...Z	fBodyAcc.iqr...X	fBodyAcc.iqr...Y	fBodyAcc.iqr...Z
## 1	-0.9401950	-0.9048404	-0.9338125	-0.8693829
## 2	-0.9975995	-0.9550323	-0.9710025	-0.9662298
## 3	-0.9987012	-0.9904021	-0.9693517	-0.9720156
## 4	-0.9989229	-0.9919868	-0.9624321	-0.9693662
## 5	-0.9994092	-0.9911072	-0.9788623	-0.9780067
## 6	-0.9988345	-0.9896697	-0.9797988	-0.9806086
##	fBodyAcc.entropy...X	fBodyAcc.entropy...Y	fBodyAcc.entropy...Z	
## 1	-0.3396733	-0.4858032	-0.1662577	
## 2	-0.6040128	-0.7868864	-0.6102978	
## 3	-0.9463569	-0.7419244	-0.6280778	
## 4	-1.0000000	-0.7419244	-0.6118308	
## 5	-0.9463569	-0.7579533	-0.8098879	
## 6	-0.9463569	-0.7419244	-0.7295225	
##	fBodyAcc.maxInds.X	fBodyAcc.maxInds.Y	fBodyAcc.maxInds.Z	
## 1	-1.0000000	-1.0000000	-1.0000000	
## 2	-0.80645161	-1.0000000	-1.0000000	
## 3	-1.0000000	-1.0000000	-1.0000000	
## 4	-0.09677419	-0.9333333	-1.0000000	
## 5	-0.54838710	-0.9333333	-0.9230769	
## 6	-0.54838710	-0.9333333	-1.0000000	
##	fBodyAcc.meanFreq...X	fBodyAcc.meanFreq...Y	fBodyAcc.meanFreq...Z	
## 1	0.01111695	0.121250690	-0.52294869	
## 2	0.35206637	0.174546760	-0.32067339	
## 3	0.18043767	0.133458310	0.18265917	
## 4	0.06270005	0.261719750	0.15182490	
## 5	-0.01890990	-0.009980057	0.09521546	
## 6	-0.17797819	-0.122556470	-0.12332551	
##	fBodyAcc.skewness...X	fBodyAcc.kurtosis...X	fBodyAcc.skewness...Y	
## 1	-0.5719995	-0.8946124	-0.3382659	
## 2	-0.9181764	-0.9987617	-0.3263535	
## 3	-0.3841142	-0.7405239	-0.6636137	
## 4	-0.6355806	-0.9287958	-0.7065920	
## 5	-0.5073913	-0.8568786	-0.2414177	
## 6	-0.4621296	-0.8141046	-0.4707076	
##	fBodyAcc.kurtosis...Y	fBodyAcc.skewness...Z	fBodyAcc.kurtosis...Z	
## 1	-0.6867975	0.1895525	-0.1135957	
## 2	-0.6570871	-0.3276864	-0.6274052	
## 3	-0.9266437	-0.3769352	-0.6440250	
## 4	-0.9537878	-0.5903865	-0.8166940	
## 5	-0.6169523	-0.5003530	-0.7537866	
## 6	-0.8144876	-0.1869594	-0.5099702	
##	fBodyAcc.bandsEnergy...1.8	fBodyAcc.bandsEnergy...9.16		
## 1	-0.9985063	-0.9979426		
## 2	-0.9998504	-0.9995818		
## 3	-0.9999755	-0.9999288		
## 4	-0.9999831	-0.9999408		
## 5	-0.9999611	-0.9999605		
## 6	-0.9999591	-0.9999725		
##	fBodyAcc.bandsEnergy...17.24	fBodyAcc.bandsEnergy...25.32		
## 1	-0.9955979	-0.9950356		
## 2	-0.9987183	-0.9978567		

## 3	-0.9998870	-0.9998622
## 4	-0.9998771	-0.9998901
## 5	-0.9998902	-0.9999035
## 6	-0.9999304	-0.9999335
## fBodyAcc.bandsEnergy...33.40	fBodyAcc.bandsEnergy...41.48	
## 1	-0.9959769	-0.9914874
## 2	-0.9961857	-0.9977299
## 3	-0.9998434	-0.9997929
## 4	-0.9998424	-0.9998748
## 5	-0.9998662	-0.9999037
## 6	-0.9999522	-0.9999139
## fBodyAcc.bandsEnergy...49.56	fBodyAcc.bandsEnergy...57.64	
## 1	-0.9921312	-0.9997751
## 2	-0.9992383	-0.9998986
## 3	-0.9999356	-0.9999410
## 4	-0.9999595	-0.9999984
## 5	-0.9999606	-0.9999772
## 6	-0.9999574	-0.9999994
## fBodyAcc.bandsEnergy...1.16	fBodyAcc.bandsEnergy...17.32	
## 1	-0.9982039	-0.9947467
## 2	-0.9997598	-0.9982664
## 3	-0.9999619	-0.9998679
## 4	-0.9999714	-0.9998677
## 5	-0.9999597	-0.9998830
## 6	-0.9999616	-0.9999265
## fBodyAcc.bandsEnergy...33.48	fBodyAcc.bandsEnergy...49.64	
## 1	-0.9943090	-0.9946932
## 2	-0.9967796	-0.9994596
## 3	-0.9998395	-0.9999375
## 4	-0.9998696	-0.9999725
## 5	-0.9998953	-0.9999662
## 6	-0.9999529	-0.9999715
## fBodyAcc.bandsEnergy...1.24	fBodyAcc.bandsEnergy...25.48	
## 1	-0.9980205	-0.9937275
## 2	-0.9996875	-0.9969297
## 3	-0.9999583	-0.9998332
## 4	-0.9999665	-0.9998676
## 5	-0.9999565	-0.9998895
## 6	-0.9999611	-0.9999387
## fBodyAcc.bandsEnergy...1.8.1	fBodyAcc.bandsEnergy...9.16.1	
## 1	-0.9962089	-0.9979761
## 2	-0.9991415	-0.9997153
## 3	-0.9995158	-0.9993382
## 4	-0.9996210	-0.9994476
## 5	-0.9990703	-0.9996317
## 6	-0.9991698	-0.9997289
## fBodyAcc.bandsEnergy...17.24.1	fBodyAcc.bandsEnergy...25.32.1	
## 1	-0.9989209	-0.9964011
## 2	-0.9995509	-0.9986450
## 3	-0.9993897	-0.9996982
## 4	-0.9995419	-0.9993676
## 5	-0.9998196	-0.9994687
## 6	-0.9997873	-0.9996318
## fBodyAcc.bandsEnergy...33.40.1	fBodyAcc.bandsEnergy...41.48.1	

## 1	-0.9975599	-0.9950680
## 2	-0.9997514	-0.9995840
## 3	-0.9993572	-0.9991498
## 4	-0.9992872	-0.9986572
## 5	-0.9995114	-0.9994546
## 6	-0.9997467	-0.9995098
## fBodyAcc.bandsEnergy...49.56.1 fBodyAcc.bandsEnergy...57.64.1		
## 1	-0.9973513	-0.9982380
## 2	-0.9990960	-0.9994171
## 3	-0.9994102	-0.9995991
## 4	-0.9996542	-0.9996911
## 5	-0.9994976	-0.9997972
## 6	-0.9997578	-0.9999447
## fBodyAcc.bandsEnergy...1.16.1 fBodyAcc.bandsEnergy...17.32.1		
## 1	-0.9960705	-0.9979246
## 2	-0.9992123	-0.9991820
## 3	-0.9993051	-0.9993306
## 4	-0.9994420	-0.9993821
## 5	-0.9991147	-0.9996797
## 6	-0.9992410	-0.9996957
## fBodyAcc.bandsEnergy...33.48.1 fBodyAcc.bandsEnergy...49.64.1		
## 1	-0.9963566	-0.9976398
## 2	-0.9996913	-0.9992025
## 3	-0.9992366	-0.9994711
## 4	-0.9989964	-0.9996589
## 5	-0.9994662	-0.9996081
## 6	-0.9996594	-0.9998292
## fBodyAcc.bandsEnergy...1.24.1 fBodyAcc.bandsEnergy...25.48.1		
## 1	-0.9962200	-0.9962254
## 2	-0.9992024	-0.9989229
## 3	-0.9992587	-0.9995606
## 4	-0.9994107	-0.9992413
## 5	-0.9991606	-0.9994623
## 6	-0.9992703	-0.9996430
## fBodyAcc.bandsEnergy...1.8.2 fBodyAcc.bandsEnergy...9.16.2		
## 1	-0.9247055	-0.9940973
## 2	-0.9971858	-0.9992512
## 3	-0.9990833	-0.9984180
## 4	-0.9991714	-0.9988070
## 5	-0.9993552	-0.9997693
## 6	-0.9985872	-0.9997110
## fBodyAcc.bandsEnergy...17.24.2 fBodyAcc.bandsEnergy...25.32.2		
## 1	-0.9953235	-0.9989694
## 2	-0.9996962	-0.9997392
## 3	-0.9992964	-0.9997733
## 4	-0.9995555	-0.9996803
## 5	-0.9997178	-0.9997648
## 6	-0.9997350	-0.9998679
## fBodyAcc.bandsEnergy...33.40.2 fBodyAcc.bandsEnergy...41.48.2		
## 1	-0.9979016	-0.9949296
## 2	-0.9994487	-0.9993130
## 3	-0.9996996	-0.9986638
## 4	-0.9995611	-0.9987750
## 5	-0.9995464	-0.9995101

## 6	-0.9997192	-0.9996375	
## fBodyAcc.bandsEnergy...49.56.2	fBodyAcc.bandsEnergy...57.64.2		
## 1	-0.9892607	-0.9800854	
## 2	-0.9991077	-0.9999994	
## 3	-0.9991742	-0.9998030	
## 4	-0.9989052	-0.9998729	
## 5	-0.9997063	-0.9998989	
## 6	-0.9995464	-0.9997193	
## fBodyAcc.bandsEnergy...1.16.2	fBodyAcc.bandsEnergy...17.32.2		
## 1	-0.9379367	-0.9966776	
## 2	-0.9975401	-0.9997451	
## 3	-0.9987883	-0.9995025	
## 4	-0.9989842	-0.9996341	
## 5	-0.9994414	-0.9997682	
## 6	-0.9988087	-0.9998165	
## fBodyAcc.bandsEnergy...33.48.2	fBodyAcc.bandsEnergy...49.64.2		
## 1	-0.9970254	-0.9864274	
## 2	-0.9994201	-0.9993766	
## 3	-0.9994546	-0.9993649	
## 4	-0.9993713	-0.9991952	
## 5	-0.9995506	-0.9997707	
## 6	-0.9997238	-0.9996036	
## fBodyAcc.bandsEnergy...1.24.2	fBodyAcc.bandsEnergy...25.48.2		
## 1	-0.9392008	-0.9984318	
## 2	-0.9975846	-0.9996649	
## 3	-0.9987052	-0.9996992	
## 4	-0.9989479	-0.9996090	
## 5	-0.9994226	-0.9997205	
## 6	-0.9988160	-0.9998436	
## fBodyAccJerk.mean...X	fBodyAccJerk.mean...Y	fBodyAccJerk.mean...Z	
## 1	-0.8996332	-0.9374850	-0.9235514
## 2	-0.9435190	-0.9691623	-0.9734489
## 3	-0.9910295	-0.9733689	-0.9717030
## 4	-0.9905362	-0.9724525	-0.9703374
## 5	-0.9914800	-0.9798346	-0.9834930
## 6	-0.9937759	-0.9789845	-0.9860986
## fBodyAccJerk.std...X	fBodyAccJerk.std...Y	fBodyAccJerk.std...Z	
## 1	-0.9244291	-0.9432104	-0.9478915
## 2	-0.9616312	-0.9800263	-0.9807873
## 3	-0.9919122	-0.9709857	-0.9723222
## 4	-0.9919600	-0.9754341	-0.9806211
## 5	-0.9935709	-0.9786966	-0.9885033
## 6	-0.9944514	-0.9807585	-0.9875569
## fBodyAccJerk.mad...X	fBodyAccJerk.mad...Y	fBodyAccJerk.mad...Z	
## 1	-0.8966146	-0.9383091	-0.9425757
## 2	-0.9458104	-0.9772743	-0.9771656
## 3	-0.9887885	-0.9720282	-0.9722904
## 4	-0.9893498	-0.9762816	-0.9792625
## 5	-0.9909483	-0.9794355	-0.9869510
## 6	-0.9920256	-0.9791621	-0.9858199
## fBodyAccJerk.max...X	fBodyAccJerk.max...Y	fBodyAccJerk.max...Z	
## 1	-0.9486343	-0.9583254	-0.9588169
## 2	-0.9773950	-0.9870866	-0.9842024
## 3	-0.9946627	-0.9755812	-0.9697617

## 4	-0.9939669	-0.9795799	-0.9782094
## 5	-0.9955192	-0.9751047	-0.9906151
## 6	-0.9965363	-0.9860251	-0.9893724
## fBodyAccJerk.min...X fBodyAccJerk.min...Y fBodyAccJerk.min...Z			
## 1	-0.9438824	-0.9873033	-0.9784656
## 2	-0.9785668	-0.9534687	-0.9966644
## 3	-0.9991204	-0.9994595	-0.9899748
## 4	-0.9861423	-0.9855391	-0.9735074
## 5	-0.9945600	-0.9998073	-0.9732291
## 6	-0.9965865	-0.9958048	-0.9745407
## fBodyAccJerk.sma.. fBodyAccJerk.energy...X fBodyAccJerk.energy...Y			
## 1	-0.9052742	-0.9950361	-0.9974993
## 2	-0.9554910	-0.9983708	-0.9993671
## 3	-0.9784007	-0.9998992	-0.9993190
## 4	-0.9773405	-0.9998950	-0.9993744
## 5	-0.9852960	-0.9999145	-0.9995688
## 6	-0.9870903	-0.9999389	-0.9995820
## fBodyAccJerk.energy...Z fBodyAccJerk.iqr...X fBodyAccJerk.iqr...Y			
## 1	-0.9970307	-0.8870774	-0.9358196
## 2	-0.9994262	-0.9295984	-0.9732304
## 3	-0.9992361	-0.9855866	-0.9773278
## 4	-0.9993584	-0.9898502	-0.9821422
## 5	-0.9997137	-0.9887913	-0.9825050
## 6	-0.9997410	-0.9902591	-0.9790690
## fBodyAccJerk.iqr...Z fBodyAccJerk.entropy...X fBodyAccJerk.entropy...Y			
## 1	-0.9536533	-0.4706616	-0.6721718
## 2	-0.9731457	-0.6066333	-1.0000000
## 3	-0.9713641	-1.0000000	-0.9391203
## 4	-0.9826662	-1.0000000	-1.0000000
## 5	-0.9822731	-1.0000000	-0.9391203
## 6	-0.9834229	-1.0000000	-1.0000000
## fBodyAccJerk.entropy...Z fBodyAccJerk.maxInds.X fBodyAccJerk.maxInds.Y			
## 1	-0.5962740	-0.52	0.08
## 2	-0.9422163	-0.16	-0.32
## 3	-0.8641583	-0.64	-0.40
## 4	-0.9001619	-0.44	-0.56
## 5	-1.0000000	-0.36	-0.56
## 6	-1.0000000	-0.72	-0.56
## fBodyAccJerk.maxInds.Z fBodyAccJerk.meanFreq...X fBodyAccJerk.meanFreq...Y			
## 1	0.32	0.45100539	0.13716703
## 2	-0.40	0.47285157	0.16719768
## 3	-0.44	0.27074412	-0.27224472
## 4	-0.48	0.27733393	-0.03832647
## 5	-0.24	0.18027241	-0.13916163
## 6	-0.48	0.07917486	-0.35372787
## fBodyAccJerk.meanFreq...Z fBodyAccJerk.skewness...X fBodyAccJerk.kurtosis...X			
## 1	-0.18029913	-0.5800861	-0.9080700
## 2	-0.24311457	-0.9256467	-0.9658581
## 3	-0.08249234	-0.5972016	-0.8940541
## 4	0.02181301	-0.4961496	-0.8520281
## 5	0.10085294	-0.6554288	-0.9154482
## 6	-0.11027662	-0.6548313	-0.9190851
## fBodyAccJerk.skewness...Y fBodyAccJerk.kurtosis...Y fBodyAccJerk.skewness...Z			
## 1	-0.6255269	-0.9427572	-0.6619101

## 2	-0.7208120	-0.9924446	-0.7647273
## 3	-0.3854568	-0.8307502	-0.2781365
## 4	-0.4069163	-0.8672804	-0.5470710
## 5	-0.2716506	-0.6360181	-0.6710494
## 6	-0.6487496	-0.9610271	-0.5689498
##	fBodyAccJerk.kurtosis...Z fBodyAccJerk.bandsEnergy...1.8		
## 1	-0.9115321	-0.9990115	
## 2	-0.9447724	-0.9999176	
## 3	-0.6615201	-0.9999956	
## 4	-0.7952377	-0.9999867	
## 5	-0.9346144	-0.9999598	
## 6	-0.9054224	-0.9999507	
##	fBodyAccJerk.bandsEnergy...9.16 fBodyAccJerk.bandsEnergy...17.24		
## 1	-0.9976301	-0.9959848	
## 2	-0.9994950	-0.9986462	
## 3	-0.9999294	-0.9999054	
## 4	-0.9999271	-0.9998818	
## 5	-0.9999556	-0.9999114	
## 6	-0.9999683	-0.9999314	
##	fBodyAccJerk.bandsEnergy...25.32 fBodyAccJerk.bandsEnergy...33.40		
## 1	-0.9947085	-0.9955716	
## 2	-0.9977000	-0.9959019	
## 3	-0.9998644	-0.9998166	
## 4	-0.9998770	-0.9998307	
## 5	-0.9998791	-0.9998638	
## 6	-0.9999276	-0.9999469	
##	fBodyAccJerk.bandsEnergy...41.48 fBodyAccJerk.bandsEnergy...49.56		
## 1	-0.9878765	-0.9864452	
## 2	-0.9967749	-0.9988225	
## 3	-0.9997614	-0.9999490	
## 4	-0.9998249	-0.9999218	
## 5	-0.9998576	-0.9999543	
## 6	-0.9998733	-0.9999262	
##	fBodyAccJerk.bandsEnergy...57.64 fBodyAccJerk.bandsEnergy...1.16		
## 1	-0.9982052	-0.9980404	
## 2	-0.9999343	-0.9996409	
## 3	-0.9999990	-0.9999542	
## 4	-0.9999718	-0.9999487	
## 5	-0.9999819	-0.9999550	
## 6	-0.9999980	-0.9999590	
##	fBodyAccJerk.bandsEnergy...17.32 fBodyAccJerk.bandsEnergy...33.48		
## 1	-0.9944968	-0.9920496	
## 2	-0.9979245	-0.9959339	
## 3	-0.9998758	-0.9997924	
## 4	-0.9998626	-0.9998280	
## 5	-0.9998870	-0.9998637	
## 6	-0.9999242	-0.9999259	
##	fBodyAccJerk.bandsEnergy...49.64 fBodyAccJerk.bandsEnergy...1.24		
## 1	-0.9863330	-0.9968935	
## 2	-0.9988303	-0.9991966	
## 3	-0.9999497	-0.9999317	
## 4	-0.9999178	-0.9999182	
## 5	-0.9999516	-0.9999346	
## 6	-0.9999271	-0.9999456	

##	fBodyAccJerk.bandsEnergy...25.48	fBodyAccJerk.bandsEnergy...1.8.1
## 1	-0.9907627	-0.9994092
## 2	-0.9955815	-0.9994072
## 3	-0.9997724	-0.9997983
## 4	-0.9998056	-0.9996148
## 5	-0.9998312	-0.9996982
## 6	-0.9999088	-0.9993743
##	fBodyAccJerk.bandsEnergy...9.16.1	fBodyAccJerk.bandsEnergy...17.24.1
## 1	-0.9986481	-0.9987487
## 2	-0.9997577	-0.9995540
## 3	-0.9994083	-0.9992566
## 4	-0.9994170	-0.9996363
## 5	-0.9996638	-0.9997501
## 6	-0.9997324	-0.9997036
##	fBodyAccJerk.bandsEnergy...25.32.1	fBodyAccJerk.bandsEnergy...33.40.1
## 1	-0.9964063	-0.9971722
## 2	-0.9992200	-0.9995406
## 3	-0.9997466	-0.9995379
## 4	-0.9995866	-0.9995210
## 5	-0.9995702	-0.9996387
## 6	-0.9996149	-0.9998052
##	fBodyAccJerk.bandsEnergy...41.48.1	fBodyAccJerk.bandsEnergy...49.56.1
## 1	-0.9945302	-0.9979198
## 2	-0.9989524	-0.9984723
## 3	-0.9991835	-0.9996738
## 4	-0.9991132	-0.9994958
## 5	-0.9993428	-0.9996603
## 6	-0.9994571	-0.9997460
##	fBodyAccJerk.bandsEnergy...57.64.1	fBodyAccJerk.bandsEnergy...1.16.1
## 1	-0.9999697	-0.9986417
## 2	-0.9990067	-0.9996475
## 3	-0.9999998	-0.9994227
## 4	-0.9994121	-0.9993874
## 5	-0.9999988	-0.9996308
## 6	-0.9999953	-0.9996168
##	fBodyAccJerk.bandsEnergy...17.32.1	fBodyAccJerk.bandsEnergy...33.48.1
## 1	-0.9974017	-0.9954108
## 2	-0.9993159	-0.9992262
## 3	-0.9993471	-0.9993227
## 4	-0.9995488	-0.9992789
## 5	-0.9996241	-0.9994727
## 6	-0.9996112	-0.9996569
##	fBodyAccJerk.bandsEnergy...49.64.1	fBodyAccJerk.bandsEnergy...1.24.1
## 1	-0.9981824	-0.9984631
## 2	-0.9985437	-0.9995493
## 3	-0.9997189	-0.9992548
## 4	-0.9994892	-0.9993963
## 5	-0.9997070	-0.9996235
## 6	-0.9997814	-0.9995928
##	fBodyAccJerk.bandsEnergy...25.48.1	fBodyAccJerk.bandsEnergy...1.8.2
## 1	-0.9959958	-0.9936388
## 2	-0.9992340	-0.9982249
## 3	-0.9996017	-0.9996453
## 4	-0.9994844	-0.9994163

## 5	-0.9995489		-0.9996599	
## 6	-0.9996481		-0.9990358	
## fBodyAccJerk.bandsEnergy...9.16.2	fBodyAccJerk.bandsEnergy...17.24.2			
## 1	-0.9978378		-0.9971293	
## 2	-0.9991344		-0.9997071	
## 3	-0.9978670		-0.9993956	
## 4	-0.9984729		-0.9996507	
## 5	-0.9997204		-0.9997133	
## 6	-0.9996568		-0.9997535	
## fBodyAccJerk.bandsEnergy...25.32.2	fBodyAccJerk.bandsEnergy...33.40.2			
## 1	-0.9987495		-0.9967088	
## 2	-0.9996953		-0.9994477	
## 3	-0.9998051		-0.9997525	
## 4	-0.9997479		-0.9995035	
## 5	-0.9997606		-0.9995575	
## 6	-0.9998860		-0.9997475	
## fBodyAccJerk.bandsEnergy...41.48.2	fBodyAccJerk.bandsEnergy...49.56.2			
## 1	-0.9951097		-0.9984858	
## 2	-0.9992861		-0.9984971	
## 3	-0.9983542		-0.9990254	
## 4	-0.9984924		-0.9987529	
## 5	-0.9995458		-0.9995495	
## 6	-0.9996471		-0.9994272	
## fBodyAccJerk.bandsEnergy...57.64.2	fBodyAccJerk.bandsEnergy...1.16.2			
## 1	-0.9990935		-0.9959246	
## 2	-0.9999825		-0.9986624	
## 3	-0.9999757		-0.9980822	
## 4	-0.9998053		-0.9985194	
## 5	-0.9998101		-0.9996733	
## 6	-0.9998118		-0.9993973	
## fBodyAccJerk.bandsEnergy...17.32.2	fBodyAccJerk.bandsEnergy...33.48.2			
## 1	-0.9979509		-0.9960129	
## 2	-0.9997308		-0.9993699	
## 3	-0.9996253		-0.9993213	
## 4	-0.9997277		-0.9991726	
## 5	-0.9997659		-0.9995323	
## 6	-0.9998478		-0.9997082	
## fBodyAccJerk.bandsEnergy...49.64.2	fBodyAccJerk.bandsEnergy...1.24.2			
## 1	-0.9984601		-0.9962671	
## 2	-0.9985726		-0.9992475	
## 3	-0.9990731		-0.9987768	
## 4	-0.9987950		-0.9991454	
## 5	-0.9995514		-0.9996999	
## 6	-0.9994356		-0.9996051	
## fBodyAccJerk.bandsEnergy...25.48.2	fBodyGyro.mean...X	fBodyGyro.mean...Y		
## 1	-0.9977005	-0.8235579	-0.8079160	
## 2	-0.9995935	-0.9225130	-0.9264957	
## 3	-0.9996411	-0.9728456	-0.9808333	
## 4	-0.9995480	-0.9715016	-0.9813450	
## 5	-0.9996970	-0.9764045	-0.9804043	
## 6	-0.9998423	-0.9797034	-0.9805261	
## fBodyGyro.mean...Z	fBodyGyro.std...X	fBodyGyro.std...Y	fBodyGyro.std...Z	
## 1	-0.9179126	-0.9032627	-0.8226770	-0.9561651
## 2	-0.9682295	-0.9270506	-0.9320107	-0.9701434

## 3	-0.9720602	-0.9731979	-0.9771945	-0.9790953
## 4	-0.9667055	-0.9671856	-0.9719094	-0.9652755
## 5	-0.9687820	-0.9743979	-0.9765654	-0.9700165
## 6	-0.9602064	-0.9800146	-0.9742469	-0.9678163
##	fBodyGyro.mad...X	fBodyGyro.mad...Y	fBodyGyro.mad...Z	fBodyGyro.max...X
## 1	-0.8651270	-0.8318008	-0.9410562	-0.9047980
## 2	-0.9400269	-0.9338519	-0.9671190	-0.9035110
## 3	-0.9698475	-0.9796193	-0.9710030	-0.9719872
## 4	-0.9686588	-0.9779172	-0.9637506	-0.9589503
## 5	-0.9731455	-0.9786927	-0.9633466	-0.9735023
## 6	-0.9780488	-0.9775095	-0.9591008	-0.9827596
##	fBodyGyro.max...Y	fBodyGyro.max...Z	fBodyGyro.min...X	fBodyGyro.min...Y
## 1	-0.8792566	-0.9677885	-0.8785993	-0.9483291
## 2	-0.9487658	-0.9776940	-0.9889596	-0.9611363
## 3	-0.9830423	-0.9883536	-0.9994072	-0.9910446
## 4	-0.9720110	-0.9680136	-0.9972096	-0.9985079
## 5	-0.9842999	-0.9783110	-0.9980948	-0.9925046
## 6	-0.9786638	-0.9767031	-0.9938869	-0.9911374
##	fBodyGyro.min...Z	fBodyGyro.sma..	fBodyGyro.energy...X	fBodyGyro.energy...Y
## 1	-0.9196852	-0.8284720	-0.9929495	-0.9826631
## 2	-0.9751811	-0.9312954	-0.9970900	-0.9973439
## 3	-0.9944469	-0.9756077	-0.9995833	-0.9997134
## 4	-0.9891006	-0.9740588	-0.9994196	-0.9996265
## 5	-0.9914964	-0.9759260	-0.9996301	-0.9996998
## 6	-0.9887523	-0.9751247	-0.9997588	-0.9996620
##	fBodyGyro.energy...Z	fBodyGyro.iqr...X	fBodyGyro.iqr...Y	fBodyGyro.iqr...Z
## 1	-0.9979933	-0.8788944	-0.8381520	-0.9291400
## 2	-0.9993307	-0.9476938	-0.9411104	-0.9788356
## 3	-0.9995951	-0.9791283	-0.9843627	-0.9763149
## 4	-0.9991614	-0.9800219	-0.9890341	-0.9749980
## 5	-0.9993325	-0.9864211	-0.9904682	-0.9841752
## 6	-0.9991707	-0.9883881	-0.9887968	-0.9832032
##	fBodyGyro.entropy...X	fBodyGyro.entropy...Y	fBodyGyro.entropy...Z	
## 1	0.0007581481	0.20014368	-0.2533842	
## 2	-0.2382949000	-0.09074787	-0.5945097	
## 3	-0.5418896700	-0.51739221	-0.5989126	
## 4	-0.5731624400	-0.58785161	-0.5764817	
## 5	-0.6057112400	-0.58555355	-0.5696633	
## 6	-0.6019911500	-0.57568325	-0.5319145	
##	fBodyGyro.maxInds.X	fBodyGyro.maxInds.Y	fBodyGyro.maxInds.Z	
## 1	-1.0	-0.9354839	-0.9310345	
## 2	-1.0	-0.9354839	-0.9310345	
## 3	-1.0	-0.9354839	-1.0000000	
## 4	-1.0	-1.0000000	-1.0000000	
## 5	-1.0	-0.9354839	-0.9310345	
## 6	-0.8	-0.5483871	-0.5172414	
##	fBodyGyro.meanFreq...X	fBodyGyro.meanFreq...Y	fBodyGyro.meanFreq...Z	
## 1	0.18403457	-0.05932286	0.43810716	
## 2	0.01810862	-0.22726634	-0.15169839	
## 3	-0.47914475	-0.21008368	0.04930984	
## 4	-0.49695391	-0.49990580	-0.25889610	
## 5	-0.42750236	-0.27813128	-0.29130830	
## 6	-0.32012497	-0.33338449	-0.05054079	
##	fBodyGyro.skewness...X	fBodyGyro.kurtosis...X	fBodyGyro.skewness...Y	

## 1	-0.3954227600	-0.69876160	-0.38745724
## 2	0.5574831700	0.38025340	-0.39647764
## 3	-0.0668244670	-0.44424084	-0.27466818
## 4	0.3447759300	0.09276551	0.04432834
## 5	0.0007812517	-0.39580949	-0.33120367
## 6	-0.1406186200	-0.56688067	-0.24209966
##	fBodyGyro.kurtosis...Y	fBodyGyro.skewness...Z	fBodyGyro.kurtosis...Z
## 1	-0.7863942	-0.4856536	-0.7868151
## 2	-0.7590735	-0.1502196	-0.5483663
## 3	-0.6993909	-0.5666755	-0.8772182
## 4	-0.3157187	0.0422413	-0.2778187
## 5	-0.7686541	-0.3314640	-0.7049328
## 6	-0.6661124	-0.3840935	-0.7392980
##	fBodyGyro.bandsEnergy...1.8	fBodyGyro.bandsEnergy...9.16	
## 1	-0.9946291	-0.9904691	
## 2	-0.9971174	-0.9992759	
## 3	-0.9995897	-0.9997958	
## 4	-0.9994157	-0.9997857	
## 5	-0.9996303	-0.9998518	
## 6	-0.9997671	-0.9998414	
##	fBodyGyro.bandsEnergy...17.24	fBodyGyro.bandsEnergy...25.32	
## 1	-0.9927778	-0.9956797	
## 2	-0.9990813	-0.9972360	
## 3	-0.9998559	-0.9999541	
## 4	-0.9998254	-0.9999257	
## 5	-0.9998736	-0.9999599	
## 6	-0.9999498	-0.9999523	
##	fBodyGyro.bandsEnergy...33.40	fBodyGyro.bandsEnergy...41.48	
## 1	-0.9870777	-0.9866510	
## 2	-0.9985964	-0.9982226	
## 3	-0.9998419	-0.9999030	
## 4	-0.9998502	-0.9999211	
## 5	-0.9998970	-0.9999181	
## 6	-0.9999412	-0.9999092	
##	fBodyGyro.bandsEnergy...49.56	fBodyGyro.bandsEnergy...57.64	
## 1	-0.9841144	-0.9852502	
## 2	-0.9982025	-0.9975895	
## 3	-0.9999256	-0.9999998	
## 4	-0.9999571	-0.9999968	
## 5	-0.9999293	-0.9999449	
## 6	-0.9999413	-0.9999346	
##	fBodyGyro.bandsEnergy...1.16	fBodyGyro.bandsEnergy...17.32	
## 1	-0.9935525	-0.9924302	
## 2	-0.9971812	-0.9981353	
## 3	-0.9995843	-0.9998674	
## 4	-0.9994190	-0.9998313	
## 5	-0.9996306	-0.9998841	
## 6	-0.9997579	-0.9999423	
##	fBodyGyro.bandsEnergy...33.48	fBodyGyro.bandsEnergy...49.64	
## 1	-0.9856058	-0.9846170	
## 2	-0.9983044	-0.9979313	
## 3	-0.9998523	-0.9999585	
## 4	-0.9998654	-0.9999747	
## 5	-0.9998966	-0.9999362	

## 6	-0.9999237	-0.9999383
## fBodyGyro.bandsEnergy...1.24	fBodyGyro.bandsEnergy...25.48	
## 1	-0.9932692	-0.9927255
## 2	-0.9971797	-0.9975152
## 3	-0.9995838	-0.9999251
## 4	-0.9994198	-0.9999084
## 5	-0.9996304	-0.9999421
## 6	-0.9997596	-0.9999445
## fBodyGyro.bandsEnergy...1.8.1	fBodyGyro.bandsEnergy...9.16.1	
## 1	-0.9779278	-0.9948522
## 2	-0.9968460	-0.9989161
## 3	-0.9996878	-0.9998359
## 4	-0.9994838	-0.9998841
## 5	-0.9996190	-0.9998576
## 6	-0.9995117	-0.9998987
## fBodyGyro.bandsEnergy...17.24.1	fBodyGyro.bandsEnergy...25.32.1	
## 1	-0.9978191	-0.9948430
## 2	-0.9995605	-0.9994709
## 3	-0.9999554	-0.9999810
## 4	-0.9999566	-0.9999761
## 5	-0.9999876	-0.9999811
## 6	-0.9999837	-0.9999896
## fBodyGyro.bandsEnergy...33.40.1	fBodyGyro.bandsEnergy...41.48.1	
## 1	-0.9924099	-0.9881227
## 2	-0.9992927	-0.9992095
## 3	-0.9999837	-0.9998777
## 4	-0.9999844	-0.9999282
## 5	-0.9999695	-0.9998851
## 6	-0.9999774	-0.9998788
## fBodyGyro.bandsEnergy...49.56.1	fBodyGyro.bandsEnergy...57.64.1	
## 1	-0.9904332	-0.9879613
## 2	-0.9992409	-0.9997139
## 3	-0.9998408	-0.9998810
## 4	-0.9999296	-0.9999993
## 5	-0.9998478	-0.9997894
## 6	-0.9998721	-0.9998816
## fBodyGyro.bandsEnergy...1.16.1	fBodyGyro.bandsEnergy...17.32.1	
## 1	-0.9817910	-0.9963992
## 2	-0.9971722	-0.9994289
## 3	-0.9996839	-0.9999528
## 4	-0.9995779	-0.9999524
## 5	-0.9996517	-0.9999830
## 6	-0.9996061	-0.9999818
## fBodyGyro.bandsEnergy...33.48.1	fBodyGyro.bandsEnergy...49.64.1	
## 1	-0.9914523	-0.9880600
## 2	-0.9992688	-0.9993426
## 3	-0.9999622	-0.9998366
## 4	-0.9999731	-0.9999503
## 5	-0.9999522	-0.9998018
## 6	-0.9999574	-0.9998588
## fBodyGyro.bandsEnergy...1.24.1	fBodyGyro.bandsEnergy...25.48.1	
## 1	-0.9820484	-0.9933800
## 2	-0.9971642	-0.9993669
## 3	-0.9996857	-0.9999741

## 4	-0.9995879	-0.9999738		
## 5	-0.9996713	-0.9999711		
## 6	-0.9996272	-0.9999791		
## fBodyGyro.bandsEnergy...1.8.2 fBodyGyro.bandsEnergy...9.16.2				
## 1	-0.9988777	-0.9983667		
## 2	-0.9993891	-0.9998141		
## 3	-0.9998160	-0.9994231		
## 4	-0.9992701	-0.9996452		
## 5	-0.9994557	-0.9995796		
## 6	-0.9993233	-0.9995187		
## fBodyGyro.bandsEnergy...17.24.2 fBodyGyro.bandsEnergy...25.32.2				
## 1	-0.9984673	-0.9983746		
## 2	-0.9998617	-0.9998598		
## 3	-0.9997568	-0.9999271		
## 4	-0.9998461	-0.9999041		
## 5	-0.9999318	-0.9999279		
## 6	-0.9998931	-0.9998788		
## fBodyGyro.bandsEnergy...33.40.2 fBodyGyro.bandsEnergy...41.48.2				
## 1	-0.9989059	-0.9958936		
## 2	-0.9999190	-0.9998384		
## 3	-0.9998957	-0.9996701		
## 4	-0.9998216	-0.9996561		
## 5	-0.9999171	-0.9998948		
## 6	-0.9997726	-0.9996658		
## fBodyGyro.bandsEnergy...49.56.2 fBodyGyro.bandsEnergy...57.64.2				
## 1	-0.9931284	-0.9954723		
## 2	-0.9991763	-0.9997178		
## 3	-0.9997808	-0.9998930		
## 4	-0.9997864	-0.9999087		
## 5	-0.9998434	-0.9998902		
## 6	-0.9993887	-0.9993844		
## fBodyGyro.bandsEnergy...1.16.2 fBodyGyro.bandsEnergy...17.32.2				
## 1	-0.9983871	-0.9977543		
## 2	-0.9993585	-0.9998029		
## 3	-0.9996337	-0.9997354		
## 4	-0.9991887	-0.9998094		
## 5	-0.9993433	-0.9999028		
## 6	-0.9991969	-0.9998421		
## fBodyGyro.bandsEnergy...33.48.2 fBodyGyro.bandsEnergy...49.64.2				
## 1	-0.9980959	-0.9941477		
## 2	-0.9999029	-0.9994119		
## 3	-0.9998404	-0.9998298		
## 4	-0.9997822	-0.9998398		
## 5	-0.9999167	-0.9998640		
## 6	-0.9997489	-0.9993871		
## fBodyGyro.bandsEnergy...1.24.2 fBodyGyro.bandsEnergy...25.48.2				
## 1	-0.9981906	-0.9982901		
## 2	-0.9993448	-0.9998751		
## 3	-0.9996046	-0.9999021		
## 4	-0.9991737	-0.9998682		
## 5	-0.9993391	-0.9999263		
## 6	-0.9991882	-0.9998404		
## fBodyAccMag.mean.. fBodyAccMag.std.. fBodyAccMag.mad.. fBodyAccMag.max..				
## 1	-0.7909464	-0.7110740	-0.7267070	-0.7776971

## 2	-0.9541266	-0.9597458	-0.9606796	-0.9686666
## 3	-0.9756497	-0.9837843	-0.9771762	-0.9919076
## 4	-0.9733931	-0.9821196	-0.9767960	-0.9883978
## 5	-0.9777390	-0.9788381	-0.9757056	-0.9813055
## 6	-0.9780025	-0.9798756	-0.9732212	-0.9883724
##	fBodyAccMag.min..	fBodyAccMag.sma..	fBodyAccMag.energy..	fBodyAccMag.iqr..
## 1	-0.9448813	-0.7909464	-0.9539836	-0.8735426
## 2	-0.9568606	-0.9541266	-0.9984762	-0.9830114
## 3	-0.9927818	-0.9756497	-0.9995701	-0.9771582
## 4	-0.9878112	-0.9733931	-0.9995038	-0.9777193
## 5	-0.9858042	-0.9777390	-0.9995000	-0.9791292
## 6	-0.9860785	-0.9780025	-0.9995265	-0.9820440
##	fBodyAccMag.entropy..	fBodyAccMag.maxInds	fBodyAccMag.meanFreq..	
## 1	-0.1745929	-1.0000000	-0.48345254	
## 2	-0.7520557	-0.8620690	0.20346524	
## 3	-0.8166736	-1.0000000	0.34245571	
## 4	-0.8166736	-0.9310345	0.33120550	
## 5	-0.8436706	-0.9310345	0.07111154	
## 6	-0.7919574	-1.0000000	-0.04345482	
##	fBodyAccMag.skewness..	fBodyAccMag.kurtosis..	fBodyBodyAccJerkMag.mean..	
## 1	0.01104068	-0.3845166	-0.8950612	
## 2	-0.20658816	-0.5994275	-0.9454372	
## 3	-0.77735763	-0.9454783	-0.9710690	
## 4	-0.65138646	-0.8709753	-0.9716545	
## 5	-0.31124142	-0.5906516	-0.9874888	
## 6	-0.63988722	-0.8998080	-0.9912947	
##	fBodyBodyAccJerkMag.std..	fBodyBodyAccJerkMag.mad..	fBodyBodyAccJerkMag.max..	
## 1	-0.8963596	-0.8881974	-0.9284657	
## 2	-0.9341520	-0.9293148	-0.9499730	
## 3	-0.9703078	-0.9685501	-0.9754550	
## 4	-0.9784844	-0.9740796	-0.9849154	
## 5	-0.9897160	-0.9884710	-0.9912647	
## 6	-0.9917440	-0.9897721	-0.9924966	
##	fBodyBodyAccJerkMag.min..	fBodyBodyAccJerkMag.sma..		
## 1	-0.8980998	-0.8950612		
## 2	-0.9677052	-0.9454372		
## 3	-0.9763576	-0.9710690		
## 4	-0.9955081	-0.9716545		
## 5	-0.9884531	-0.9874888		
## 6	-0.9869830	-0.9912947		
##	fBodyBodyAccJerkMag.energy..	fBodyBodyAccJerkMag.iqr..		
## 1	-0.9934714	-0.9214767		
## 2	-0.9976100	-0.9571776		
## 3	-0.9992692	-0.9782217		
## 4	-0.9994004	-0.9803647		
## 5	-0.9998120	-0.9899957		
## 6	-0.9998775	-0.9903375		
##	fBodyBodyAccJerkMag.entropy..	fBodyBodyAccJerkMag.maxInds		
## 1	-0.4846193	-1.0000000		
## 2	-0.7236420	-1.0000000		
## 3	-0.8980000	-1.0000000		
## 4	-1.0000000	-0.9682540		
## 5	-1.0000000	-0.8095238		
## 6	-1.0000000	-0.8412698		

```

## fBodyBodyAccJerkMag.meanFreq.. fBodyBodyAccJerkMag.skewness..
## 1 -0.03535579 -0.2542483
## 2 -0.49121253 -0.2154044
## 3 0.14072902 -0.2060621
## 4 0.14864853 -0.6199051
## 5 0.42224872 -0.5430957
## 6 0.40441535 -0.5857248
## fBodyBodyAccJerkMag.kurtosis.. fBodyBodyGyroMag.mean.. fBodyBodyGyroMag.std..
## 1 -0.7003257 -0.7706100 -0.7971128
## 2 -0.6660041 -0.9244608 -0.9167741
## 3 -0.6398087 -0.9752095 -0.9739984
## 4 -0.8871780 -0.9762973 -0.9712482
## 5 -0.8313127 -0.9770070 -0.9696193
## 6 -0.8279573 -0.9770345 -0.9750513
## fBodyBodyGyroMag.mad.. fBodyBodyGyroMag.max.. fBodyBodyGyroMag.min..
## 1 -0.7644846 -0.8201876 -0.9379593
## 2 -0.9193828 -0.9179834 -0.9911214
## 3 -0.9670974 -0.9828492 -0.9976631
## 4 -0.9660294 -0.9748783 -0.9961290
## 5 -0.9689152 -0.9737461 -0.9969696
## 6 -0.9697838 -0.9831224 -0.9937615
## fBodyBodyGyroMag.sma.. fBodyBodyGyroMag.energy.. fBodyBodyGyroMag.iqr..
## 1 -0.7706100 -0.9709580 -0.7983865
## 2 -0.9244608 -0.9957270 -0.9331273
## 3 -0.9752095 -0.9995036 -0.9682600
## 4 -0.9762973 -0.9994580 -0.9751742
## 5 -0.9770070 -0.9994290 -0.9761111
## 6 -0.9770345 -0.9995504 -0.9745522
## fBodyBodyGyroMag.entropy.. fBodyBodyGyroMag.maxInds
## 1 0.1794352 -1.0000000
## 2 -0.2188602 -1.0000000
## 3 -0.5612657 -0.8974359
## 4 -0.5667333 -0.9487180
## 5 -0.5555635 -1.0000000
## 6 -0.5848877 -1.0000000
## fBodyBodyGyroMag.meanFreq.. fBodyBodyGyroMag.skewness..
## 1 -0.04739130 -0.46784901
## 2 -0.03147392 -0.09065485
## 3 -0.16880542 -0.66231704
## 4 -0.28563574 -0.44647773
## 5 -0.34906064 -0.31976266
## 6 -0.17703141 -0.58523513
## fBodyBodyGyroMag.kurtosis.. fBodyBodyGyroJerkMag.mean..
## 1 -0.7613258 -0.8901655
## 2 -0.4618011 -0.9519774
## 3 -0.9253638 -0.9856888
## 4 -0.7568553 -0.9855619
## 5 -0.6917388 -0.9904980
## 6 -0.8890263 -0.9887326
## fBodyBodyGyroJerkMag.std.. fBodyBodyGyroJerkMag.mad..
## 1 -0.9073076 -0.8953006
## 2 -0.9382124 -0.9380079
## 3 -0.9832727 -0.9834216
## 4 -0.9858429 -0.9842175

```

```

## 5          -0.9905719          -0.9884060
## 6          -0.9898050          -0.9882873
## fBodyBodyGyroJerkMag.max.. fBodyBodyGyroJerkMag.min..
## 1          -0.9178830          -0.9098288
## 2          -0.9499222          -0.9869024
## 3          -0.9868573          -0.9896086
## 4          -0.9885656          -0.9920207
## 5          -0.9926528          -0.9925052
## 6          -0.9927864          -0.9816265
## fBodyBodyGyroJerkMag.sma.. fBodyBodyGyroJerkMag.energy..
## 1          -0.8901655          -0.9941054
## 2          -0.9519774          -0.9982715
## 3          -0.9856888          -0.9998306
## 4          -0.9855619          -0.9998500
## 5          -0.9904980          -0.9999253
## 6          -0.9887326          -0.9999066
## fBodyBodyGyroJerkMag.iqr.. fBodyBodyGyroJerkMag.entropy..
## 1          -0.8980215          -0.2348153
## 2          -0.9512549          -0.4310534
## 3          -0.9861480          -0.8099757
## 4          -0.9840150          -0.8490812
## 5          -0.9863760          -0.8958470
## 6          -0.9896387          -0.8490812
## fBodyBodyGyroJerkMag.maxInds fBodyBodyGyroJerkMag.meanFreq..
## 1          -1.0000000          0.07164545
## 2          -1.0000000          -0.40118872
## 3          -0.9365079          0.06289131
## 4          -0.9365079          0.11669529
## 5          -0.9365079          -0.12171128
## 6          -0.9682540          0.08360294
## fBodyBodyGyroJerkMag.skewness.. fBodyBodyGyroJerkMag.kurtosis..
## 1          -0.3303704          -0.7059739
## 2          -0.1218451          -0.5949439
## 3          -0.1904219          -0.6407357
## 4          -0.3444180          -0.7361238
## 5          -0.5346849          -0.8465952
## 6          -0.4935174          -0.8575645
## angle.tBodyAccMean.gravity. angle.tBodyAccJerkMean..gravityMean.
## 1          0.006462403          0.16291982
## 2          -0.083494968          0.01749957
## 3          -0.034956250          0.20230203
## 4          -0.017067021          0.15443783
## 5          -0.002222652          -0.04004639
## 6          -0.095680522          0.04884881
## angle.tBodyGyroMean.gravityMean. angle.tBodyGyroJerkMean.gravityMean.
## 1          -0.82588562          0.27115145
## 2          -0.43437455          0.92059323
## 3          0.06410335          0.14506843
## 4          0.34013408          0.29640709
## 5          0.73671509          -0.11854473
## 6          0.76068392          -0.07221636
## angle.X.gravityMean. angle.Y.gravityMean. angle.Z.gravityMean. subject
## 1          -0.7200093          0.2768010          -0.05797830          2
## 2          -0.6980908          0.2813429          -0.08389801          2

```

```
## 3      -0.7027715      0.2800830      -0.07934620      2
## 4      -0.6989538      0.2841138      -0.07710800      2
## 5      -0.6922450      0.2907220      -0.07385681      2
## 6      -0.6898161      0.2948958      -0.06847070      2
## Activity
## 1 STANDING
## 2 STANDING
## 3 STANDING
## 4 STANDING
## 5 STANDING
## 6 STANDING
```

```
dim(test)
```

```
## [1] 2947 563
```

xem các các type có trong data

```
table(sapply(train, class))
```

```
##
## character integer numeric
##          1          1       561
```

in ra cột có dạng character

```
names(train)[sapply(train, class) == "character"]
```

```
## [1] "Activity"
```

```
unique(train$Activity)
```

```
## [1] "STANDING"      "SITTING"        "LAYING"
## [4] "WALKING"        "WALKING_DOWNSTAIRS" "WALKING_UPSTAIRS"
```

chuyển thành factor

```
train$Activity <- as.factor(train$Activity)
```

```
cat("Giá trị thiếu ở tập train:", sum(is.na(train)), "\n")
```

```
## Giá trị thiếu ở tập train: 0
```

```
cat("Giá trị thiếu ở tập test:", sum(is.na(test)), "\n")
```

```
## Giá trị thiếu ở tập test: 0
```

```
cat("Số dòng bị trùng lặp trong tập train:", sum(duplicated(train)), "\n")
```

```
## Số dòng bị trùng lặp trong tập train: 0
```

```
cat("Số dòng bị trùng lặp trong tập test :", sum(duplicated(test)), "\n")
```

```
## Số dòng bị trùng lặp trong tập test : 0
```

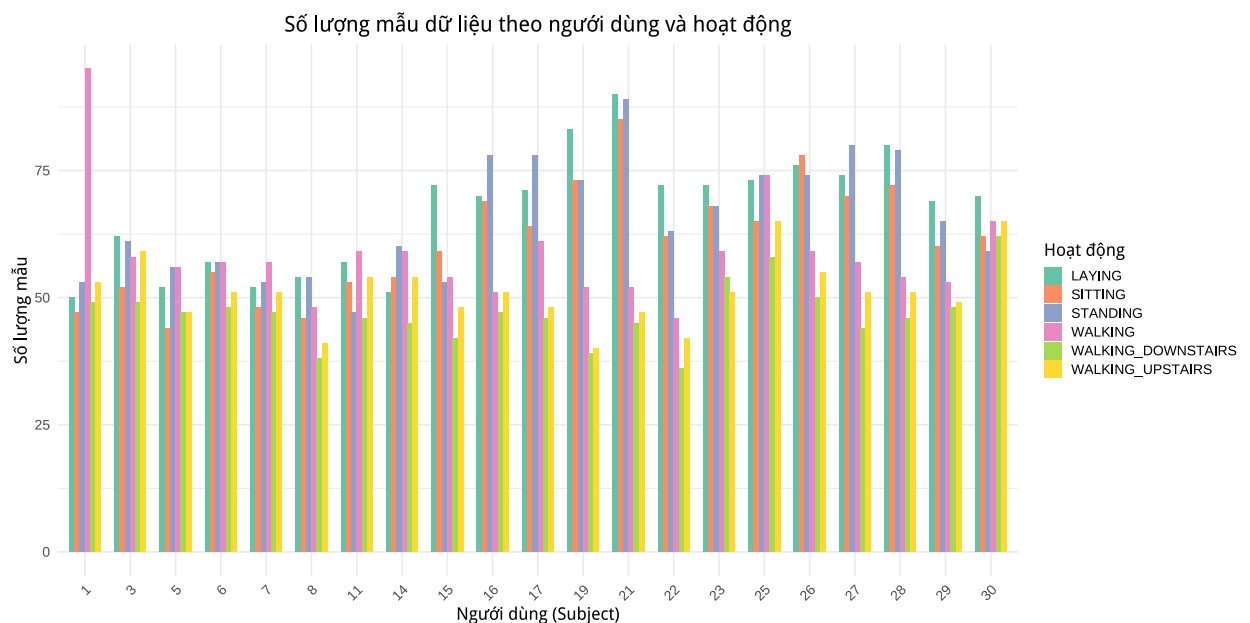
```
library(ggplot2)
library(showtext)
```

```
## Loading required package: sysfonts
```

```
## Loading required package: showtextdb
```

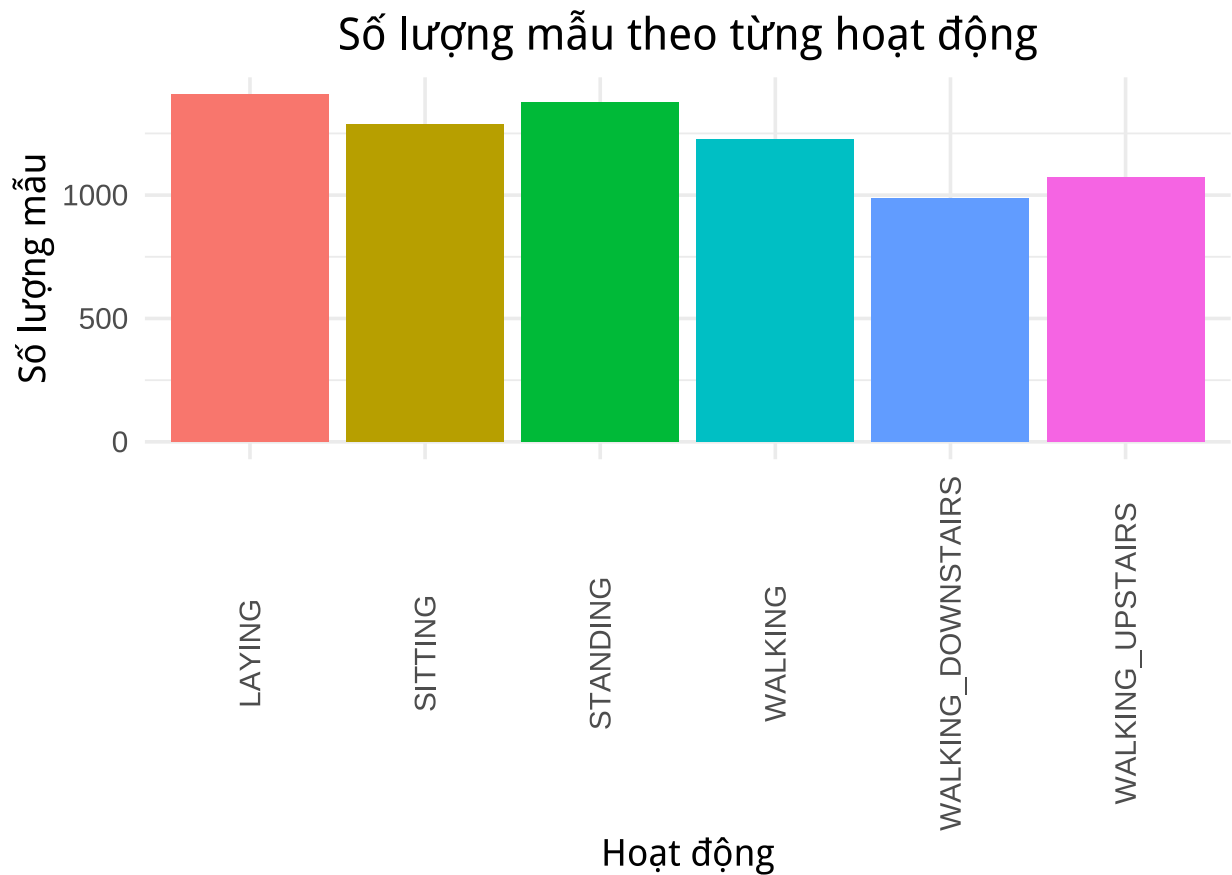
```
showtext_auto()
```

```
ggplot(train, aes(x = factor(subject), fill = Activity)) +
  geom_bar(position = "dodge", width = 0.7) +
  scale_fill_brewer(palette = "Set2") +
  labs(
    title = "Số lượng mẫu dữ liệu theo người dùng và hoạt động",
    x = "Người dùng (Subject)",
    y = "Số lượng mẫu",
    fill = "Hoạt động"
  ) +
  theme_minimal(base_size = 16) +
  theme(
    plot.title = element_text(hjust = 0.5, face = "bold", size = 20),
    axis.text.x = element_text(angle = 45, hjust = 1),
    legend.position = "right"
  )
```



```
library(ggplot2)

ggplot(train, aes(x = Activity, fill = Activity)) +
  geom_bar() +
  labs(
    title = "Số lượng mẫu theo từng hoạt động",
    x = "Hoạt động",
    y = "Số lượng mẫu"
  ) +
  theme_minimal(base_size = 15) +
  theme(
    axis.text.x = element_text(angle = 90, vjust = 0.5),
    plot.title = element_text(hjust = 0.5, face = "bold")
  ) +
  guides(fill = "none")
```



```
colnames(train)
```

```
## [1] "tBodyAcc.mean...X"
## [2] "tBodyAcc.mean...Y"
## [3] "tBodyAcc.mean...Z"
## [4] "tBodyAcc.std...X"
## [5] "tBodyAcc.std...Y"
## [6] "tBodyAcc.std...Z"
```

```

## [7] "tBodyAcc.mad...X"
## [8] "tBodyAcc.mad...Y"
## [9] "tBodyAcc.mad...Z"
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## [11] "tBodyAcc.max...Y"
## [12] "tBodyAcc.max...Z"
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## [14] "tBodyAcc.min...Y"
## [15] "tBodyAcc.min...Z"
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## [17] "tBodyAcc.energy...X"
## [18] "tBodyAcc.energy...Y"
## [19] "tBodyAcc.energy...Z"
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## [21] "tBodyAcc.iqr...Y"
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## [24] "tBodyAcc.entropy...Y"
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## [438] "fBodyGyro.min...Z"

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## [442] "fBodyGyro.energy...Z"
## [443] "fBodyGyro.iqr...X"
## [444] "fBodyGyro.iqr...Y"
## [445] "fBodyGyro.iqr...Z"
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## [447] "fBodyGyro.entropy...Y"
## [448] "fBodyGyro.entropy...Z"
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## [456] "fBodyGyro.kurtosis...X"
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## [546] "fBodyBodyGyroJerkMag.min.."

```



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## [548] "fBodyBodyGyroJerkMag.energy.."
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## [556] "angle.tBodyAccJerkMean..gravityMean."
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## [558] "angle.tBodyGyroJerkMean.gravityMean."
## [559] "angle.X.gravityMean."
## [560] "angle.Y.gravityMean."
## [561] "angle.Z.gravityMean."
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## [563] "Activity"
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columns <- gsub("\\.", "", columns)
colnames(train) <- columns
colnames(test) <- columns
colnames(train)
```

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## [5] "tBodyAccstdY" "tBodyAccstdZ"
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## [11] "tBodyAccmaxY" "tBodyAccmaxZ"
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## [15] "tBodyAccminZ" "tBodyAccsma"
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## [19] "tBodyAccenergyZ" "tBodyAcciqrX"
## [21] "tBodyAcciqrY" "tBodyAcciqrZ"
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## [427]	"fBodyGyrostdX"	"fBodyGyrostdY"
## [429]	"fBodyGyrostdZ"	"fBodyGyromadX"
## [431]	"fBodyGyromadY"	"fBodyGyromadZ"
## [433]	"fBodyGyromaxX"	"fBodyGyromaxY"
## [435]	"fBodyGyromaxZ"	"fBodyGyrominX"
## [437]	"fBodyGyrominY"	"fBodyGyrominZ"
## [439]	"fBodyGyrosmas"	"fBodyGyroenergyX"
## [441]	"fBodyGyroenergyY"	"fBodyGyroenergyZ"
## [443]	"fBodyGyroiqrX"	"fBodyGyroiqrY"
## [445]	"fBodyGyroiqrZ"	"fBodyGyroentropyX"
## [447]	"fBodyGyroentropyY"	"fBodyGyroentropyZ"
## [449]	"fBodyGyromaxIndsX"	"fBodyGyromaxIndsY"
## [451]	"fBodyGyromaxIndsZ"	"fBodyGyromeanFreqX"
## [453]	"fBodyGyromeanFreqY"	"fBodyGyromeanFreqZ"
## [455]	"fBodyGyroskewnessX"	"fBodyGyrokurtosisX"
## [457]	"fBodyGyroskewnessY"	"fBodyGyrokurtosisY"
## [459]	"fBodyGyroskewnessZ"	"fBodyGyrokurtosisZ"
## [461]	"fBodyGyrobandsEnergy18"	"fBodyGyrobandsEnergy916"
## [463]	"fBodyGyrobandsEnergy1724"	"fBodyGyrobandsEnergy2532"
## [465]	"fBodyGyrobandsEnergy3340"	"fBodyGyrobandsEnergy4148"
## [467]	"fBodyGyrobandsEnergy4956"	"fBodyGyrobandsEnergy5764"
## [469]	"fBodyGyrobandsEnergy116"	"fBodyGyrobandsEnergy1732"
## [471]	"fBodyGyrobandsEnergy3348"	"fBodyGyrobandsEnergy4964"
## [473]	"fBodyGyrobandsEnergy124"	"fBodyGyrobandsEnergy2548"
## [475]	"fBodyGyrobandsEnergy181"	"fBodyGyrobandsEnergy9161"
## [477]	"fBodyGyrobandsEnergy17241"	"fBodyGyrobandsEnergy25321"
## [479]	"fBodyGyrobandsEnergy33401"	"fBodyGyrobandsEnergy41481"
## [481]	"fBodyGyrobandsEnergy49561"	"fBodyGyrobandsEnergy57641"
## [483]	"fBodyGyrobandsEnergy1161"	"fBodyGyrobandsEnergy17321"
## [485]	"fBodyGyrobandsEnergy33481"	"fBodyGyrobandsEnergy49641"
## [487]	"fBodyGyrobandsEnergy1241"	"fBodyGyrobandsEnergy25481"
## [489]	"fBodyGyrobandsEnergy182"	"fBodyGyrobandsEnergy9162"
## [491]	"fBodyGyrobandsEnergy17242"	"fBodyGyrobandsEnergy25322"

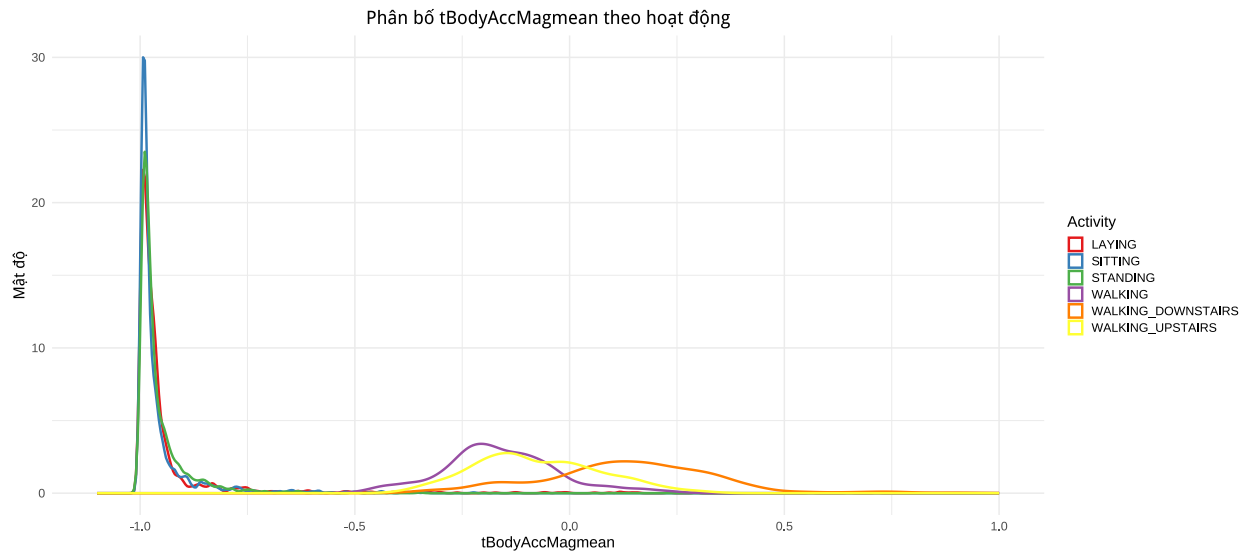
```
## [493] "fBodyGyrobandsEnergy33402"      "fBodyGyrobandsEnergy41482"
## [495] "fBodyGyrobandsEnergy49562"      "fBodyGyrobandsEnergy57642"
## [497] "fBodyGyrobandsEnergy1162"       "fBodyGyrobandsEnergy17322"
## [499] "fBodyGyrobandsEnergy33482"      "fBodyGyrobandsEnergy49642"
## [501] "fBodyGyrobandsEnergy1242"       "fBodyGyrobandsEnergy25482"
## [503] "fBodyAccMagmean"                "fBodyAccMagstd"
## [505] "fBodyAccMagmad"                 "fBodyAccMagmax"
## [507] "fBodyAccMagmin"                 "fBodyAccMagsma"
## [509] "fBodyAccMagenergy"              "fBodyAccMagiqr"
## [511] "fBodyAccMagentropy"             "fBodyAccMagmaxInds"
## [513] "fBodyAccMagmeanFreq"            "fBodyAccMagskewness"
## [515] "fBodyAccMagkurtosis"            "fBodyBodyAccJerkMagmean"
## [517] "fBodyBodyAccJerkMagstd"          "fBodyBodyAccJerkMagmad"
## [519] "fBodyBodyAccJerkMagmax"          "fBodyBodyAccJerkMagmin"
## [521] "fBodyBodyAccJerkMagsma"          "fBodyBodyAccJerkMagenergy"
## [523] "fBodyBodyAccJerkMagiqr"          "fBodyBodyAccJerkMagentropy"
## [525] "fBodyBodyAccJerkMagmaxInds"      "fBodyBodyAccJerkMagmeanFreq"
## [527] "fBodyBodyAccJerkMagskewness"     "fBodyBodyAccJerkMagkurtosis"
## [529] "fBodyBodyGyroMagmean"            "fBodyBodyGyroMagstd"
## [531] "fBodyBodyGyroMagmad"             "fBodyBodyGyroMagmax"
## [533] "fBodyBodyGyroMagmin"             "fBodyBodyGyroMagsma"
## [535] "fBodyBodyGyroMagenergy"           "fBodyBodyGyroMagiqr"
## [537] "fBodyBodyGyroMagentropy"          "fBodyBodyGyroMagmaxInds"
## [539] "fBodyBodyGyroMagmeanFreq"        "fBodyBodyGyroMagskewness"
## [541] "fBodyBodyGyroMagkurtosis"        "fBodyBodyGyroJerkMagmean"
## [543] "fBodyBodyGyroJerkMagstd"          "fBodyBodyGyroJerkMagmad"
## [545] "fBodyBodyGyroJerkMagmax"          "fBodyBodyGyroJerkMagmin"
## [547] "fBodyBodyGyroJerkMagsma"          "fBodyBodyGyroJerkMagenergy"
## [549] "fBodyBodyGyroJerkMagiqr"          "fBodyBodyGyroJerkMagentropy"
## [551] "fBodyBodyGyroJerkMagmaxInds"      "fBodyBodyGyroJerkMagmeanFreq"
## [553] "fBodyBodyGyroJerkMagskewness"     "fBodyBodyGyroJerkMagkurtosis"
## [555] "angletBodyAccMeangravity"         "angletBodyAccJerkMeangravityMean"
## [557] "angletBodyGyroMeangravityMean"    "angletBodyGyroJerkMeangravityMean"
## [559] "angleXgravityMean"                "angleYgravityMean"
## [561] "angleZgravityMean"                "subject"
## [563] "Activity"
```

```
library(ggplot2)

ggplot(train, aes(x = tBodyAccMagmean, color = Activity)) +
  geom_density(size = 1.2) +
  scale_color_brewer(palette = "Set1") +
  scale_x_continuous(limits = c(-1.1, 1)) +
  labs(
    title = "Phân bố tBodyAccMagmean theo hoạt động",
    x = "tBodyAccMagmean",
    y = "Mật độ"
  ) +
  theme_minimal(base_size = 16) +
  theme(
    plot.title = element_text(hjust = 0.5)
  )
```

```
## Warning: Using `size` aesthetic for lines was deprecated in ggplot2 3.4.0.
```

```
## i Please use `linewidth` instead.
## This warning is displayed once every 8 hours.
## Call `lifecycle::last_lifecycle_warnings()` to see where this warning was
## generated.
```



```
class(train$Activity)
```

```
## [1] "factor"
```

```
unique(train$Activity)
```

```
## [1] STANDING          SITTING          LAYING          WALKING
## [5] WALKING_DOWNSTAIRS WALKING_UPSTAIRS
## 6 Levels: LAYING SITTING STANDING WALKING ... WALKING_UPSTAIRS
```

```
library(ggplot2)
library(dplyr)
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##   filter, lag
```

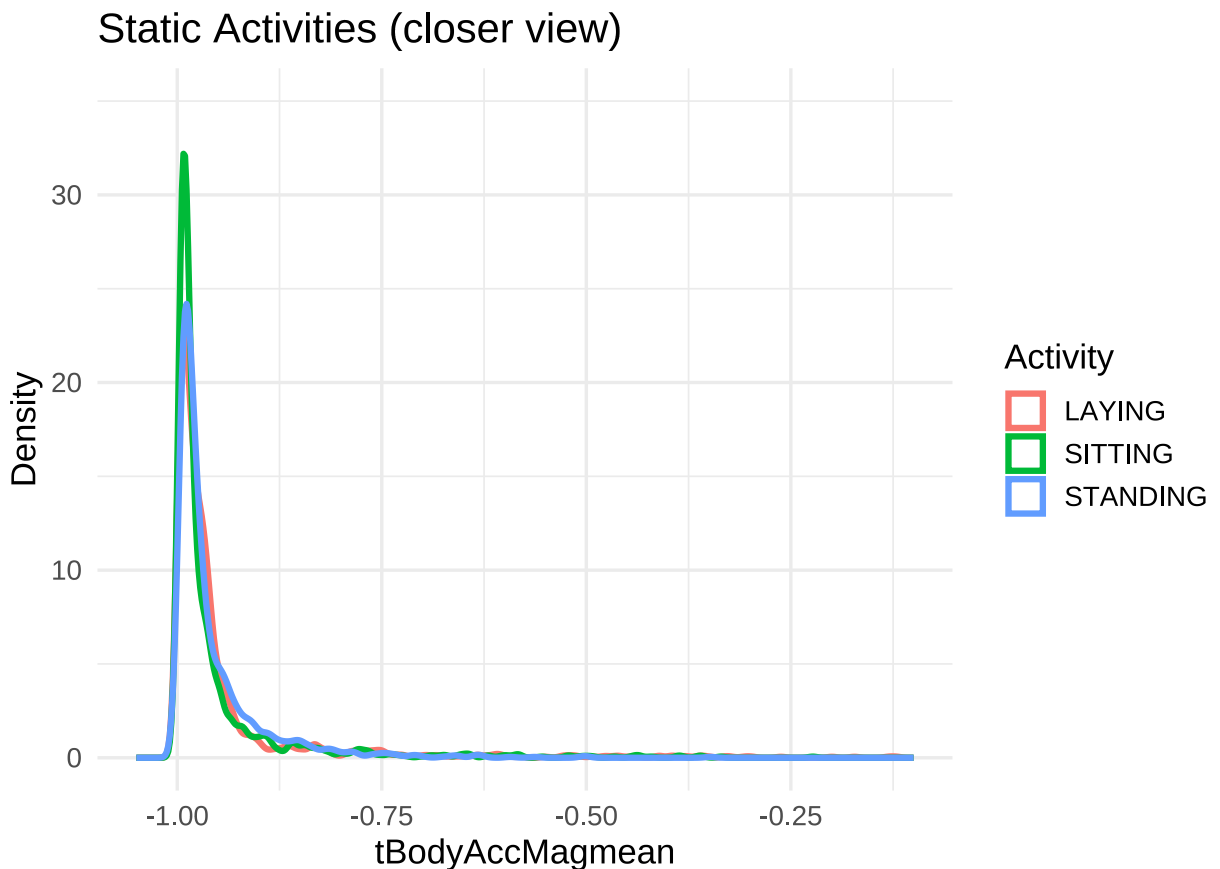
```
## The following objects are masked from 'package:base':
##
##   intersect, setdiff, setequal, union
```

```
library(gridExtra)
```

```
##
## Attaching package: 'gridExtra'
```

```
## The following object is masked from 'package:dplyr':  
##  
## combine
```

```
p1 <- train %>%  
  filter(Activity %in% c("SITTING", "STANDING", "LAYING")) %>%  
  ggplot(aes(x = tBodyAccMagmean, color = Activity)) +  
  geom_density(size = 1.2) +  
  labs(  
    title = "Static Activities (closer view)",  
    x = "tBodyAccMagmean",  
    y = "Density"  
  ) +  
  xlim(-1.05, -0.1) +  
  ylim(0, 35) +  
  theme_minimal(base_size = 14)  
p1
```



```
p2 <- train %>%  
  filter(Activity %in% c("WALKING", "WALKING_DOWNSTAIRS", "WALKING_UPSTAIRS")) %>%  
  ggplot(aes(x = tBodyAccMagmean, color = Activity)) +  
  geom_density(size = 1.2) +  
  labs(  
    title = "Dynamic Activities (closer view)",
```

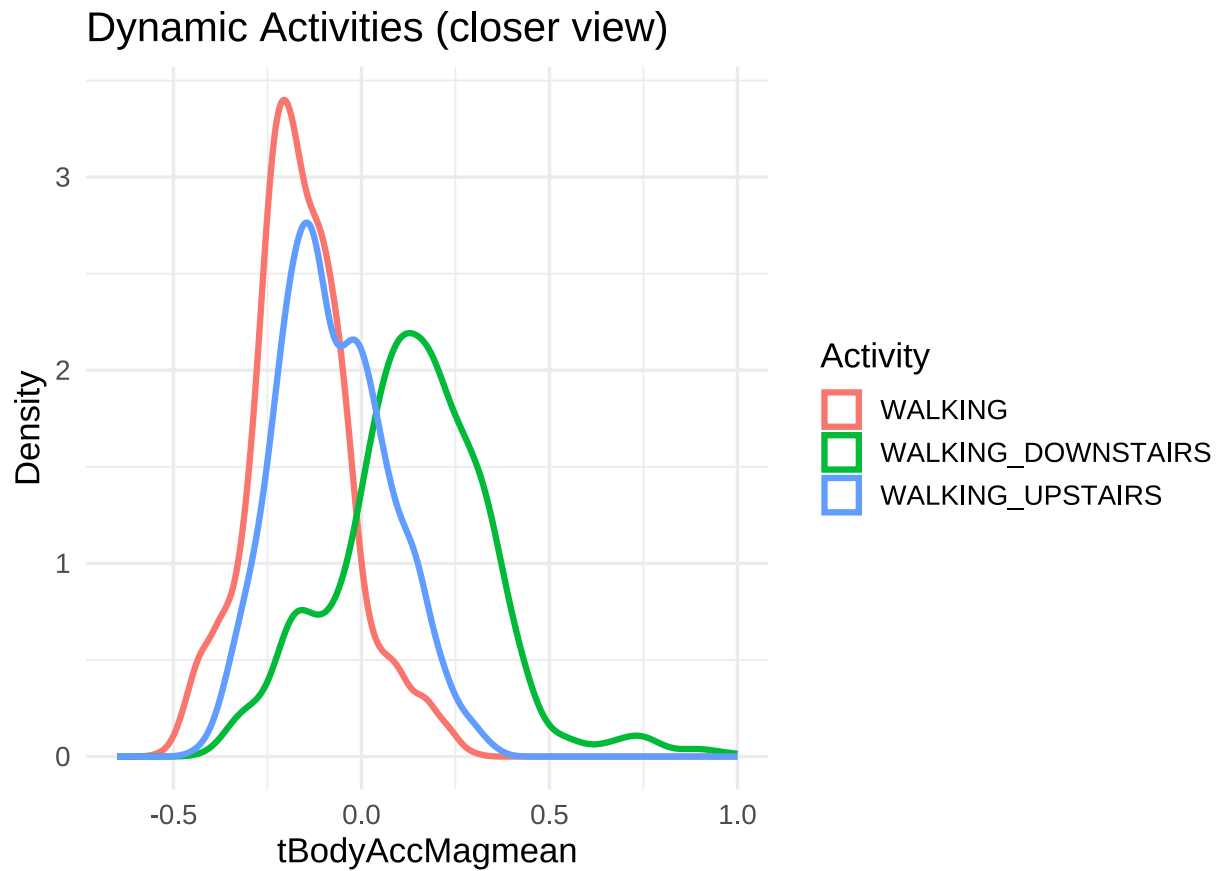


```

x = "tBodyAccMagmean",
y = "Density"
) + xlim(-0.65, 1) +
theme_minimal(base_size = 14)

```

p2



```

library(ggplot2)

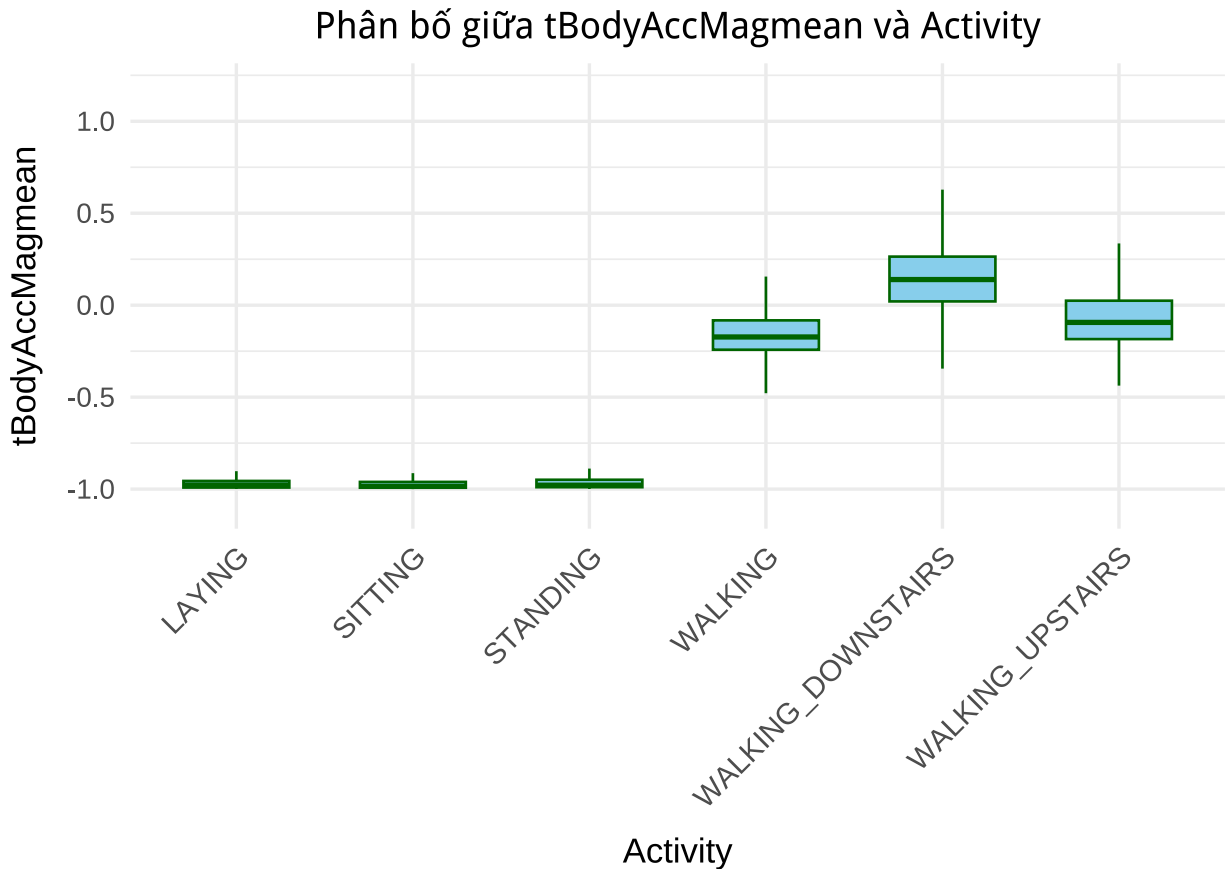
ggplot(train, aes(x = Activity, y = tBodyAccMagmean)) +
  geom_boxplot(
    outlier.shape = NA,
    fill = "skyblue",
    color = "darkgreen",
    width = 0.6
  ) +
  labs(
    title = "Phân bố giữa tBodyAccMagmean và Activity",
    y = "tBodyAccMagmean",
    x = "Activity"
  ) +
  coord_cartesian(ylim = c(-1.1, 1.2)) +
  theme_minimal(base_size = 14) +
  theme(

```

```

plot.title = element_text(hjust = 0.5, size = 15, face = "bold"),
axis.text.x = element_text(angle = 45, hjust = 1, size = 12),
axis.title.x = element_text(margin = margin(t = 10)),
axis.title.y = element_text(margin = margin(r = 10))
)

```



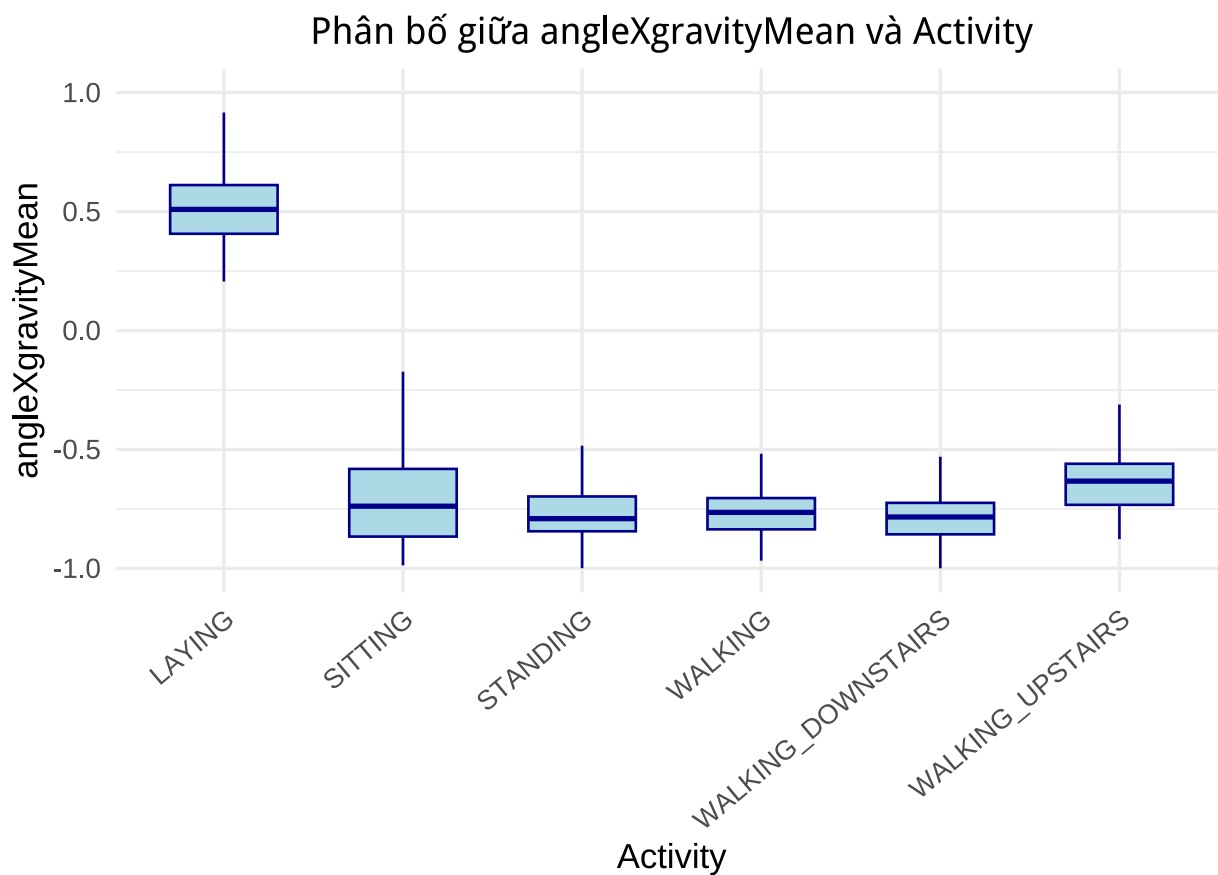
```

library(ggplot2)

ggplot(train, aes(x = Activity, y = angleXgravityMean)) +
  geom_boxplot(
    fill = "lightblue",
    color = "darkblue",
    outlier.shape = NA,
    width = 0.6
  ) +
  labs(
    title = "Phân bố giữa angleXgravityMean và Activity",
    x = "Activity",
    y = "angleXgravityMean"
  ) +
  theme_minimal(base_size = 14) +
  theme(
    plot.title = element_text(hjust = 0.5, size = 15, face = "bold"),
    axis.text.x = element_text(angle = 40, hjust = 1, size = 11)
  )

```

)



```
library(ggplot2)

ggplot(train, aes(x = Activity, y = angleYgravityMean)) +
  geom_boxplot(
    fill = "lightblue",
    color = "darkblue",
    outlier.shape = NA,
    width = 0.6
  ) +
  labs(
    title = "Phân bố giữa angleYgravityMean và Activity",
    x = "Activity",
    y = "angleYgravityMean"
  ) +
  theme_minimal(base_size = 14) +
  theme(
    plot.title = element_text(hjust = 0.5, size = 15, face = "bold"),
    axis.text.x = element_text(angle = 40, hjust = 1, size = 11)
  )
```

