**Getting and Cleaning Data**
Course Project

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3/17/2015

# Code Book

## Study Design

The features selected for this database come from the accelerometer and gyroscope 3-axial raw signals tAcc-XYZ and tGyro-XYZ. These time domain signals (prefix 't' to denote time) were captured at a constant rate of 50 Hz. Then they were filtered using a median filter and a 3rd order low pass Butterworth filter with a corner frequency of 20 Hz to remove noise. Similarly, the acceleration signal was then separated into body and gravity acceleration signals (tBodyAcc-XYZ and tGravityAcc-XYZ) using another low pass Butterworth filter with a corner frequency of 0.3 Hz.

Subsequently, the body linear acceleration and angular velocity were derived in time to obtain Jerk signals (tBodyAccJerk-XYZ and tBodyGyroJerk-XYZ). Also the magnitude of these three-dimensional signals were calculated using the Euclidean norm (tBodyAccMag, tGravityAccMag, tBodyAccJerkMag, tBodyGyroMag, tBodyGyroJerkMag).

Finally a Fast Fourier Transform (FFT) was applied to some of these signals producing fBodyAcc-XYZ, fBodyAccJerk-XYZ, fBodyGyro-XYZ, fBodyAccJerkMag, fBodyGyroMag, fBodyGyroJerkMag. (Note the 'f' to indicate frequency domain signals).

To make the data tide, I followed the following steps:

1. Merged the training and the test sets to create one data set.
2. Extracted only the measurements on the mean and standard deviation for each measurement.
3. Used descriptive activity names to name the activities in the data set
4. Appropriately labelled the data set with descriptive variable names.
5. From the data set in step 4, created a second, independent tidy data set with the average of each variable for each activity and each subject.

## Code Book

These signals were used to estimate variables of the feature vector for each pattern:

'-XYZ' is used to denote 3-axial signals in the X, Y and Z directions.

1. tBodyAcc-XYZ
2. tGravityAcc-XYZ
3. tBodyAccJerk-XYZ
4. tBodyGyro-XYZ
5. tBodyGyroJerk-XYZ
6. tBodyAccMag

7. tGravityAccMag
8. tBodyAccJerkMag
9. tBodyGyroMag
10. tBodyGyroJerkMag
11. fBodyAcc-XYZ
12. fBodyAccJerk-XYZ
13. fBodyGyro-XYZ
14. fBodyAccMag
15. fBodyAccJerkMag
16. fBodyGyroMag
17. fBodyGyroJerkMag

The set of variables that were estimated from these signals are:

1. mean(): Mean value
2. std(): Standard deviation
3. mad(): Median absolute deviation
4. max(): Largest value in array
5. min(): Smallest value in array
6. sma(): Signal magnitude area
7. energy(): Energy measure. Sum of the squares divided by the number of values.
8. iqr(): Interquartile range
9. entropy(): Signal entropy
10. arCoeff(): Autorregresion coefficients with Burg order equal to 4
11. correlation(): correlation coefficient between two signals
12. maxInds(): index of the frequency component with largest magnitude
13. meanFreq(): Weighted average of the frequency components to obtain a mean frequency
14. skewness(): skewness of the frequency domain signal
15. kurtosis(): kurtosis of the frequency domain signal
16. bandsEnergy(): Energy of a frequency interval within the 64 bins of the FFT of each window.
17. angle(): Angle between to vectors.

Additional vectors obtained by averaging the signals in a signal window sample. These are used on the angle() variable:

1. gravityMean
2. tBodyAccMean
3. tBodyAccJerkMean
4. tBodyGyroMean
5. tBodyGyroJerkMean

The complete list of variables of each feature vector is as follows:

1. tBodyAcc-mean()-Y
2. tBodyAcc-mean()-Z
3. tBodyAcc-std()-X
4. tBodyAcc-std()-Y
5. tBodyAcc-std()-Z
6. tBodyAcc-mad()-X
7. tBodyAcc-mad()-Y
8. tBodyAcc-mad()-Z
9. tBodyAcc-max()-X
10. tBodyAcc-max()-Y
11. tBodyAcc-max()-Z
12. tBodyAcc-min()-X
13. tBodyAcc-min()-Y
14. tBodyAcc-min()-Z
15. tBodyAcc-sma()
16. tBodyAcc-energy()-X
17. tBodyAcc-energy()-Y
18. tBodyAcc-energy()-Z
19. tBodyAcc-iqr()-X
20. tBodyAcc-iqr()-Y
21. tBodyAcc-iqr()-Z
22. tBodyAcc-entropy()-X
23. tBodyAcc-entropy()-Y
24. tBodyAcc-entropy()-Z
25. tBodyAcc-arCoeff()-X,1
26. tBodyAcc-arCoeff()-X,2
27. tBodyAcc-arCoeff()-X,3
28. tBodyAcc-arCoeff()-X,4
29. tBodyAcc-arCoeff()-Y,1
30. tBodyAcc-arCoeff()-Y,2
31. tBodyAcc-arCoeff()-Y,3
32. tBodyAcc-arCoeff()-Y,4
33. tBodyAcc-arCoeff()-Z,1
34. tBodyAcc-arCoeff()-Z,2
35. tBodyAcc-arCoeff()-Z,3
36. tBodyAcc-arCoeff()-Z,4
37. tBodyAcc-correlation()-X,Y
38. tBodyAcc-correlation()-X,Z
39. tBodyAcc-correlation()-Y,Z

40. tGravityAcc-mean()-X
41. tGravityAcc-mean()-Y
42. tGravityAcc-mean()-Z
43. tGravityAcc-std()-X
44. tGravityAcc-std()-Y
45. tGravityAcc-std()-Z
46. tGravityAcc-mad()-X
47. tGravityAcc-mad()-Y
48. tGravityAcc-mad()-Z
49. tGravityAcc-max()-X
50. tGravityAcc-max()-Y
51. tGravityAcc-max()-Z
52. tGravityAcc-min()-X
53. tGravityAcc-min()-Y
54. tGravityAcc-min()-Z
55. tGravityAcc-sma()
56. tGravityAcc-energy()-X
57. tGravityAcc-energy()-Y
58. tGravityAcc-energy()-Z
59. tGravityAcc-iqr()-X
60. tGravityAcc-iqr()-Y
61. tGravityAcc-iqr()-Z
62. tGravityAcc-entropy()-X
63. tGravityAcc-entropy()-Y
64. tGravityAcc-entropy()-Z
65. tGravityAcc-arCoeff()-X,1
66. tGravityAcc-arCoeff()-X,2
67. tGravityAcc-arCoeff()-X,3
68. tGravityAcc-arCoeff()-X,4
69. tGravityAcc-arCoeff()-Y,1
70. tGravityAcc-arCoeff()-Y,2
71. tGravityAcc-arCoeff()-Y,3
72. tGravityAcc-arCoeff()-Y,4
73. tGravityAcc-arCoeff()-Z,1
74. tGravityAcc-arCoeff()-Z,2
75. tGravityAcc-arCoeff()-Z,3
76. tGravityAcc-arCoeff()-Z,4
77. tGravityAcc-correlation()-X,Y
78. tGravityAcc-correlation()-X,Z
79. tGravityAcc-correlation()-Y,Z
80. tBodyAccJerk-mean()-X
81. tBodyAccJerk-mean()-Y
82. tBodyAccJerk-mean()-Z
83. tBodyAccJerk-std()-X
84. tBodyAccJerk-std()-Y
85. tBodyAccJerk-std()-Z
86. tBodyAccJerk-mad()-X
87. tBodyAccJerk-mad()-Y
88. tBodyAccJerk-mad()-Z
89. tBodyAccJerk-max()-X
90. tBodyAccJerk-max()-Y
91. tBodyAccJerk-max()-Z
92. tBodyAccJerk-min()-X
93. tBodyAccJerk-min()-Y
94. tBodyAccJerk-min()-Z
95. tBodyAccJerk-sma()
96. tBodyAccJerk-energy()-X
97. tBodyAccJerk-energy()-Y
98. tBodyAccJerk-energy()-Z
99. tBodyAccJerk-iqr()-X
100. tBodyAccJerk-iqr()-Y
101. tBodyAccJerk-iqr()-Z
102. tBodyAccJerk-entropy()-X
103. tBodyAccJerk-entropy()-Y
104. tBodyAccJerk-entropy()-Z
105. tBodyAccJerk-arCoeff()-X,1
106. tBodyAccJerk-arCoeff()-X,2
107. tBodyAccJerk-arCoeff()-X,3
108. tBodyAccJerk-arCoeff()-X,4
109. tBodyAccJerk-arCoeff()-Y,1
110. tBodyAccJerk-arCoeff()-Y,2
111. tBodyAccJerk-arCoeff()-Y,3
112. tBodyAccJerk-arCoeff()-Y,4
113. tBodyAccJerk-arCoeff()-Z,1
114. tBodyAccJerk-arCoeff()-Z,2
115. tBodyAccJerk-arCoeff()-Z,3
116. tBodyAccJerk-arCoeff()-Z,4
117. tBodyAccJerk-correlation()-X,Y
118. tBodyAccJerk-correlation()-X,Z
119. tBodyAccJerk-correlation()-Y,Z
120. tBodyGyro-mean()-X
121. tBodyGyro-mean()-Y
122. tBodyGyro-mean()-Z
123. tBodyGyro-std()-X
124. tBodyGyro-std()-Y
125. tBodyGyro-std()-Z
126. tBodyGyro-mad()-X
127. tBodyGyro-mad()-Y
128. tBodyGyro-mad()-Z
129. tBodyGyro-max()-X
130. tBodyGyro-max()-Y
131. tBodyGyro-max()-Z
132. tBodyGyro-min()-X
133. tBodyGyro-min()-Y
134. tBodyGyro-min()-Z
135. tBodyGyro-sma()
136. tBodyGyro-energy()-X
137. tBodyGyro-energy()-Y
138. tBodyGyro-energy()-Z
139. tBodyGyro-iqr()-X
140. tBodyGyro-iqr()-Y
141. tBodyGyro-iqr()-Z
142. tBodyGyro-entropy()-X
143. tBodyGyro-entropy()-Y
144. tBodyGyro-entropy()-Z
145. tBodyGyro-arCoeff()-X,1
146. tBodyGyro-arCoeff()-X,2
147. tBodyGyro-arCoeff()-X,3
148. tBodyGyro-arCoeff()-X,4
149. tBodyGyro-arCoeff()-Y,1
150. tBodyGyro-arCoeff()-Y,2
151. tBodyGyro-arCoeff()-Y,3
152. tBodyGyro-arCoeff()-Y,4
153. tBodyGyro-arCoeff()-Z,1
154. tBodyGyro-arCoeff()-Z,2
155. tBodyGyro-arCoeff()-Z,3
156. tBodyGyro-arCoeff()-Z,4
157. tBodyGyro-correlation()-X,Y
158. tBodyGyro-correlation()-X,Z
159. tBodyGyro-correlation()-Y,Z
160. tBodyGyroJerk-mean()-X
161. tBodyGyroJerk-mean()-Y
162. tBodyGyroJerk-mean()-Z
163. tBodyGyroJerk-std()-X
164. tBodyGyroJerk-std()-Y
165. tBodyGyroJerk-std()-Z
166. tBodyGyroJerk-mad()-X
167. tBodyGyroJerk-mad()-Y
168. tBodyGyroJerk-mad()-Z
169. tBodyGyroJerk-max()-X
170. tBodyGyroJerk-max()-Y
171. tBodyGyroJerk-max()-Z
172. tBodyGyroJerk-min()-X
173. tBodyGyroJerk-min()-Y
174. tBodyGyroJerk-min()-Z
175. tBodyGyroJerk-sma()
176. tBodyGyroJerk-energy()-X
177. tBodyGyroJerk-energy()-Y
178. tBodyGyroJerk-energy()-Z
179. tBodyGyroJerk-iqr()-X
180. tBodyGyroJerk-iqr()-Y
181. tBodyGyroJerk-iqr()-Z
182. tBodyGyroJerk-entropy()-X
183. tBodyGyroJerk-entropy()-Y
184. tBodyGyroJerk-entropy()-Z
185. tBodyGyroJerk-arCoeff()-X,1
186. tBodyGyroJerk-arCoeff()-X,2
187. tBodyGyroJerk-arCoeff()-X,3
188. tBodyGyroJerk-arCoeff()-X,4
189. tBodyGyroJerk-arCoeff()-Y,1
190. tBodyGyroJerk-arCoeff()-Y,2
191. tBodyGyroJerk-arCoeff()-Y,3
192. tBodyGyroJerk-arCoeff()-Y,4
193. tBodyGyroJerk-arCoeff()-Z,1
194. tBodyGyroJerk-arCoeff()-Z,2
195. tBodyGyroJerk-arCoeff()-Z,3
196. tBodyGyroJerk-arCoeff()-Z,4
197. tBodyGyroJerk-correlation()-X,Y
198. tBodyGyroJerk-correlation()-X,Z
199. tBodyGyroJerk-correlation()-Y,Z
200. tBodyAccMag-mean()
201. tBodyAccMag-std()
202. tBodyAccMag-mad()
203. tBodyAccMag-max()
204. tBodyAccMag-min()
205. tBodyAccMag-sma()
206. tBodyAccMag-energy()
207. tBodyAccMag-iqr()
208. tBodyAccMag-entropy()
209. tBodyAccMag-arCoeff()1
210. tBodyAccMag-arCoeff()2

211. tBodyAccMag-arCoeff()3
212. tBodyAccMag-arCoeff()4
213. tGravityAccMag-mean()
214. tGravityAccMag-std()
215. tGravityAccMag-mad()
216. tGravityAccMag-max()
217. tGravityAccMag-min()
218. tGravityAccMag-sma()
219. tGravityAccMag-energy()
220. tGravityAccMag-iqr()
221. tGravityAccMag-entropy()
222. tGravityAccMag-arCoeff()1
223. tGravityAccMag-arCoeff()2
224. tGravityAccMag-arCoeff()3
225. tGravityAccMag-arCoeff()4
226. tBodyAccJerkMag-mean()
227. tBodyAccJerkMag-std()
228. tBodyAccJerkMag-mad()
229. tBodyAccJerkMag-max()
230. tBodyAccJerkMag-min()
231. tBodyAccJerkMag-sma()
232. tBodyAccJerkMag-energy()
233. tBodyAccJerkMag-iqr()
234. tBodyAccJerkMag-entropy()
235. tBodyAccJerkMag-arCoeff()1
236. tBodyAccJerkMag-arCoeff()2
237. tBodyAccJerkMag-arCoeff()3
238. tBodyAccJerkMag-arCoeff()4
239. tBodyGyroMag-mean()
240. tBodyGyroMag-std()
241. tBodyGyroMag-mad()
242. tBodyGyroMag-max()
243. tBodyGyroMag-min()
244. tBodyGyroMag-sma()
245. tBodyGyroMag-energy()
246. tBodyGyroMag-iqr()
247. tBodyGyroMag-entropy()
248. tBodyGyroMag-arCoeff()1
249. tBodyGyroMag-arCoeff()2
250. tBodyGyroMag-arCoeff()3
251. tBodyGyroMag-arCoeff()4
252. tBodyGyroJerkMag-mean()
253. tBodyGyroJerkMag-std()
254. tBodyGyroJerkMag-mad()
255. tBodyGyroJerkMag-max()
256. tBodyGyroJerkMag-min()
257. tBodyGyroJerkMag-sma()
258. tBodyGyroJerkMag-energy()
259. tBodyGyroJerkMag-iqr()
260. tBodyGyroJerkMag-entropy()
261. tBodyGyroJerkMag-arCoeff()1
262. tBodyGyroJerkMag-arCoeff()2
263. tBodyGyroJerkMag-arCoeff()3
264. tBodyGyroJerkMag-arCoeff()4
265. fBodyAcc-mean()-X
266. fBodyAcc-mean()-Y
267. fBodyAcc-mean()-Z
268. fBodyAcc-std()-X
269. fBodyAcc-std()-Y
270. fBodyAcc-std()-Z
271. fBodyAcc-mad()-X
272. fBodyAcc-mad()-Y
273. fBodyAcc-mad()-Z
274. fBodyAcc-max()-X
275. fBodyAcc-max()-Y
276. fBodyAcc-max()-Z
277. fBodyAcc-min()-X
278. fBodyAcc-min()-Y
279. fBodyAcc-min()-Z
280. fBodyAcc-sma()
281. fBodyAcc-energy()-X
282. fBodyAcc-energy()-Y
283. fBodyAcc-energy()-Z
284. fBodyAcc-iqr()-X
285. fBodyAcc-iqr()-Y
286. fBodyAcc-iqr()-Z
287. fBodyAcc-entropy()-X
288. fBodyAcc-entropy()-Y
289. fBodyAcc-entropy()-Z
290. fBodyAcc-maxInds-X
291. fBodyAcc-maxInds-Y
292. fBodyAcc-maxInds-Z
293. fBodyAcc-meanFreq()-X
294. fBodyAcc-meanFreq()-Y
295. fBodyAcc-meanFreq()-Z
296. fBodyAcc-skewness()-X
297. fBodyAcc-kurtosis()-X
298. fBodyAcc-skewness()-Y
299. fBodyAcc-kurtosis()-Y
300. fBodyAcc-skewness()-Z
301. fBodyAcc-kurtosis()-Z
302. fBodyAcc-bandsEnergy()-1,8
303. fBodyAcc-bandsEnergy()-9,16
304. fBodyAcc-bandsEnergy()-17,24
305. fBodyAcc-bandsEnergy()-25,32
306. fBodyAcc-bandsEnergy()-33,40
307. fBodyAcc-bandsEnergy()-41,48
308. fBodyAcc-bandsEnergy()-49,56
309. fBodyAcc-bandsEnergy()-57,64
310. fBodyAcc-bandsEnergy()-1,16
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312. fBodyAcc-bandsEnergy()-33,48
313. fBodyAcc-bandsEnergy()-49,64
314. fBodyAcc-bandsEnergy()-1,24
315. fBodyAcc-bandsEnergy()-25,48
316. fBodyAcc-bandsEnergy()-1,8
317. fBodyAcc-bandsEnergy()-9,16
318. fBodyAcc-bandsEnergy()-17,24
319. fBodyAcc-bandsEnergy()-25,32
320. fBodyAcc-bandsEnergy()-33,40
321. fBodyAcc-bandsEnergy()-41,48
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324. fBodyAcc-bandsEnergy()-1,16
325. fBodyAcc-bandsEnergy()-17,32
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327. fBodyAcc-bandsEnergy()-49,64
328. fBodyAcc-bandsEnergy()-1,24
329. fBodyAcc-bandsEnergy()-25,48
330. fBodyAcc-bandsEnergy()-1,8
331. fBodyAcc-bandsEnergy()-9,16
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333. fBodyAcc-bandsEnergy()-25,32
334. fBodyAcc-bandsEnergy()-33,40
335. fBodyAcc-bandsEnergy()-41,48
336. fBodyAcc-bandsEnergy()-49,56
337. fBodyAcc-bandsEnergy()-57,64
338. fBodyAcc-bandsEnergy()-1,16
339. fBodyAcc-bandsEnergy()-17,32
340. fBodyAcc-bandsEnergy()-33,48
341. fBodyAcc-bandsEnergy()-49,64
342. fBodyAcc-bandsEnergy()-1,24
343. fBodyAcc-bandsEnergy()-25,48
344. fBodyAccJerk-mean()-X
345. fBodyAccJerk-mean()-Y
346. fBodyAccJerk-mean()-Z
347. fBodyAccJerk-std()-X
348. fBodyAccJerk-std()-Y
349. fBodyAccJerk-std()-Z
350. fBodyAccJerk-mad()-X
351. fBodyAccJerk-mad()-Y
352. fBodyAccJerk-mad()-Z
353. fBodyAccJerk-max()-X
354. fBodyAccJerk-max()-Y
355. fBodyAccJerk-max()-Z
356. fBodyAccJerk-min()-X
357. fBodyAccJerk-min()-Y
358. fBodyAccJerk-min()-Z
359. fBodyAccJerk-sma()
360. fBodyAccJerk-energy()-X
361. fBodyAccJerk-energy()-Y
362. fBodyAccJerk-energy()-Z
363. fBodyAccJerk-iqr()-X
364. fBodyAccJerk-iqr()-Y
365. fBodyAccJerk-iqr()-Z
366. fBodyAccJerk-entropy()-X
367. fBodyAccJerk-entropy()-Y
368. fBodyAccJerk-entropy()-Z
369. fBodyAccJerk-maxInds-X
370. fBodyAccJerk-maxInds-Y
371. fBodyAccJerk-maxInds-Z
372. fBodyAccJerk-meanFreq()-X
373. fBodyAccJerk-meanFreq()-Y
374. fBodyAccJerk-meanFreq()-Z
375. fBodyAccJerk-skewness()-X
376. fBodyAccJerk-kurtosis()-X
377. fBodyAccJerk-skewness()-Y
378. fBodyAccJerk-kurtosis()-Y
379. fBodyAccJerk-skewness()-Z
380. fBodyAccJerk-kurtosis()-Z
381. fBodyAccJerk-bandsEnergy()-1,8

382. fBodyAccJerk-bandsEnergy()-9,16
383. fBodyAccJerk-bandsEnergy()-17,24
384. fBodyAccJerk-bandsEnergy()-25,32
385. fBodyAccJerk-bandsEnergy()-33,40
386. fBodyAccJerk-bandsEnergy()-41,48
387. fBodyAccJerk-bandsEnergy()-49,56
388. fBodyAccJerk-bandsEnergy()-57,64
389. fBodyAccJerk-bandsEnergy()-1,16
390. fBodyAccJerk-bandsEnergy()-17,32
391. fBodyAccJerk-bandsEnergy()-33,48
392. fBodyAccJerk-bandsEnergy()-49,64
393. fBodyAccJerk-bandsEnergy()-1,24
394. fBodyAccJerk-bandsEnergy()-25,48
395. fBodyAccJerk-bandsEnergy()-1,8
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397. fBodyAccJerk-bandsEnergy()-17,24
398. fBodyAccJerk-bandsEnergy()-25,32
399. fBodyAccJerk-bandsEnergy()-33,40
400. fBodyAccJerk-bandsEnergy()-41,48
401. fBodyAccJerk-bandsEnergy()-49,56
402. fBodyAccJerk-bandsEnergy()-57,64
403. fBodyAccJerk-bandsEnergy()-1,16
404. fBodyAccJerk-bandsEnergy()-17,32
405. fBodyAccJerk-bandsEnergy()-33,48
406. fBodyAccJerk-bandsEnergy()-49,64
407. fBodyAccJerk-bandsEnergy()-1,24
408. fBodyAccJerk-bandsEnergy()-25,48
409. fBodyAccJerk-bandsEnergy()-1,8
410. fBodyAccJerk-bandsEnergy()-9,16
411. fBodyAccJerk-bandsEnergy()-17,24
412. fBodyAccJerk-bandsEnergy()-25,32
413. fBodyAccJerk-bandsEnergy()-33,40
414. fBodyAccJerk-bandsEnergy()-41,48
415. fBodyAccJerk-bandsEnergy()-49,56
416. fBodyAccJerk-bandsEnergy()-57,64
417. fBodyAccJerk-bandsEnergy()-1,16
418. fBodyAccJerk-bandsEnergy()-17,32
419. fBodyAccJerk-bandsEnergy()-33,48
420. fBodyAccJerk-bandsEnergy()-49,64
421. fBodyAccJerk-bandsEnergy()-1,24
422. fBodyAccJerk-bandsEnergy()-25,48
423. fBodyGyro-mean()-X
424. fBodyGyro-mean()-Y
425. fBodyGyro-mean()-Z
426. fBodyGyro-std()-X
427. fBodyGyro-std()-Y
428. fBodyGyro-std()-Z
429. fBodyGyro-mad()-X
430. fBodyGyro-mad()-Y
431. fBodyGyro-mad()-Z
432. fBodyGyro-max()-X
433. fBodyGyro-max()-Y
434. fBodyGyro-max()-Z
435. fBodyGyro-min()-X
436. fBodyGyro-min()-Y
437. fBodyGyro-min()-Z
438. fBodyGyro-sma()
439. fBodyGyro-energy()-X
440. fBodyGyro-energy()-Y
441. fBodyGyro-energy()-Z
442. fBodyGyro-iqr()-X
443. fBodyGyro-iqr()-Y
444. fBodyGyro-iqr()-Z
445. fBodyGyro-entropy()-X
446. fBodyGyro-entropy()-Y
447. fBodyGyro-entropy()-Z
448. fBodyGyro-maxInds-X
449. fBodyGyro-maxInds-Y
450. fBodyGyro-maxInds-Z
451. fBodyGyro-meanFreq()-X
452. fBodyGyro-meanFreq()-Y
453. fBodyGyro-meanFreq()-Z
454. fBodyGyro-skewness()-X
455. fBodyGyro-kurtosis()-X
456. fBodyGyro-skewness()-Y
457. fBodyGyro-kurtosis()-Y
458. fBodyGyro-skewness()-Z
459. fBodyGyro-kurtosis()-Z
460. fBodyGyro-bandsEnergy()-1,8
461. fBodyGyro-bandsEnergy()-9,16
462. fBodyGyro-bandsEnergy()-17,24
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464. fBodyGyro-bandsEnergy()-33,40
465. fBodyGyro-bandsEnergy()-41,48
466. fBodyGyro-bandsEnergy()-49,56
467. fBodyGyro-bandsEnergy()-57,64
468. fBodyGyro-bandsEnergy()-1,16
469. fBodyGyro-bandsEnergy()-17,32
470. fBodyGyro-bandsEnergy()-33,48
471. fBodyGyro-bandsEnergy()-49,64
472. fBodyGyro-bandsEnergy()-1,24
473. fBodyGyro-bandsEnergy()-25,48
474. fBodyGyro-bandsEnergy()-1,8
475. fBodyGyro-bandsEnergy()-9,16
476. fBodyGyro-bandsEnergy()-17,24
477. fBodyGyro-bandsEnergy()-25,32
478. fBodyGyro-bandsEnergy()-33,40
479. fBodyGyro-bandsEnergy()-41,48
480. fBodyGyro-bandsEnergy()-49,56
481. fBodyGyro-bandsEnergy()-57,64
482. fBodyGyro-bandsEnergy()-1,16
483. fBodyGyro-bandsEnergy()-17,32
484. fBodyGyro-bandsEnergy()-33,48
485. fBodyGyro-bandsEnergy()-49,64
486. fBodyGyro-bandsEnergy()-1,24
487. fBodyGyro-bandsEnergy()-25,48
488. fBodyGyro-bandsEnergy()-1,8
489. fBodyGyro-bandsEnergy()-9,16
490. fBodyGyro-bandsEnergy()-17,24
491. fBodyGyro-bandsEnergy()-25,32
492. fBodyGyro-bandsEnergy()-33,40
493. fBodyGyro-bandsEnergy()-41,48
494. fBodyGyro-bandsEnergy()-49,56
495. fBodyGyro-bandsEnergy()-57,64
496. fBodyGyro-bandsEnergy()-1,16
497. fBodyGyro-bandsEnergy()-17,32
498. fBodyGyro-bandsEnergy()-33,48
499. fBodyGyro-bandsEnergy()-49,64
500. fBodyGyro-bandsEnergy()-1,24
501. fBodyGyro-bandsEnergy()-25,48
502. fBodyAccMag-mean()
503. fBodyAccMag-std()
504. fBodyAccMag-mad()
505. fBodyAccMag-max()
506. fBodyAccMag-min()
507. fBodyAccMag-sma()
508. fBodyAccMag-energy()
509. fBodyAccMag-iqr()
510. fBodyAccMag-entropy()
511. fBodyAccMag-maxInds
512. fBodyAccMag-meanFreq()
513. fBodyAccMag-skewness()
514. fBodyAccMag-kurtosis()
515. fBodyBodyAccJerkMag-mean()
516. fBodyBodyAccJerkMag-std()
517. fBodyBodyAccJerkMag-mad()
518. fBodyBodyAccJerkMag-max()
519. fBodyBodyAccJerkMag-min()
520. fBodyBodyAccJerkMag-sma()
521. fBodyBodyAccJerkMag-energy()
522. fBodyBodyAccJerkMag-iqr()
523. fBodyBodyAccJerkMag-entropy()
524. fBodyBodyAccJerkMag-maxInds
525. fBodyBodyAccJerkMag-meanFreq()
526. fBodyBodyAccJerkMag-skewness()
527. fBodyBodyAccJerkMag-kurtosis()
528. fBodyBodyGyroMag-mean()
529. fBodyBodyGyroMag-std()
530. fBodyBodyGyroMag-mad()
531. fBodyBodyGyroMag-max()
532. fBodyBodyGyroMag-min()
533. fBodyBodyGyroMag-sma()
534. fBodyBodyGyroMag-energy()
535. fBodyBodyGyroMag-iqr()
536. fBodyBodyGyroMag-entropy()
537. fBodyBodyGyroMag-maxInds
538. fBodyBodyGyroMag-meanFreq()
539. fBodyBodyGyroMag-skewness()
540. fBodyBodyGyroMag-kurtosis()
541. fBodyBodyGyroJerkMag-mean()
542. fBodyBodyGyroJerkMag-std()
543. fBodyBodyGyroJerkMag-mad()
544. fBodyBodyGyroJerkMag-max()
545. fBodyBodyGyroJerkMag-min()
546. fBodyBodyGyroJerkMag-sma()
547. fBodyBodyGyroJerkMag-energy()
548. fBodyBodyGyroJerkMag-iqr()
549. fBodyBodyGyroJerkMag-entropy()
550. fBodyBodyGyroJerkMag-maxInds
551. fBodyBodyGyroJerkMag-meanFreq()

552. fBodyBodyGyroJerkMag-skewness()
553. fBodyBodyGyroJerkMag-kurtosis()
554. angle(tBodyAccMean,gravity)
555. angle(tBodyAccJerkMean),gravityMean)
556. angle(tBodyGyroMean,gravityMean)
557. angle(tBodyGyroJerkMean,gravityMean)
558. angle(X,gravityMean)
559. angle(Y,gravityMean)
560. angle(Z,gravityMean)