Code_Book

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DATA Code Book

1. **Subject_ID**
    - **Description**: Unique identifier for each participant in the experiment.
    - **Type**: Integer
    - **Range**: 1 to 30 (corresponding to 30 volunteers)
2. **Activity_Label**
    - **Description**: The activity performed by the subject during the data recording.
    - **Type**: Categorical
    - **Values**:
        - WALKING
        - WALKING_UPSTAIRS
        - WALKING_DOWNSTAIRS
        - SITTING
        - STANDING
        - LAYING

Time-Domain Features

These features represent sensor signals captured in the time domain (as opposed to the frequency domain).

3. **TimeBodyAccelerometerMean-X**
    - **Description**: Mean value of the body acceleration signal along the X-axis.
    - **Type**: Numeric
4. **TimeBodyAccelerometerMean-Y**
    - **Description**: Mean value of the body acceleration signal along the Y-axis.
    - **Type**: Numeric
5. **TimeBodyAccelerometerMean-Z**
    - **Description**: Mean value of the body acceleration signal along the Z-axis.
    - **Type**: Numeric
6. **TimeBodyAccelerometerStd-X**
    - **Description**: Standard deviation of the body acceleration signal along the X-axis.
    - **Type**: Numeric
7. **TimeBodyAccelerometerStd-Y**
    - **Description**: Standard deviation of the body acceleration signal along the Y-axis.
    - **Type**: Numeric
8. **TimeBodyAccelerometerStd-Z**
    - **Description**: Standard deviation of the body acceleration signal along the Z-axis.
    - **Type**: Numeric
9. **TimeGravityAccelerometerMean-X**
    - **Description**: Mean value of the gravity acceleration signal along the X-axis.
    - **Type**: Numeric
10. **TimeGravityAccelerometerMean-Y**
    - **Description**: Mean value of the gravity acceleration signal along the Y-axis.
    - **Type**: Numeric

11. **TimeGravityAccelerometerMean-Z**
    - **Description**: Mean value of the gravity acceleration signal along the Z-axis.
    - **Type**: Numeric
12. **TimeGravityAccelerometerStd-X**
    - **Description**: Standard deviation of the gravity acceleration signal along the X-axis.
    - **Type**: Numeric
13. **TimeGravityAccelerometerStd-Y**
    - **Description**: Standard deviation of the gravity acceleration signal along the Y-axis.
    - **Type**: Numeric
14. **TimeGravityAccelerometerStd-Z**
    - **Description**: Standard deviation of the gravity acceleration signal along the Z-axis.
    - **Type**: Numeric

Time-Domain Features - Jerk Signals

These features represent the jerk signals, which are the derivatives of the acceleration signals.

15. **TimeBodyAccelerometerJerkMean-X**
    - **Description**: Mean of the body linear jerk acceleration along the X-axis.
    - **Type**: Numeric
16. **TimeBodyAccelerometerJerkMean-Y**
    - **Description**: Mean of the body linear jerk acceleration along the Y-axis.
    - **Type**: Numeric
17. **TimeBodyAccelerometerJerkMean-Z**
    - **Description**: Mean of the body linear jerk acceleration along the Z-axis.
    - **Type**: Numeric
18. **TimeBodyAccelerometerJerkStd-X**
    - **Description**: Standard deviation of the body linear jerk acceleration along the X-axis.
    - **Type**: Numeric
19. **TimeBodyAccelerometerJerkStd-Y**
    - **Description**: Standard deviation of the body linear jerk acceleration along the Y-axis.
    - **Type**: Numeric
20. **TimeBodyAccelerometerJerkStd-Z**
    - **Description**: Standard deviation of the body linear jerk acceleration along the Z-axis.
    - **Type**: Numeric

Time-Domain Features - Gyroscope Signals

These features represent signals captured from the gyroscope, measuring angular velocity.

21. **TimeBodyGyroscopeMean-X**
    - **Description**: Mean of the angular velocity measured by the gyroscope along the X-axis.
    - **Type**: Numeric
22. **TimeBodyGyroscopeMean-Y**
    - **Description**: Mean of the angular velocity measured by the gyroscope along the Y-axis.
    - **Type**: Numeric
23. **TimeBodyGyroscopeMean-Z**
    - **Description**: Mean of the angular velocity measured by the gyroscope along the Z-axis.
    - **Type**: Numeric
24. **TimeBodyGyroscopeStd-X**
    - **Description**: Standard deviation of the angular velocity measured by the gyroscope along the X-axis.
    - **Type**: Numeric
25. **TimeBodyGyroscopeStd-Y**
    - **Description**: Standard deviation of the angular velocity measured by the gyroscope along the Y-axis.
    - **Type**: Numeric
26. **TimeBodyGyroscopeStd-Z**
    - **Description**: Standard deviation of the angular velocity measured by the gyroscope along the Z-axis.
    - **Type**: Numeric

Time-Domain Features - Jerk Gyroscope Signals

27. **TimeBodyGyroscopeJerkMean-X**
    - **Description**: Mean of the jerk angular velocity along the X-axis.
    - **Type**: Numeric
28. **TimeBodyGyroscopeJerkMean-Y**
    - **Description**: Mean of the jerk angular velocity along the Y-axis.
    - **Type**: Numeric
29. **TimeBodyGyroscopeJerkMean-Z**
    - **Description**: Mean of the jerk angular velocity along the Z-axis.
    - **Type**: Numeric
30. **TimeBodyGyroscopeJerkStd-X**
    - **Description**: Standard deviation of the jerk angular velocity along the X-axis.
    - **Type**: Numeric
31. **TimeBodyGyroscopeJerkStd-Y**
    - **Description**: Standard deviation of the jerk angular velocity along the Y-axis.
    - **Type**: Numeric
32. **TimeBodyGyroscopeJerkStd-Z**
    - **Description**: Standard deviation of the jerk angular velocity along the Z-axis.
    - **Type**: Numeric

Time-Domain Features - Magnitude Signals

33. **TimeBodyAccelerometerMagnitudeMean**
    - **Description**: Mean value of the magnitude of the body acceleration.
    - **Type**: Numeric
34. **TimeBodyAccelerometerMagnitudeStd**
    - **Description**: Standard deviation of the magnitude of the body acceleration.
    - **Type**: Numeric
35. **TimeGravityAccelerometerMagnitudeMean**
    - **Description**: Mean value of the magnitude of the gravity acceleration.
    - **Type**: Numeric
36. **TimeGravityAccelerometerMagnitudeStd**
    - **Description**: Standard deviation of the magnitude of the gravity acceleration.
    - **Type**: Numeric
37. **TimeBodyAccelerometerJerkMagnitudeMean**
    - **Description**: Mean value of the magnitude of the jerk acceleration.
    - **Type**: Numeric
38. **TimeBodyAccelerometerJerkMagnitudeStd**
    - **Description**: Standard deviation of the magnitude of the jerk acceleration.
    - **Type**: Numeric
39. **TimeBodyGyroscopeMagnitudeMean**
    - **Description**: Mean value of the magnitude of the angular velocity.
    - **Type**: Numeric
40. **TimeBodyGyroscopeMagnitudeStd**
    - **Description**: Standard deviation of the magnitude of the angular velocity.
    - **Type**: Numeric
41. **TimeBodyGyroscopeJerkMagnitudeMean**

- **Description**: Mean value of the magnitude of the jerk angular velocity.
- **Type**: Numeric

42. **TimeBodyGyroscopeJerkMagnitudeStd**
    - **Description**: Standard deviation of the magnitude of the jerk angular velocity.
    - **Type**: Numeric

Frequency-Domain Features

These features represent the signals captured in the frequency domain.

43. **FrequencyBodyAccelerometerMean-X**
    - **Description**: Mean value of the body acceleration signal in the frequency domain along the X-axis.
    - **Type**: Numeric
44. **FrequencyBodyAccelerometerMean-Y**
    - **Description**: Mean value of the body acceleration signal in the frequency domain along the Y-axis.
    - **Type**: Numeric
45. **FrequencyBodyAccelerometerMean-Z**
    - **Description**: Mean value of the body acceleration signal in the frequency domain along the Z-axis.
    - **Type**: Numeric
46. **FrequencyBodyAccelerometerStd-X**
    - **Description**: Standard deviation of the body acceleration signal in the frequency domain along the X-axis.
    - **Type**: Numeric
47. **FrequencyBodyAccelerometerStd-Y**
    - **Description**: Standard deviation of the body acceleration signal in the frequency domain along the Y-axis.
    - **Type**: Numeric
48. **FrequencyBodyAccelerometerStd-Z**
    - **Description**: Standard deviation of the body acceleration signal in the frequency domain along the Z-axis.
    - **Type**: Numeric

Frequency-Domain Features - Jerk Signals

49. **FrequencyBodyAccelerometerJerkMean-X**
    - **Description**: Mean value of the body linear jerk acceleration in the frequency domain along the X-axis.
    - **Type**: Numeric
50. **FrequencyBodyAccelerometerJerkMean-Y**
    - **Description**: Mean value of the body linear jerk acceleration in the frequency domain along the Y-axis.
    - **Type**: Numeric
51. **FrequencyBodyAccelerometerJerkMean-Z**
    - **Description**: Mean value of the body linear jerk acceleration in the frequency domain along the Z-axis.
    - **Type**: Numeric
52. **FrequencyBodyAccelerometerJerkStd-X**
    - **Description**: Standard deviation of the body linear jerk acceleration in the frequency domain along the X-axis.
    - **Type**: Numeric
53. **FrequencyBodyAccelerometerJerkStd-Y**
    - **Description**: Standard deviation of the body linear jerk acceleration in the frequency domain along the Y-axis.
    - **Type**: Numeric
54. **FrequencyBodyAccelerometerJerkStd-Z**
    - **Description**: Standard deviation of the body linear jerk acceleration in the frequency domain along the Z-axis.
    - **Type**: Numeric

Frequency-Domain Features - Gyroscope Signals

55. **FrequencyBodyGyroscopeMean-X**
    - **Description**: Mean value of the angular velocity in the frequency domain along the X-axis.
    - **Type**: Numeric
56. **FrequencyBodyGyroscopeMean-Y**
    - **Description**: Mean value of the angular velocity in the frequency domain along the Y-axis.
    - **Type**: Numeric
57. **FrequencyBodyGyroscopeMean-Z**
    - **Description**: Mean value of the angular velocity in the frequency domain along the Z-axis.
    - **Type**: Numeric
58. **FrequencyBodyGyroscopeStd-X**
    - **Description**: Standard deviation of the angular velocity in the frequency domain along the X-axis.
    - **Type**: Numeric
59. **FrequencyBodyGyroscopeStd-Y**
    - **Description**: Standard deviation of the angular velocity in the frequency domain along the Y-axis.
    - **Type**: Numeric
60. **FrequencyBodyGyroscopeStd-Z**
    - **Description**: Standard deviation of the angular velocity in the frequency domain along the Z-axis.
    - **Type**: Numeric

Frequency-Domain Features – Magnitude signals

61. **FrequencyBodyAccelerometerMagnitudeMean**
    - **Description**: Mean value of the magnitude of the body acceleration signal in the frequency domain.
    - **Type**: Numeric
62. **FrequencyBodyAccelerometerMagnitudeStd**
    - **Description**: Standard deviation of the magnitude of the body acceleration signal in the frequency domain.
    - **Type**: Numeric
63. **FrequencyBodyBodyAccelerometerJerkMagnitudeMean**
    - **Description**: Mean value of the magnitude of the body linear jerk acceleration in the frequency domain.
    - **Type**: Numeric
64. **FrequencyBodyBodyAccelerometerJerkMagnitudeStd**
    - **Description**: Standard deviation of the magnitude of the body linear jerk acceleration in the frequency domain.
    - **Type**: Numeric
65. **FrequencyBodyBodyGyroscopeMagnitudeMean**
    - **Description**: Mean value of the magnitude of the angular velocity in the frequency domain.
    - **Type**: Numeric
66. **FrequencyBodyBodyGyroscopeMagnitudeStd**
    - **Description**: Standard deviation of the magnitude of the angular velocity in the frequency domain.
    - **Type**: Numeric
67. **FrequencyBodyBodyGyroscopeJerkMagnitudeMean**
    - **Description**: Mean value of the magnitude of the jerk angular velocity in the frequency domain.
    - **Type**: Numeric
68. **FrequencyBodyBodyGyroscopeJerkMagnitudeStd**
    - **Description**: Standard deviation of the magnitude of the jerk angular velocity in the frequency domain.
    - **Type**: Numeric