



Music Through the Decades

A musical journey from the 1960-2019

By James Kocher

Overview of what you will see!



Key = The estimated overall key of the track. Integers map to pitches using standard **Pitch Class notation** . E.g. 0 = C, 1 = C#/D ♭ , 2 = D, and so on. If no key was detected, the value is -1.

Time_signature = An estimated overall time signature of a track. The time signature (meter) is a notational convention to specify how many beats are in each bar (or measure).

Mode = Mode indicates the modality (major or minor) of a track, the type of scale from which its melodic content is derived. Major is represented by 1 and minor is 0.

Acousticness = A confidence measure from 0.0 to 1.0 of whether the track is acoustic. 1.0 represents high confidence the track is acoustic.

Danceability = Danceability describes how suitable a track is for dancing based on a combination of musical elements including tempo, rhythm stability, beat strength, and overall regularity. A value of 0.0 is least danceable and 1.0 is most danceable

Tempo = The overall estimated tempo of a track in beats per minute (BPM). In musical terminology, tempo is the speed or pace of a given piece and derives directly from the average beat duration.

Overview of what you will see!



Energy = Energy is a measure from 0.0 to 1.0 and represents a perceptual measure of intensity and activity. Typically, energetic tracks feel fast, loud, and noisy. For example, death metal has high energy, while a Bach prelude scores low on the scale. Perceptual features contributing to this attribute include dynamic range, perceived loudness, timbre, onset rate, and general entropy.

Instrumentalness = Predicts whether a track contains no vocals. “Ooh” and “aah” sounds are treated as instrumental in this context. Rap or spoken word tracks are clearly “vocal”. The closer the instrumentalness value is to 1.0, the greater likelihood the track contains no vocal content. Values above 0.5 are intended to represent instrumental tracks, but confidence is higher as the value approaches 1.0.

Loudness = The overall loudness of a track in decibels (dB). Loudness values are averaged across the entire track and are useful for comparing relative loudness of tracks. Loudness is the quality of a sound that is the primary psychological correlate of physical strength (amplitude). Values typical range between -60 and 0 db.

valence = A measure from 0.0 to 1.0 describing the musical positiveness conveyed by a track. Tracks with high valence sound more positive (e.g. happy, cheerful, euphoric), while tracks with low valence sound more negative (e.g. sad, depressed, angry).

What is the Data?



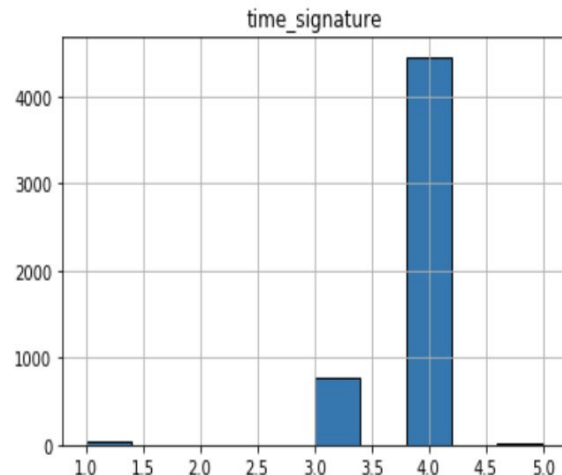
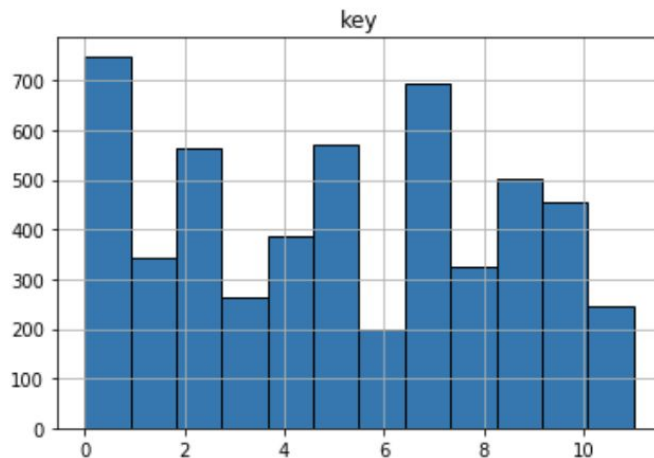
- Songs that made it on the billboard 100 during a year in the decade
- Paired with their audio features from Spotify's API
- I will be showing characteristics of popular songs across the decades!

The 1960s! - Categorical Data

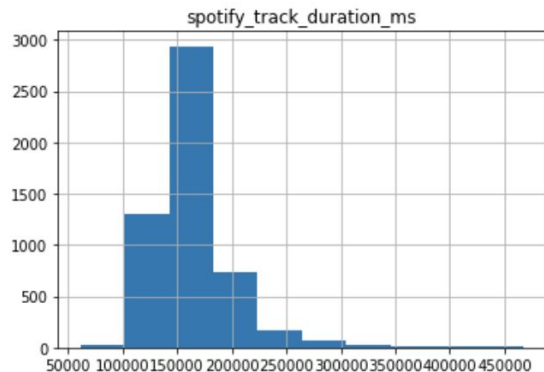
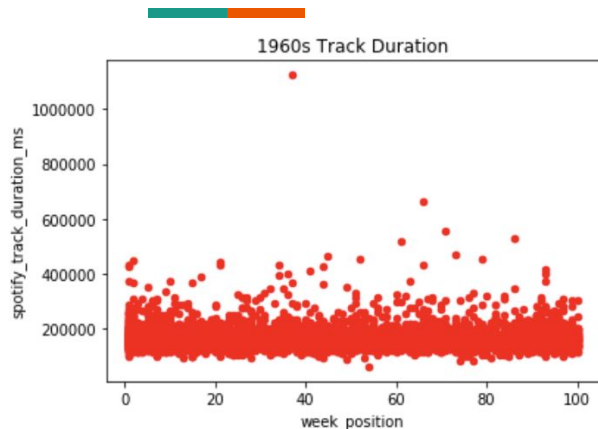
Genre:

brill building pop	2097
adult standards	1684
rock-and-roll	1315
soul	1160
bubblegum pop	1125
motown	1120
folk rock	874
classic soul	822
merseybeat	667
rhythm and blues	653
southern soul	650
lounge	629
mellow gold	609
rockabilly	571
doo-wop	508
funk	432
easy listening	430
rock	407
quiet storm	396
psychedelic rock	381
soft rock	369
british invasion	361
classic rock	357
folk	300
vocal jazz	300
classic uk pop	265
northern soul	210
disco	205
chicago soul	202
classic girl group	194

Major 4442
Minor 852

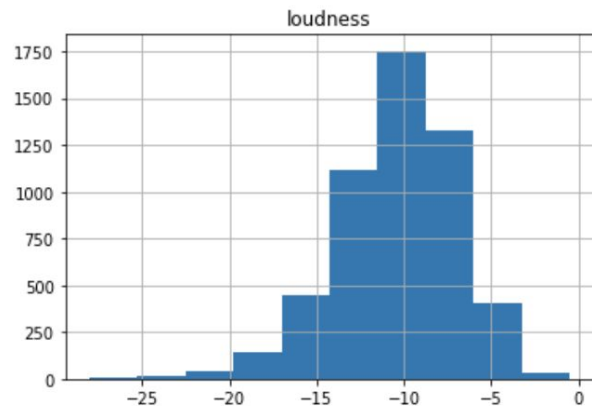


The 1960s by the numbers: Duration and Loudness



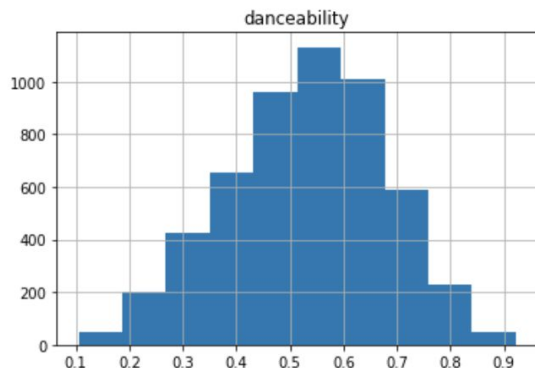
Duration:

count	5293.000000
mean	165.196054
std	40.918272
min	61.306000
25%	142.425000
50%	158.880000
75%	177.026000
max	1124.153000

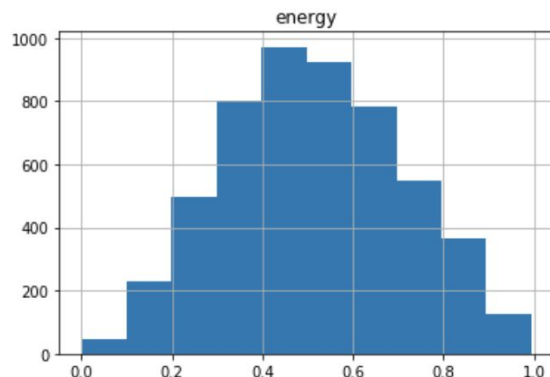


count	5294.000000
mean	-10.398376
std	3.437607
min	-28.030000
25%	-12.424000
50%	-10.066500
75%	-8.026250
max	-0.507000

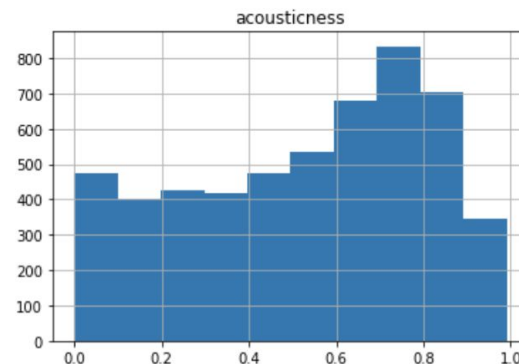
Continued: Danceability, Energy, Acoustiness



mean	0.530539
std	0.146730
min	0.105000
25%	0.431000
50%	0.538000
75%	0.637000
max	0.922000

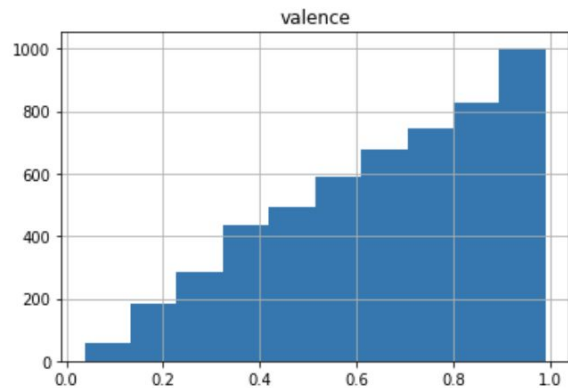


mean	0.514308
std	0.196546
min	0.000581
25%	0.368000
50%	0.508000
75%	0.660750
max	0.994000

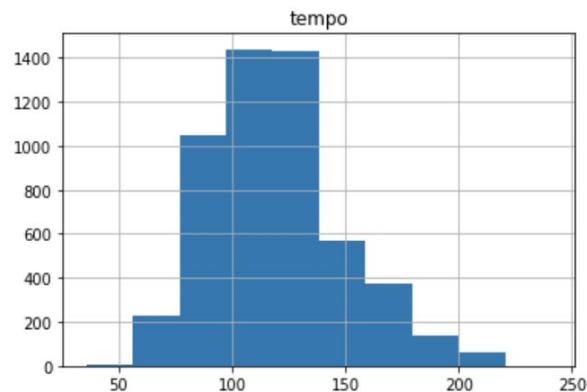


mean	0.529903
std	0.272774
min	0.000006
25%	0.303000
50%	0.582000
75%	0.760000
max	0.991000

Continued: Valence and Tempo



mean	0.661562
std	0.228617
min	0.037700
25%	0.492000
50%	0.696000
75%	0.862000
max	0.991000



mean	119.289582
std	29.153850
min	35.716000
25%	98.076750
50%	116.799000
75%	134.983000
max	241.009000

Hit Songs of the Decades Recap

1960s:

Genre: Brill Building Pop, Adult Standards, Rock and Roll

Key : C

Mode: Major (84%)

Time Signature: 4:4

Duration: 2:30 - 3:00

Loudness: 10 decibels

Danceability: .45 - 60

Energy: .40 - .60

Accousticness: .55 - 65

Valence: 65+

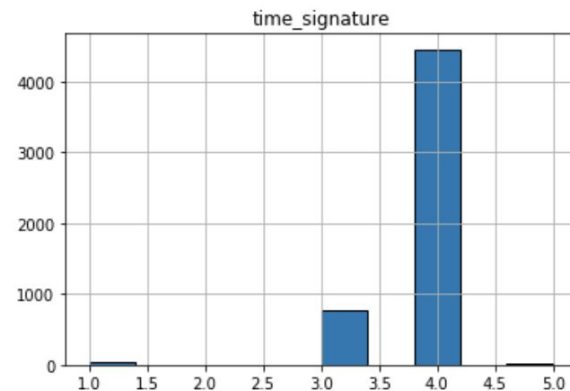
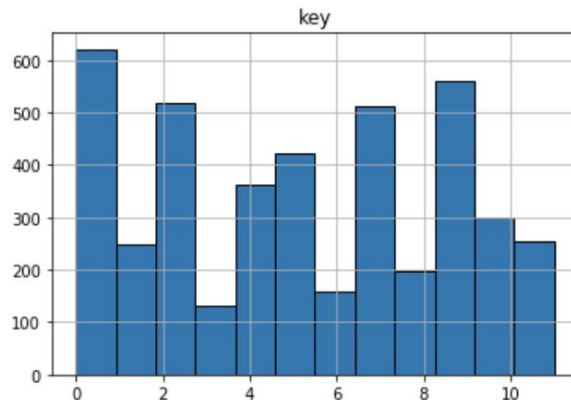
Tempo: 100 - 120 BPM



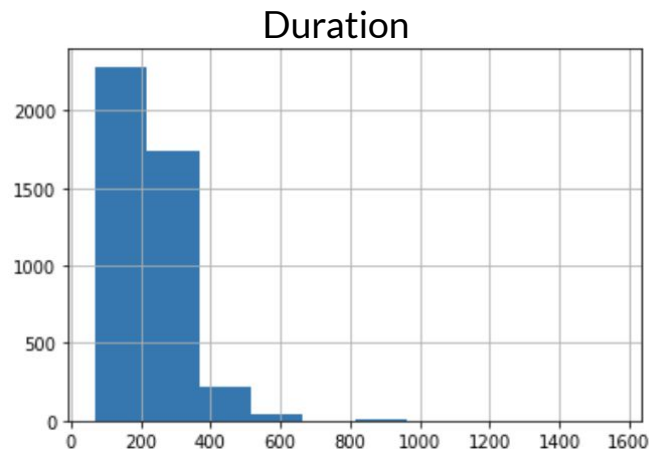
The 1970s - Categorical Data

mellow gold	1426
soft rock	1354
classic rock	981
folk rock	944
motown	931
rock	907
soul	901
adult standards	846
album rock	837
funk	772
disco	765
classic soul	755

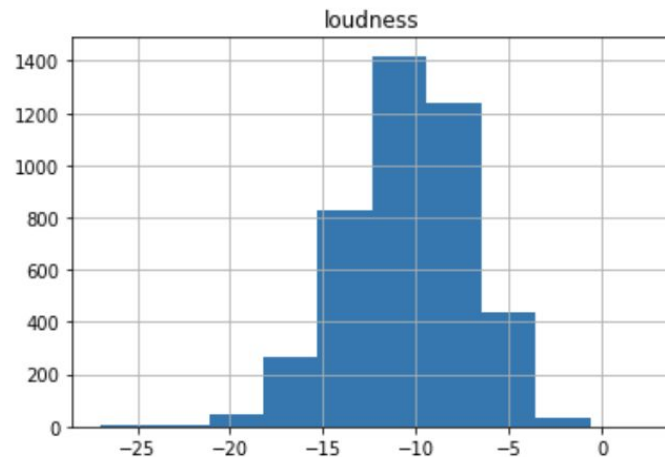
Major	4442
Minor	852



The 1970s by the numbers: Duration and Loudness

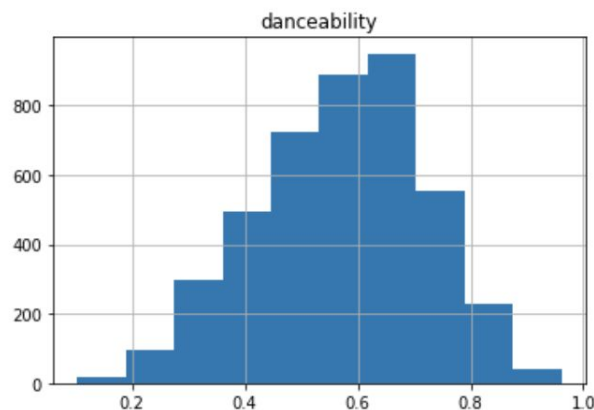


mean	232.815447
std	83.052494
min	67.749000
25%	183.679500
50%	213.026000
75%	256.819500
max	1561.133000

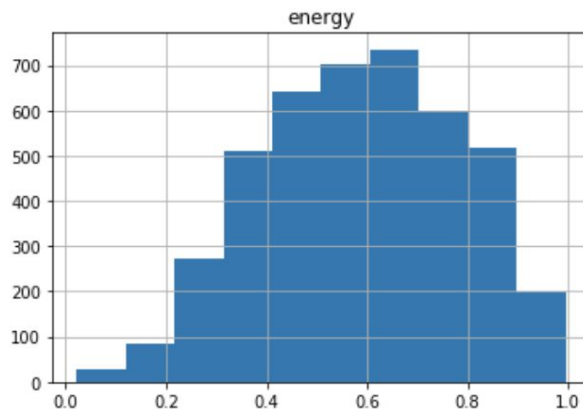


mean	-10.419440
std	3.300703
min	-27.010000
25%	-12.575000
50%	-10.235000
75%	-8.080000
max	2.291000

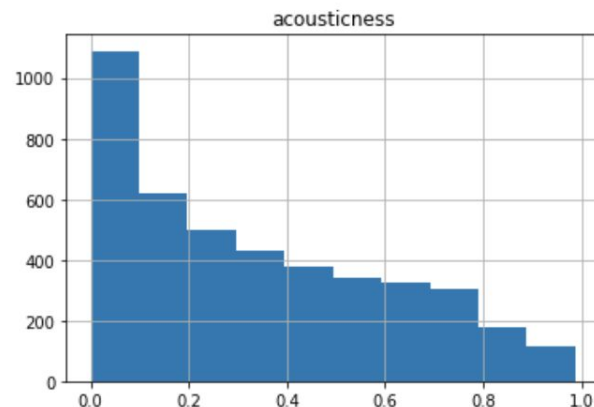
Continued: Danceability, Energy, Acoustiness



mean	0.571831
std	0.147835
min	0.103000
25%	0.470000
50%	0.581000
75%	0.679000
max	0.961000

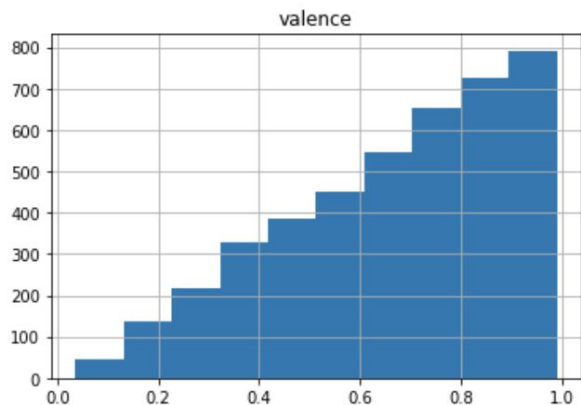


mean	0.586836
std	0.196118
min	0.022000
25%	0.439000
50%	0.591000
75%	0.737000
max	0.995000

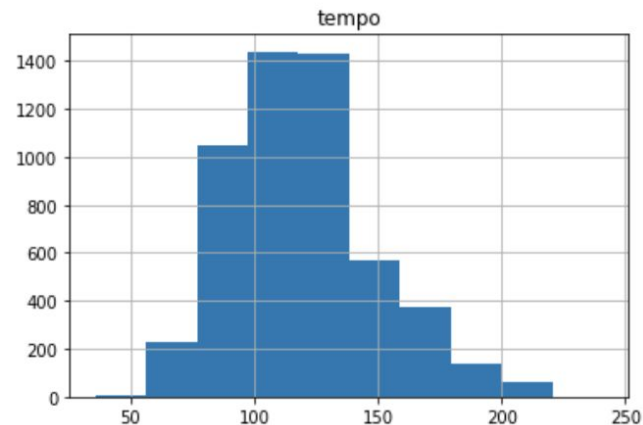


mean	0.338620
std	0.269371
min	0.000008
25%	0.096400
50%	0.284000
75%	0.552000
max	0.988000

Continued: Valence and Tempo



mean	0.666165
std	0.227749
min	0.035900
25%	0.504000
50%	0.708000
75%	0.862000
max	0.990000



mean	119.470824
std	26.235220
min	37.114000
25%	101.307000
50%	118.158000
75%	133.431000
max	216.200000

Hit Songs of the Decades Recap

1970s:

Genre: Mellow Rock and Soft Rock

Key : C, D, F#/G ♭ , G#, A ♭

Mode: Major (76%)

Time Signature: 4:4

Duration: 3:20 - 3:50

Loudness: -9 - -11 decibels

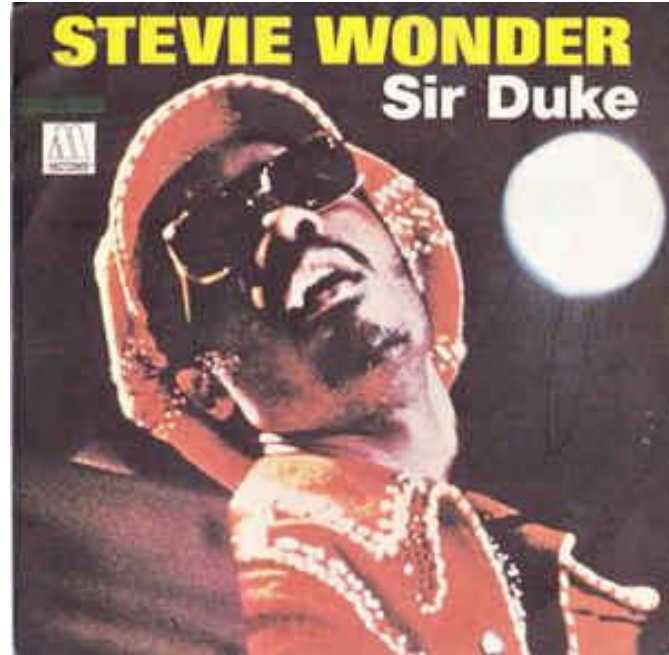
Danceability: .51 - .65

Energy: .55 - .65

Acousticness: Less than .30

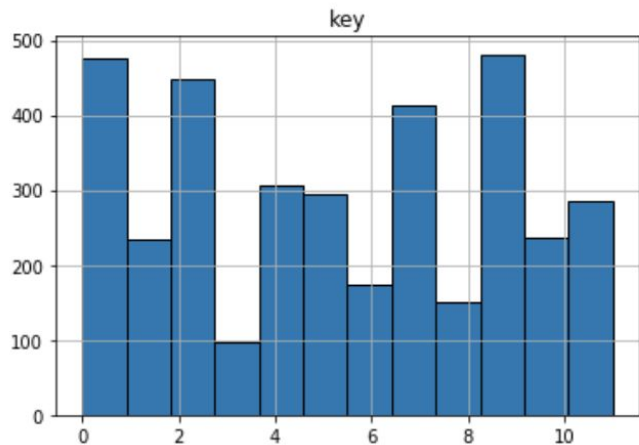
Valence: 70+

Tempo: 115 - 125 BPM

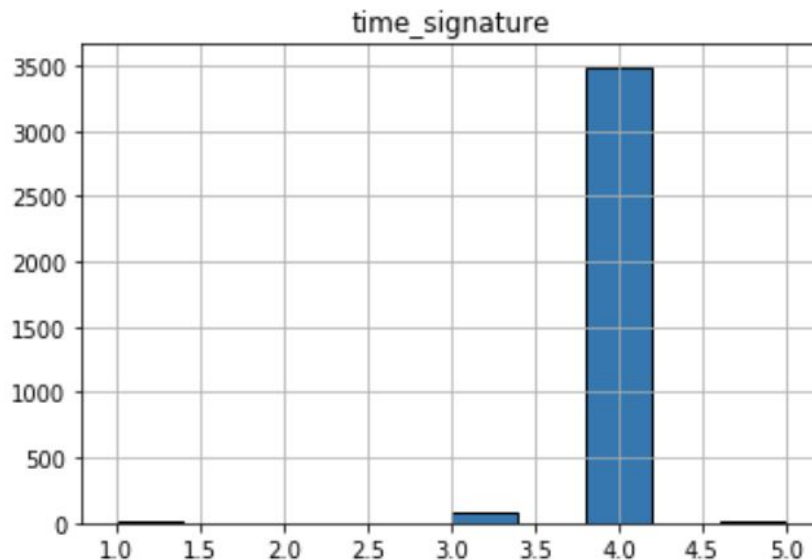


The 1980s - Categorical Data

soft rock	1541
mellow gold	1404
rock	1116
album rock	1106
new wave pop	922

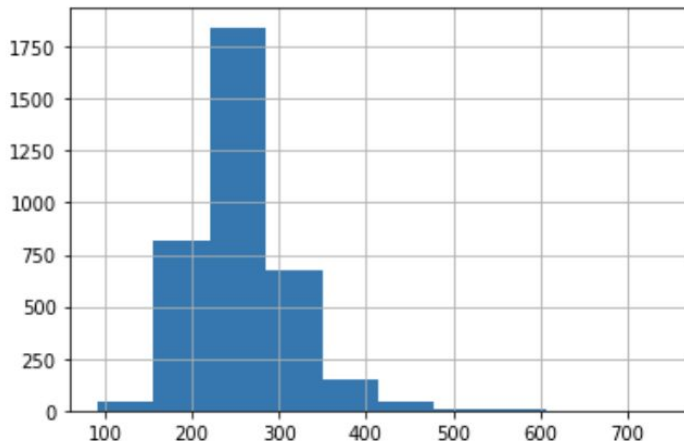


Major	2537
Minor	1055



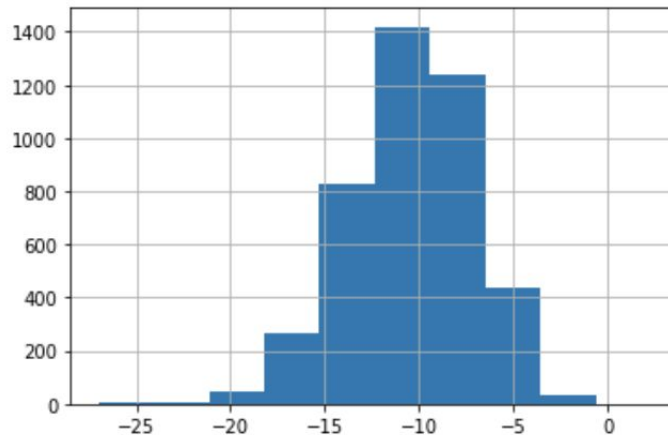
The 1980s by the numbers: Duration and Loudness

Duration



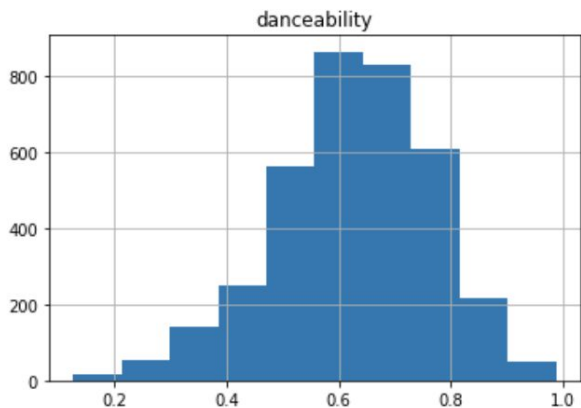
mean	256.605280
std	56.085194
min	90.950000
25%	221.400000
50%	247.814000
75%	284.079250
max	736.862000

loudness

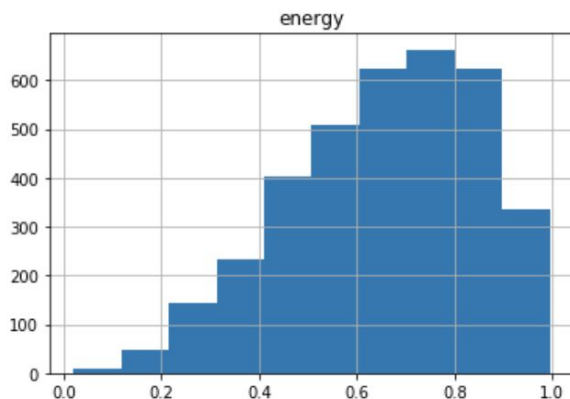


mean	-9.867192
std	3.450502
min	-25.487000
25%	-12.374750
50%	-9.781500
75%	-7.120750
max	-2.100000

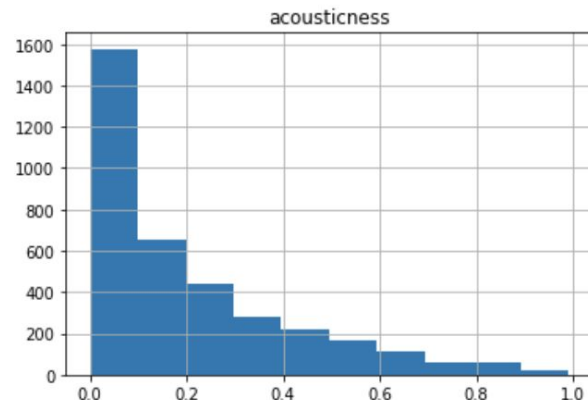
Continued: Danceability, Energy, Acoustiness



mean	0.626632
std	0.139279
min	0.126000
25%	0.540000
50%	0.633500
75%	0.727000
max	0.988000

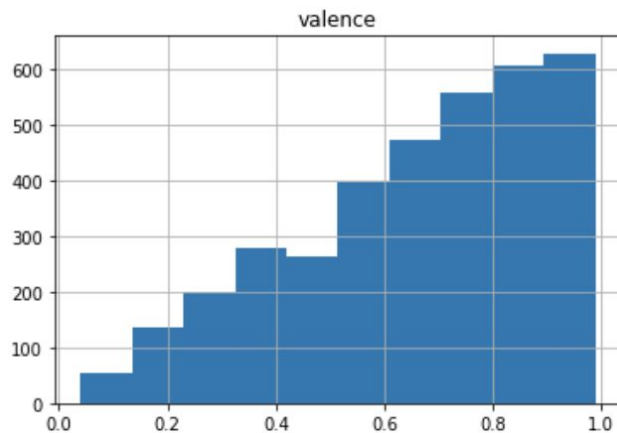


mean	0.654817
std	0.192133
min	0.020400
25%	0.521000
50%	0.674000
75%	0.808000
max	0.995000

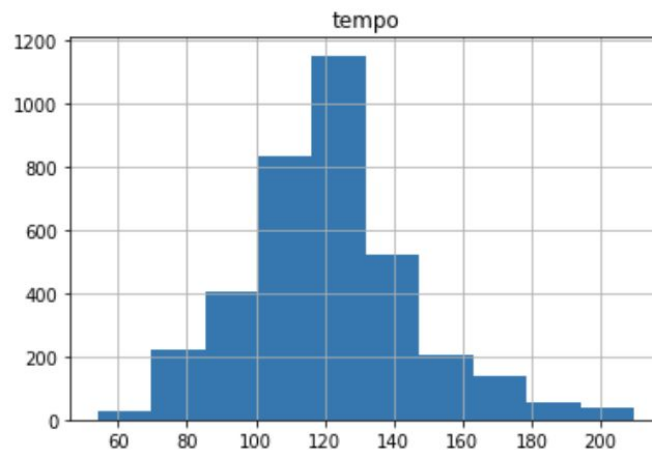


mean	0.203719
std	0.213713
min	0.000024
25%	0.036775
50%	0.126000
75%	0.303000
max	0.990000

Continued: Valence and Tempo



mean	0.659995
std	0.231550
min	0.040000
25%	0.504000
50%	0.703500
75%	0.855000
max	0.989000



mean	121.373357
std	24.223259
min	54.028000
25%	107.253250
50%	120.006500
75%	132.963750
max	209.758000

Hit Songs of the Decades Recap

1980s:

Genre: Mellow Rock, Soft Rock, Rock, Album Rock

Key : C, D, G#/A ♭

Mode: Major (71%)

Time Signature: 4:4

Duration: 4:00 - 4:20

Loudness: (-9) - (-10.5) decibels

Danceability: .57- 70

Energy: .60 - .85

Acousticness: Less than .20

Valence: .5+

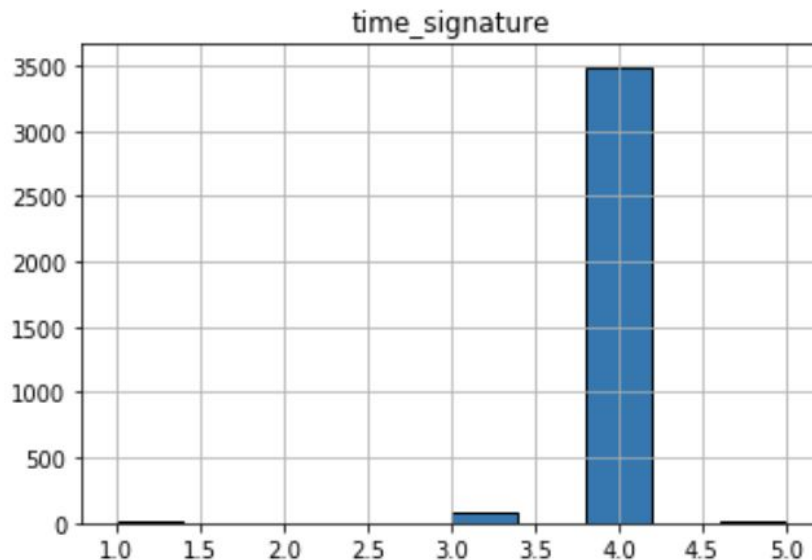
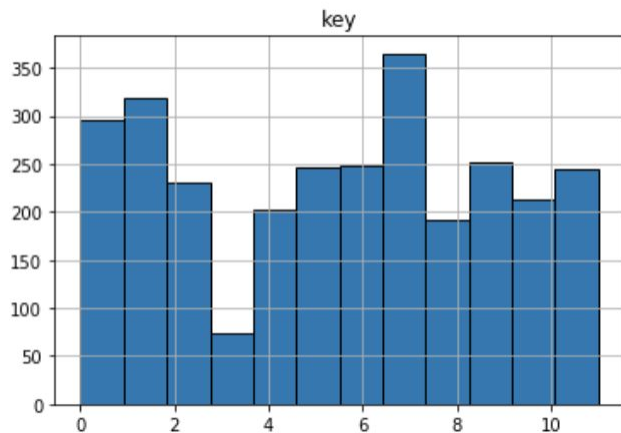
Tempo: 100 - 130 BPM



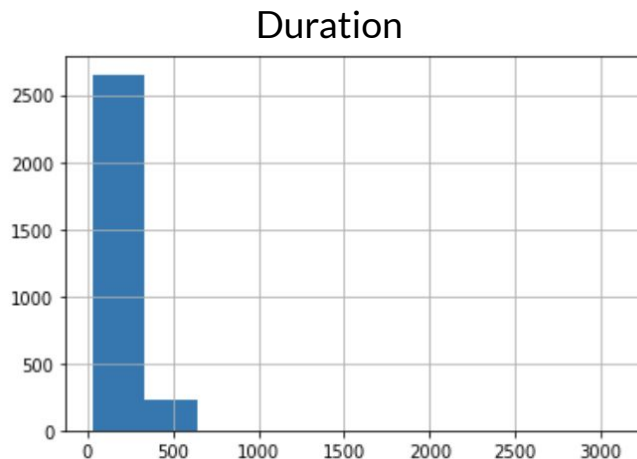
The 1990s - Categorical Data

urban contemporary	499
r&b	477
dance pop	462
rock	426
hip hop	415
new jack swing	415

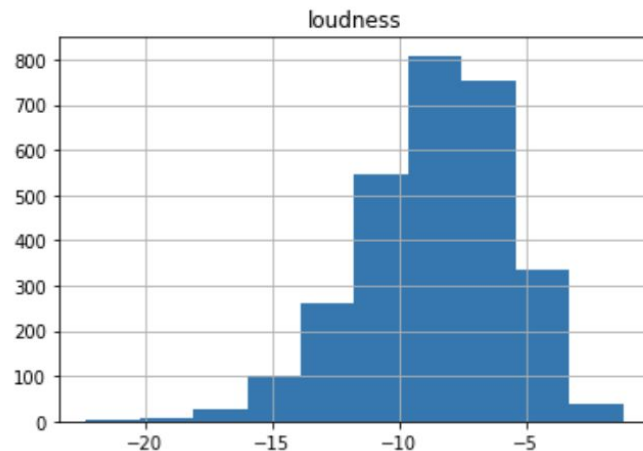
Major	1886
Minor	995



The 1990s by the numbers: Duration and Loudness

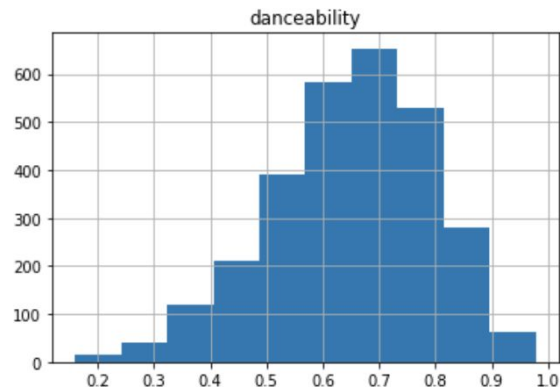


mean	264.837120
std	74.108983
min	29.688000
25%	230.116250
50%	258.553000
75%	291.133000
max	3079.157000

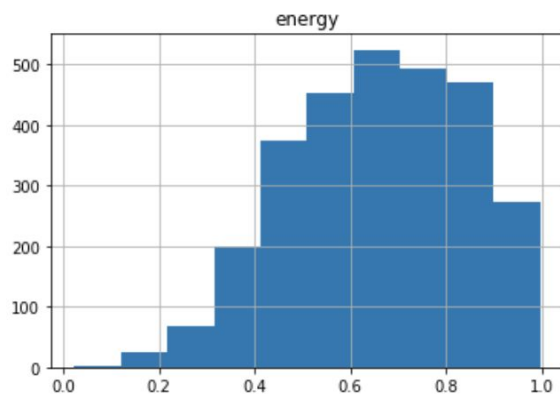


mean	-8.552382
std	2.892874
min	-22.320000
25%	-10.337000
50%	-8.294000
75%	-6.519000
max	-1.169000

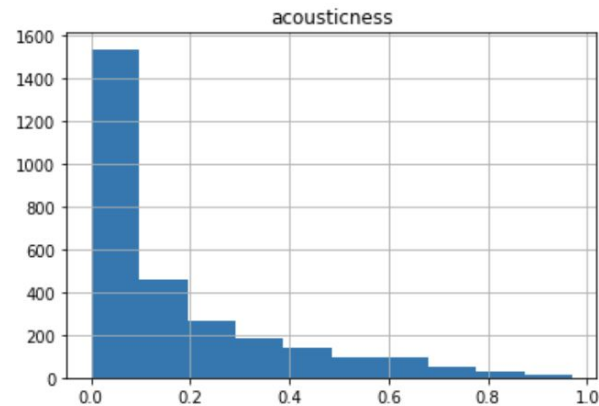
Continued: Danceability, Energy, Acoustiness



mean	0.650862
std	0.141783
min	0.160000
25%	0.560000
50%	0.661000
75%	0.754000
max	0.978000

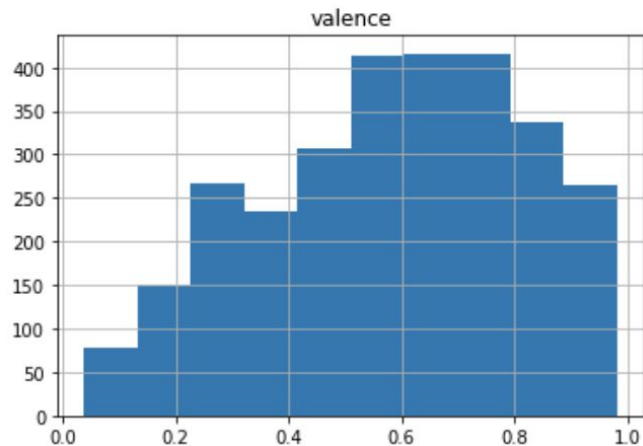


mean	0.656753
std	0.183265
min	0.022300
25%	0.520000
50%	0.667000
75%	0.806000
max	0.997000

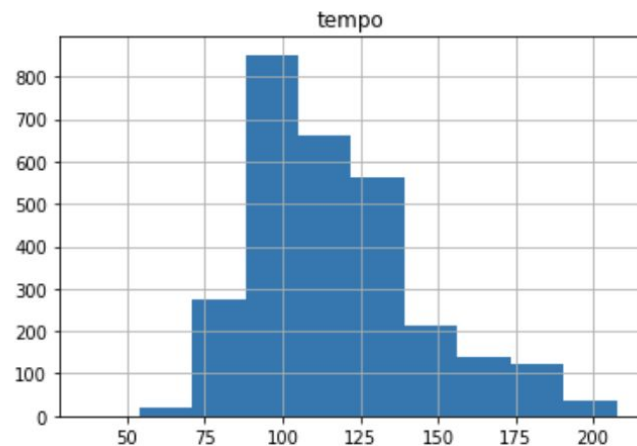


mean	0.168993
std	0.202904
min	0.000009
25%	0.019700
50%	0.081600
75%	0.243000
max	0.970000

Continued: Valence and Tempo



mean	0.582086
std	0.229879
min	0.038200
25%	0.411000
50%	0.602000
75%	0.765000
max	0.981000



mean	117.256551
std	27.382811
min	36.710000
25%	96.846000
50%	113.425000
75%	131.535000
max	207.639000

Hit Songs of the Decades Recap: 1990s

1990s:

Genre: Urban Contemporary, r&b, dance pop, hip hop, new jack swing

Key : C, C#/D ♭ , F#,G ♭

Mode: Major (65%)

Time Signature: 4:4

Duration: 4:10 - 4:30

Loudness: (-7.5) - (-12.5) decibels

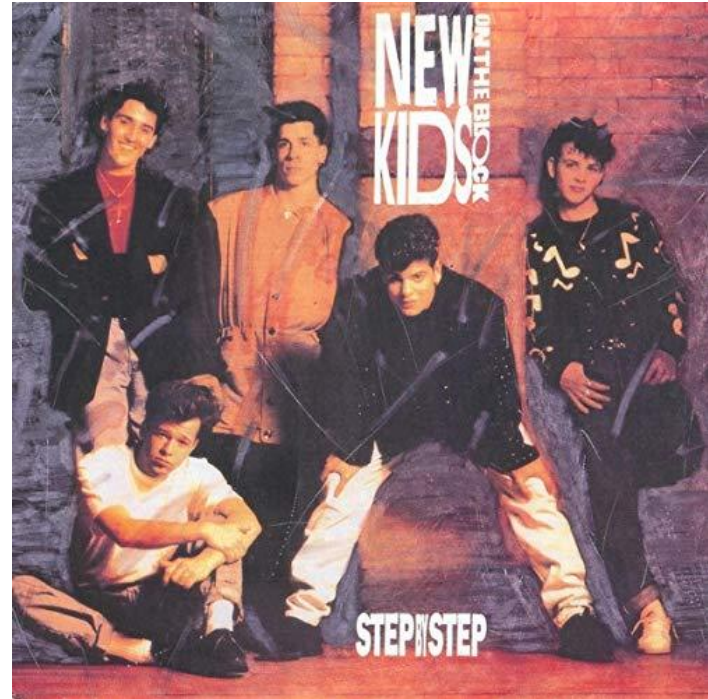
Danceability: .55- 85

Energy: .55 - .85

Accousticness: Less than .10

Valence: .6+

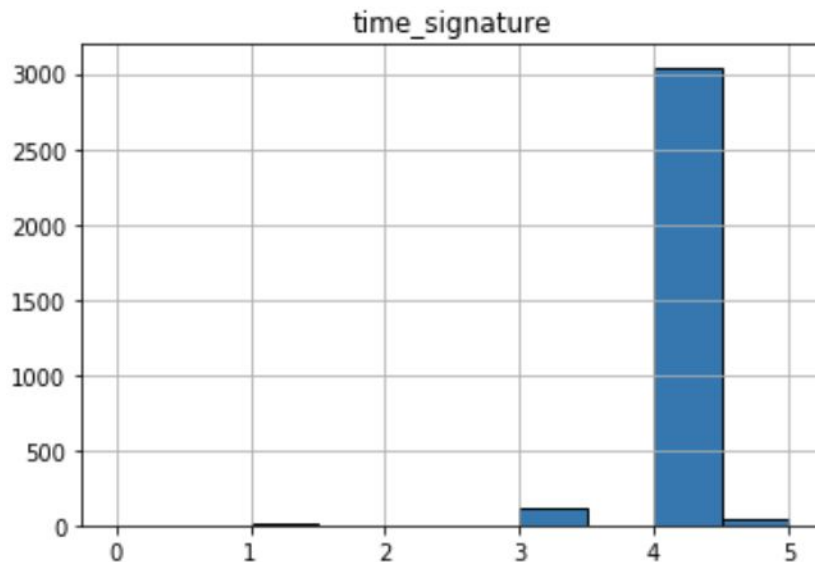
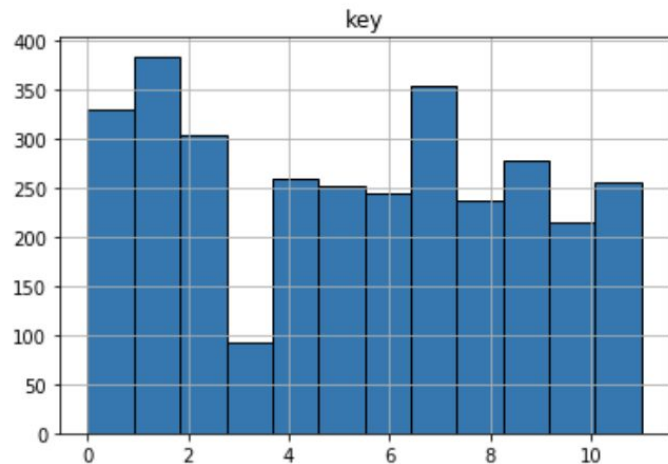
Tempo: 90- 125 BPM



The 2000s - Categorical Data

dance pop	1039
pop rap	818
pop	797
country	628
r&b	605

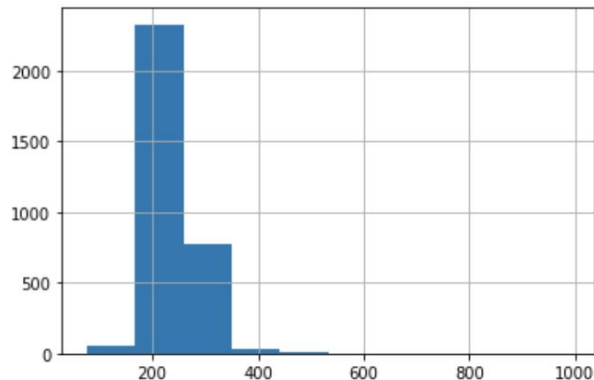
Major	2191
Minor	1012



The 2000s by the numbers: Duration and Loudness

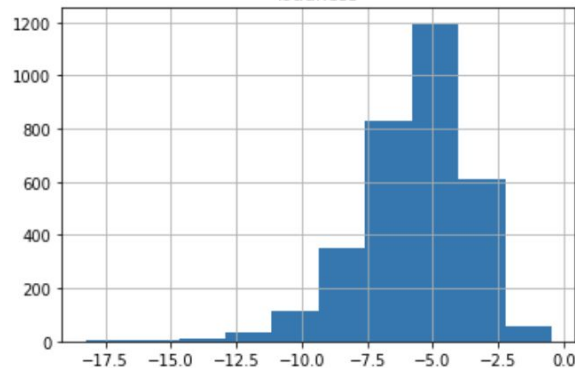


Duration



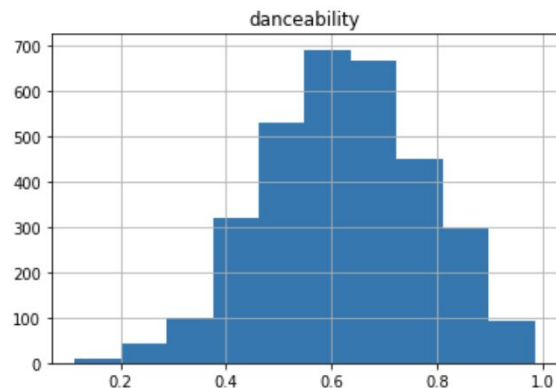
mean	238.312346
std	43.281855
min	74.960000
25%	211.499500
50%	234.813000
75%	259.179500
max	992.160000

loudness

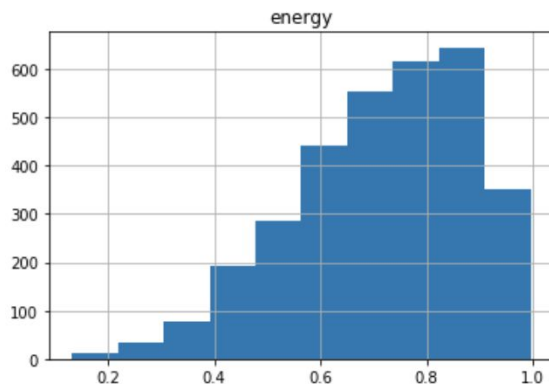


mean	-5.695246
std	2.079422
min	-18.254000
25%	-6.835500
50%	-5.421000
75%	-4.220500
max	-0.463000

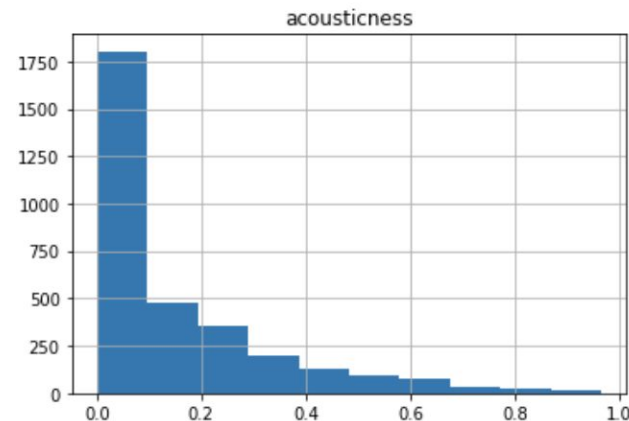
Continued: Danceability, Energy, Acoustiness



mean	0.624153
std	0.151224
min	0.113000
25%	0.521000
50%	0.624000
75%	0.732000
max	0.986000

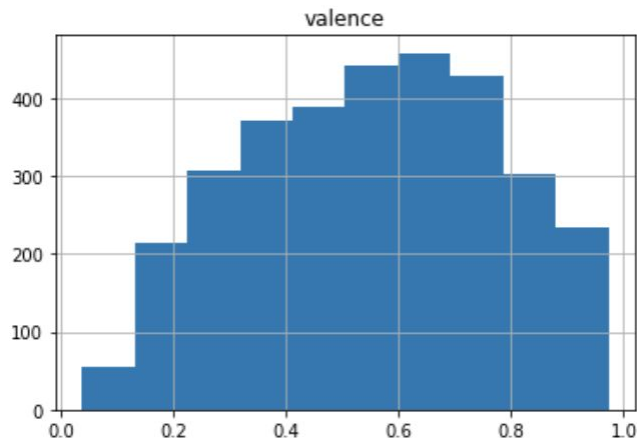


mean	0.715785
std	0.165226
min	0.132000
25%	0.608500
50%	0.738000
75%	0.849000
max	0.996000

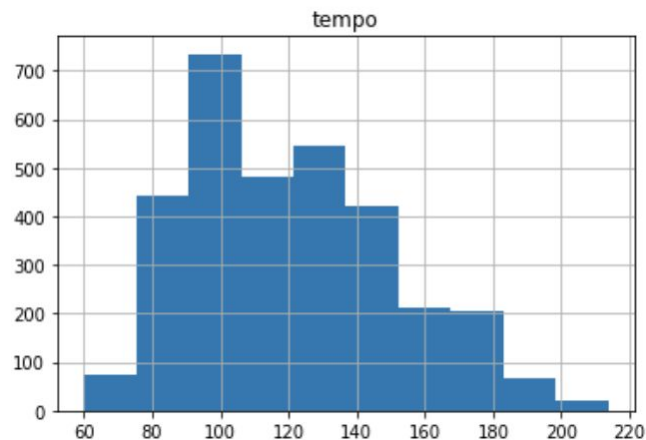


mean	0.150376
std	0.185020
min	0.000003
25%	0.014400
50%	0.072900
75%	0.226000
max	0.966000

Continued: Valence and Tempo



mean	0.551675
std	0.222614
min	0.037300
25%	0.373000
50%	0.560000
75%	0.728000
max	0.973000



mean	120.647830
std	29.855993
min	59.972000
25%	96.399500
50%	118.933000
75%	140.121000
max	213.737000

Hit Songs of the Decades Recap: 2000s

2000s:

Genre: Dance Pop, Pop Rap, Pop, Country

Key : C, C#/D ♭, D, F#, G ♭

Mode: Major (68%)

Time Signature: 4:4

Duration: 3:50 - 4:10

Loudness: (-4.5) - (-6.5) decibels

Danceability: .55- .75

Energy: .65 - .80

Acousticness: Less than .10

Valence: .6+

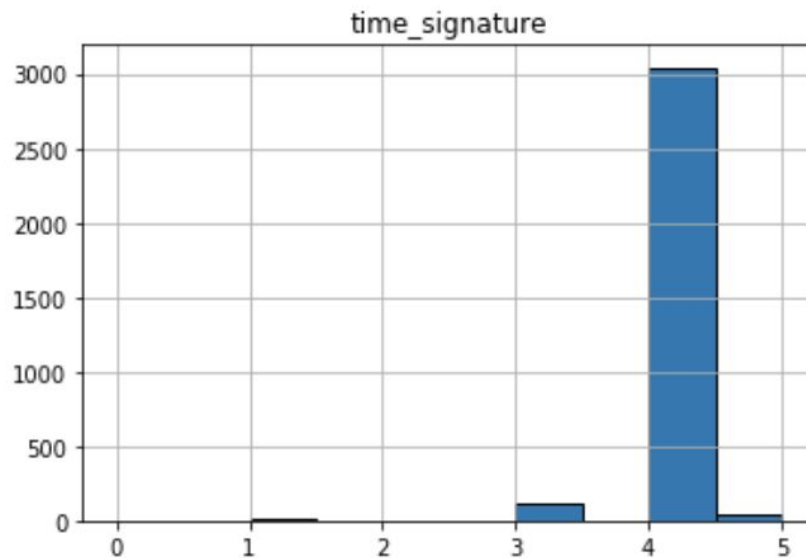
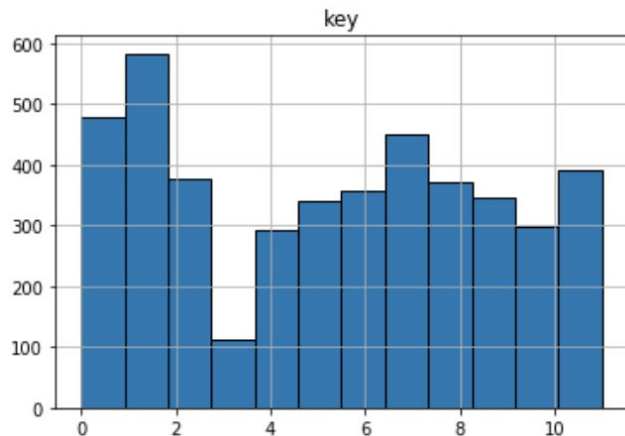
Tempo: 90- 125 BPM



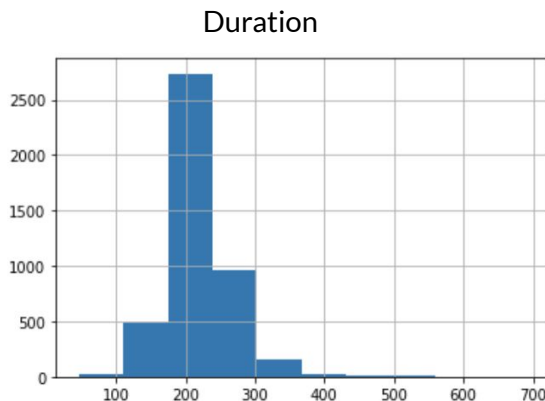
The 2010s - Categorical Data

pop	1624
pop rap	1403
rap	1332
dance pop	1156
post-teen pop	971
hip hop	878
trap	801

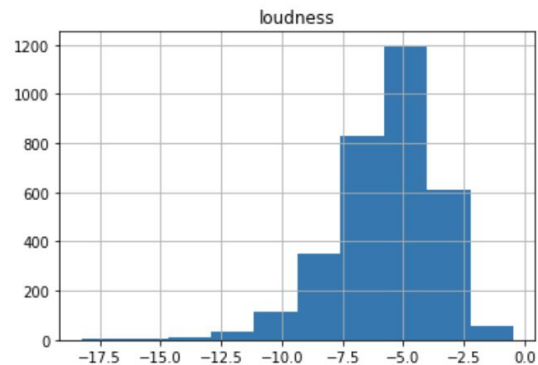
Major	2891
Minor	1510



The 2010s by the numbers: Duration and Loudness



mean	219.800954
std	46.555146
min	46.253000
25%	192.800000
50%	215.423000
75%	240.306000
max	688.453000

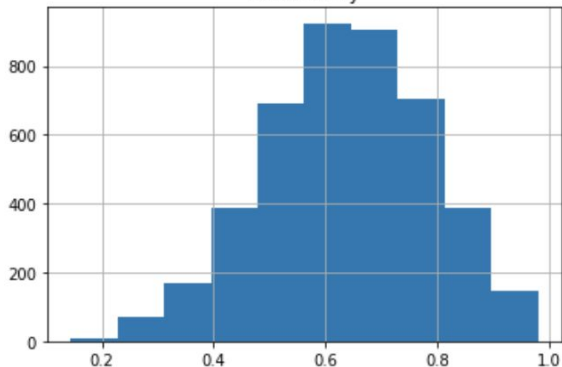


mean	-6.053767
std	2.290588
min	-23.023000
25%	-7.188000
50%	-5.696000
75%	-4.473000
max	0.175000

Continued: Danceability, Energy, Acoustiness

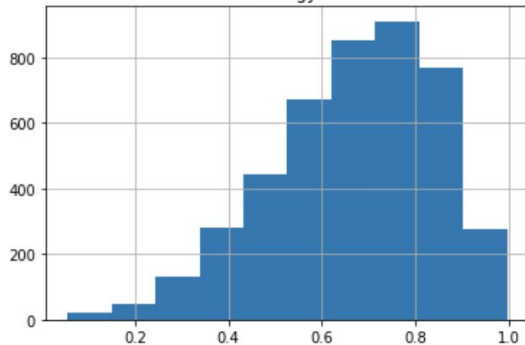


danceability



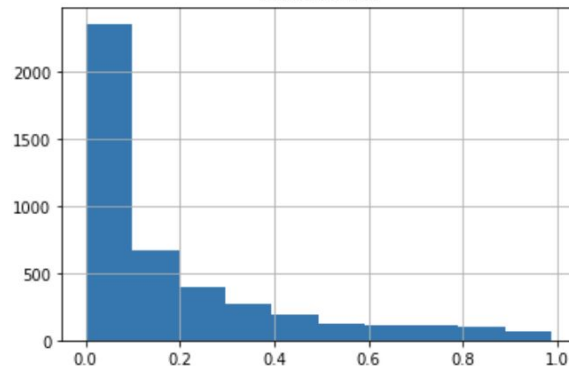
mean	0.637441
std	0.147729
min	0.144000
25%	0.540000
50%	0.641000
75%	0.741000
max	0.981000

energy



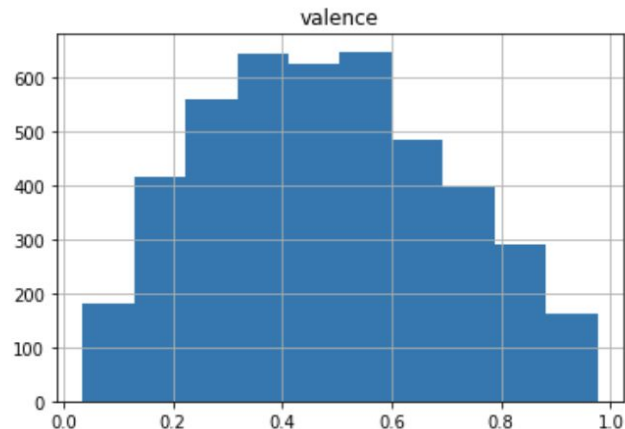
mean	0.667607
std	0.174087
min	0.056100
25%	0.557000
50%	0.690000
75%	0.804000
max	0.996000

acoustiness

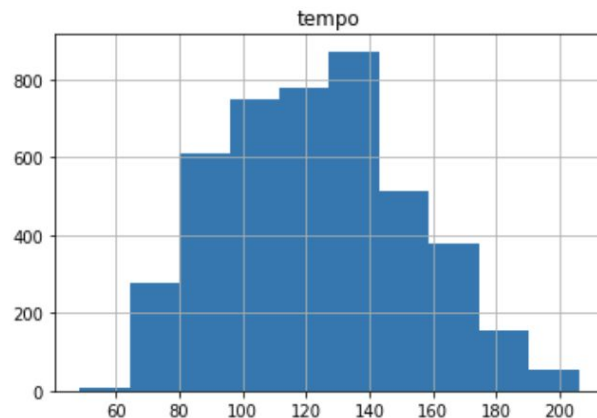


mean	0.184910
std	0.228803
min	0.000014
25%	0.022300
50%	0.084600
75%	0.260000
max	0.987000

Continued: Valence and Tempo



mean	0.480280
std	0.219537
min	0.034900
25%	0.308000
50%	0.469000
75%	0.646000
max	0.976000



mean	123.264684
std	29.280789
min	48.718000
25%	99.063000
50%	123.071000
75%	143.067000
max	205.958000

Hit Songs of the Decades Recap: 2010s

2010s:

Genre: Pop, Pop Rap, Rap , Dance Pop

Key : C#/D ♭

Mode: Major (66%)

Time Signature: 4:4

Duration: 3:25 - 3:45

Loudness: (-4.9) - (-6.3) decibels

Danceability: .65- .75

Energy: .65 - .75

Acousticness: Less than .10

Valence: Less than .6

Tempo: 100- 140 BPM



Hit Songs of the Decades Recap

1960s:

Genre: Brill Building Pop, Adult Standards, Rock and Roll
Key : C
Mode: Major (84%)
Time Signature: 4:4
Duration: 2:30 - 3:00
Loudness: -10 decibels
Danceability: .45 - .60
Energy: .40 - .60
Accousticness: .55 - .65
Valence: .65+
Tempo: 100 - 120 BPM

1970s:

Genre: Mellow Rock, Soft Rock, Motown
Key : C, D, F#/G ♭ , G#,A ♭
Mode: Major (76%)
Time Signature: 4:4
Duration: 3:20 - 3:50
Loudness: -9 - -11 decibels
Danceability: .51 - .65
Energy: .55 - .65
Accousticness: Less than .30
Valence: .6+
Tempo: 100 - 130 BPM

1980s:

Genre: Mellow Rock, Soft Rock, Rock, Album Rock
Key : C, D, G#/A ♭
Mode: Major (71%)
Time Signature: 4:4
Duration: 4:00 - 4:20
Loudness: (-9) - (-10.5) decibels
Danceability: .57- 70
Energy: .60 - .85
Accousticness: Less than .20
Valence: .5+
Tempo: 100 - 130 BPM

1990s:

Genre: Urban Contemporary, r&b, dance pop, hip hop, new jack swing
Key : C, C#/D ♭ , F#,G ♭
Mode: Major (65%)
Time Signature: 4:4
Duration: 4:10 - 4:30
Loudness: (-7.5) - (-12.5) decibels
Danceability: .55- 85
Energy: .55 - .85
Accousticness: Less than .10
Valence: .6+
Tempo: 90- 125 BPM

2000s:

Genre: Dance Pop, Pop Rap, Pop, Country
Key : C, C#/D ♭ ,D, F#,G ♭
Mode: Major (68%)
Time Signature: 4:4
Duration: 3:50 - 4:10
Loudness: (-4.5) - (-6.5) decibels
Danceability: .55- 75
Energy: .65 - .80
Accousticness: Less than .10
Valence: .6+
Tempo: 90- 125 BPM

2010s:

Genre: Pop, Pop Rap, Rap , Dance Pop
Key : C#/D ♭
Mode: Major (66%)
Time Signature: 4:4
Duration: 3:25 - 3:45
Loudness: (-4.9) - (-6.3) decibels
Danceability: .65- .75
Energy: .65 - .75
Accousticness: Less than .10
Valence: Less than .6
Tempo: 100- 140 BPM