Identificarea Tipului Acordurilor (Minor/Major) pentru Pian și Chitară

Saioc Marius-Andrei
PCSAM

Cuprins

01

SCOPUL PROIECTULUI

SCOPUL PROIECTULUI

Predicția tipului de acorduri (major sau minor) de chitară si pian folosind metode de învățare supervizată.

SET DE DATE

A

SURSĂ

Kaggle – Deep Contractor

B

DATE

859 fișiere audio .wav

502 majore + 357 minore

C

ANTRENARE

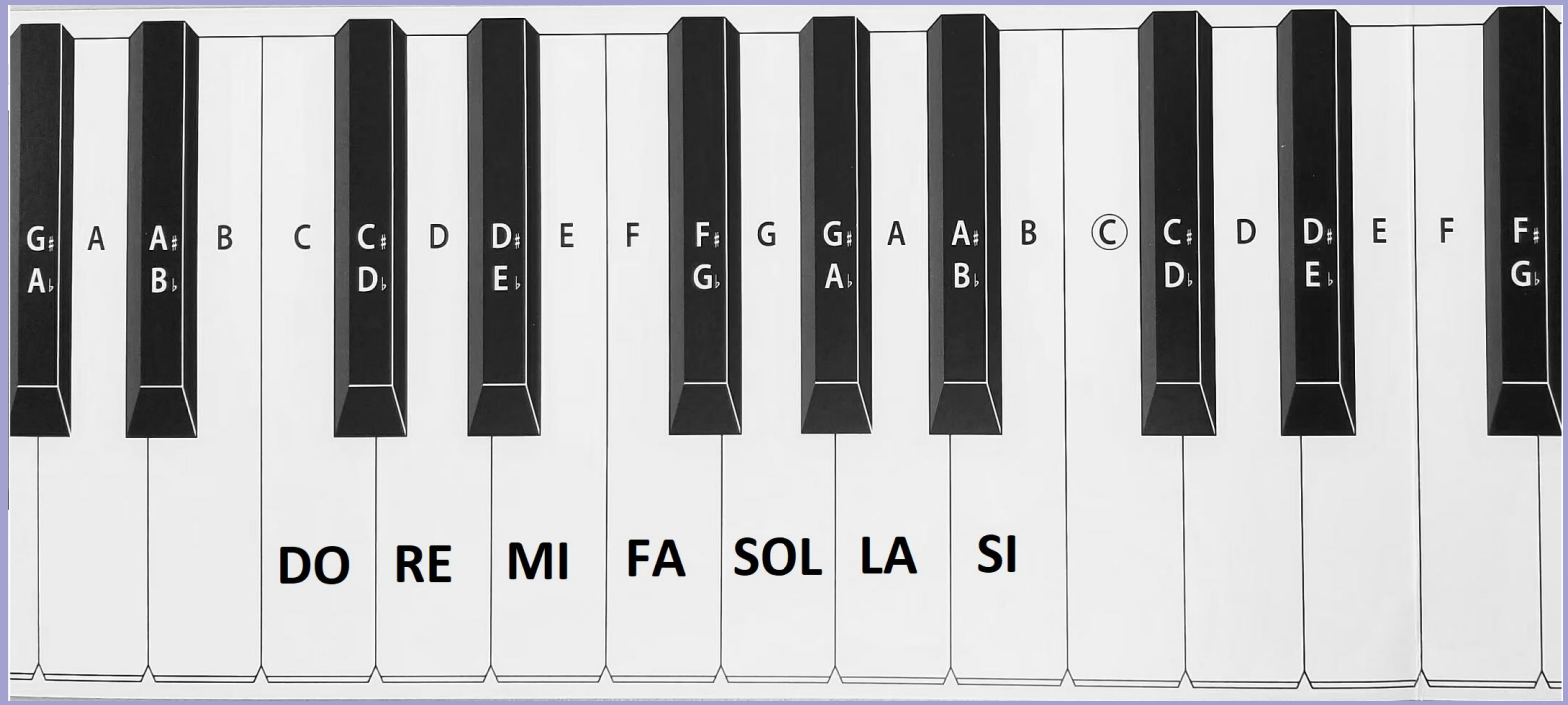
Setul a fost împărțit
70/30

02

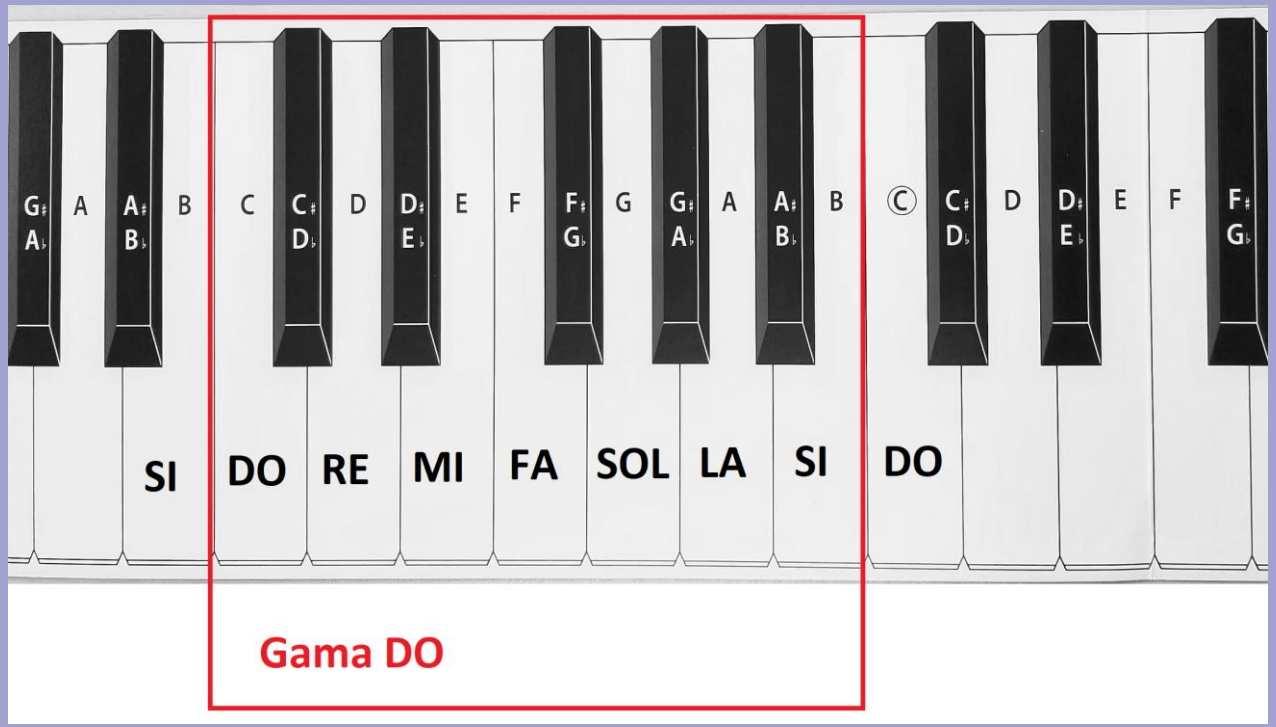
SOLUȚIA PROIECTULUI

PUȚINĂ TEORIE MUZICALĂ

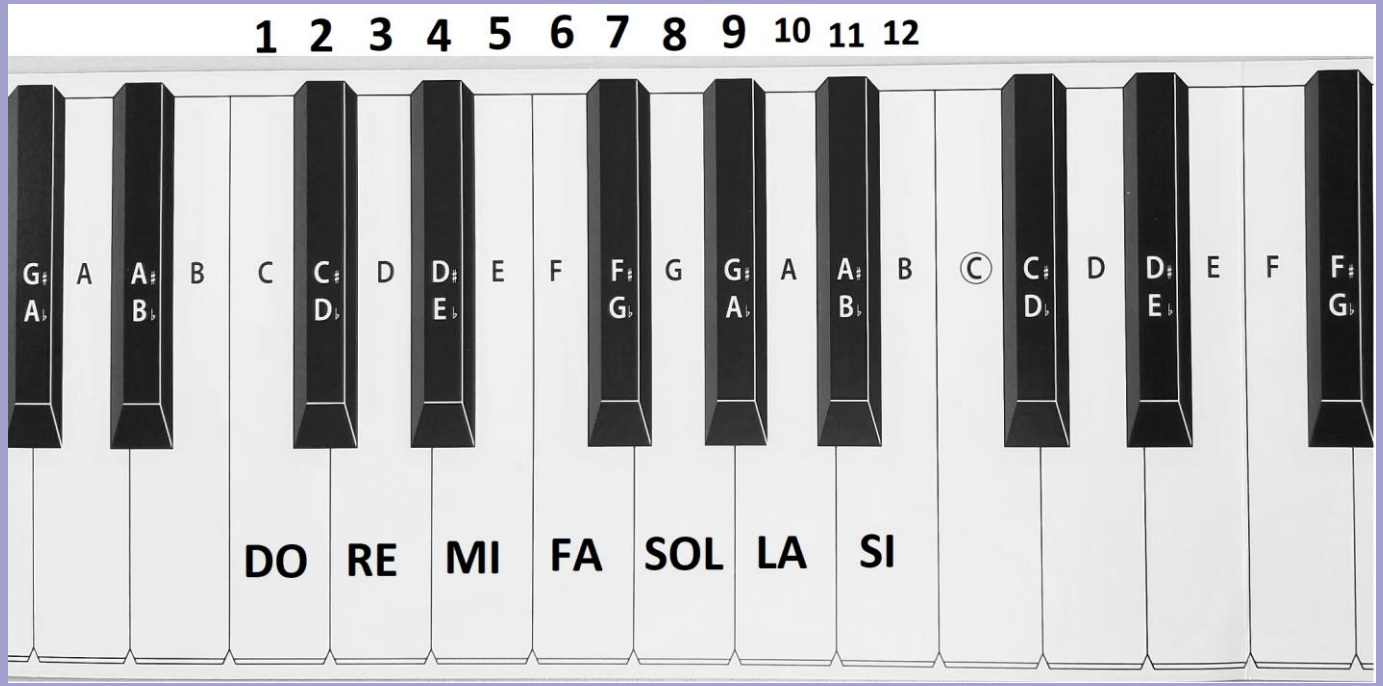
NOTELE



GAMA


G♯ A♭
A
A♯ B♭
B
C
C♯ D♭
D
D♯ E♭
E
F
F♯ G♭
G
G♯ A♭
A
A♯ B♭
B
C
C♯ D♭
D
D♯ E♭
E
F
F♯ G♭
SI
DO
RE
MI
FA
SOL
LA
SI
DO
Gama DO

12 NOTE


1 2 3 4 5 6 7 8 9 10 11 12
G♯ A♭
A
A♯ B♭
B
C
C♯ D♭
D
D♯ E♭
E
F
F♯ G♭
G
G♯ A♭
A
A♯ B♭
B
C
C♯ D♭
D
D♯ E♭
E
F
F♯ G♭
DO
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LA
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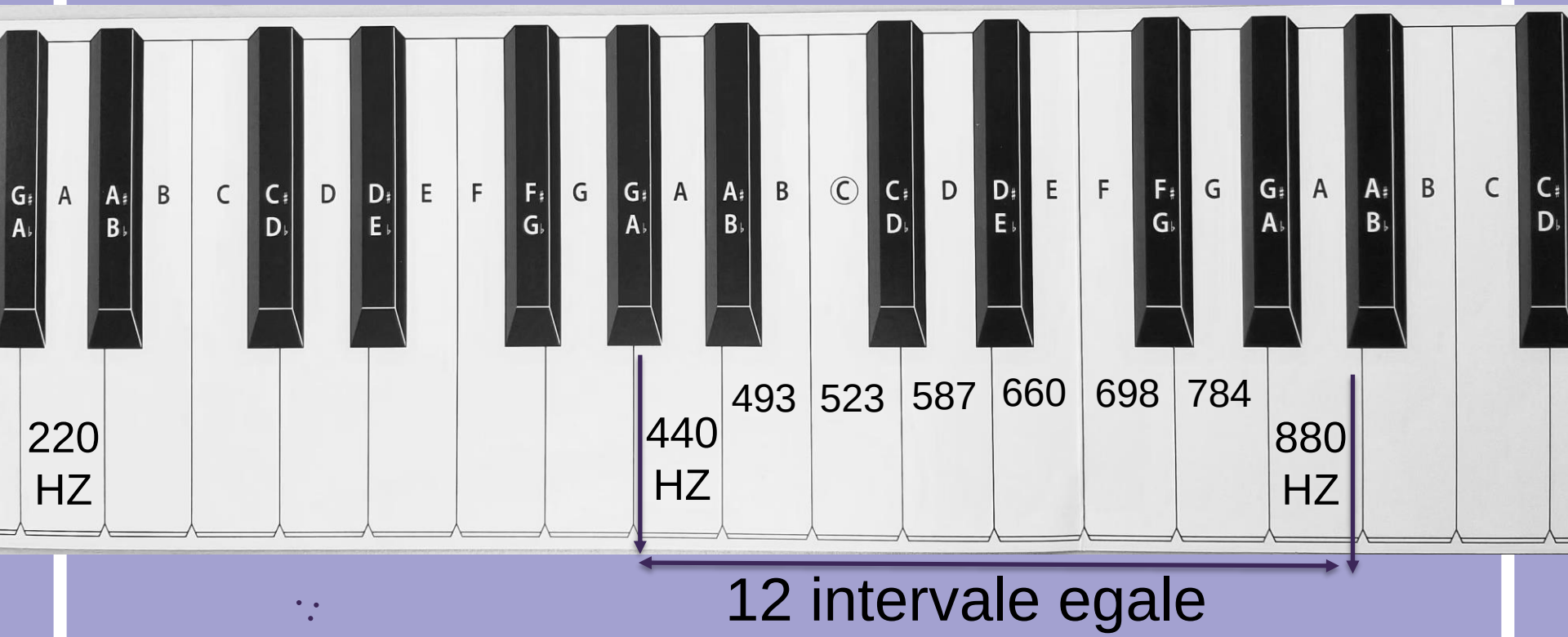
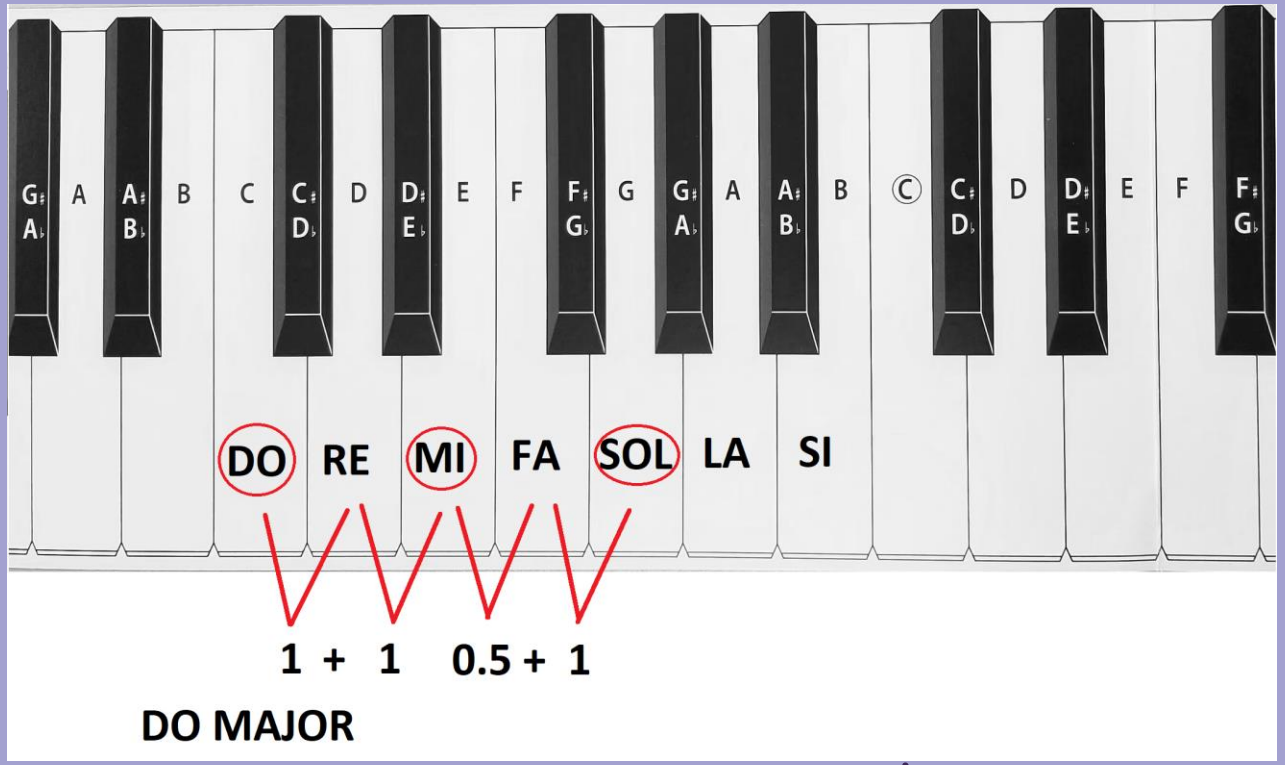
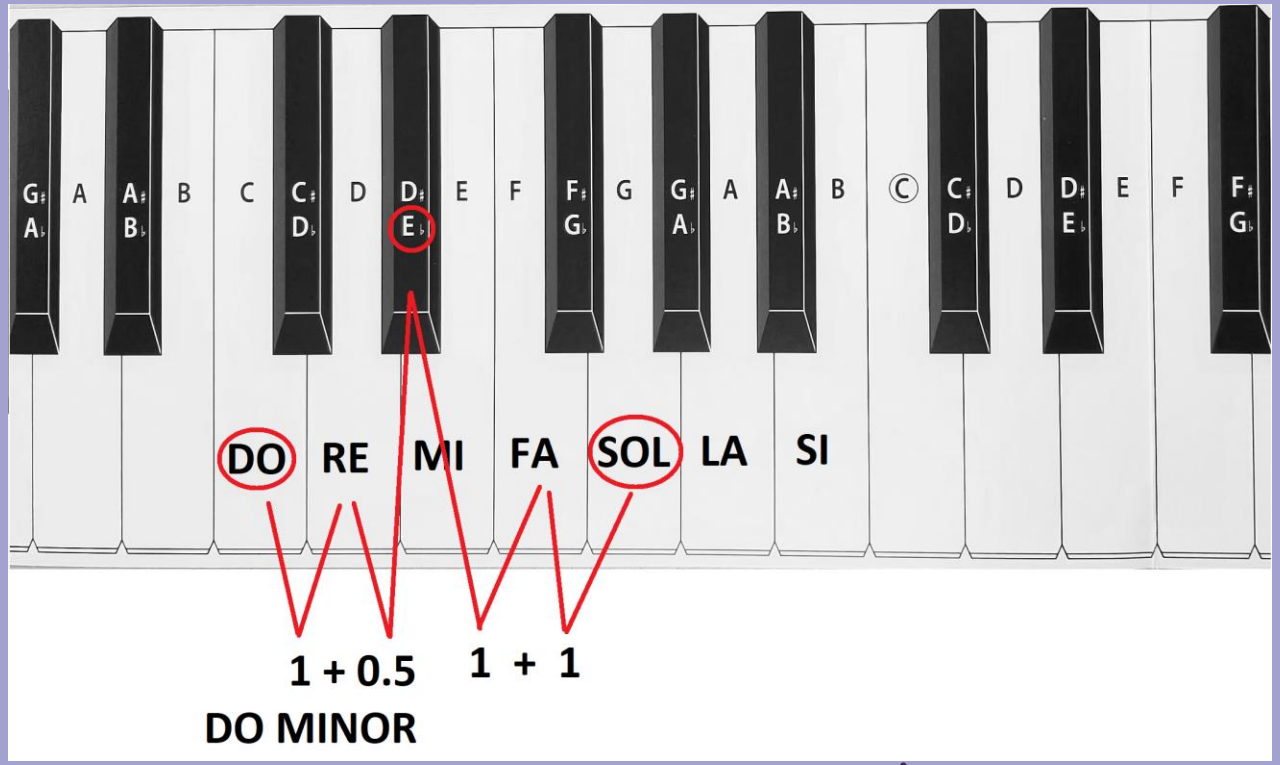
FRECVENȚA NOTELOR



ACORDURI MAJORE

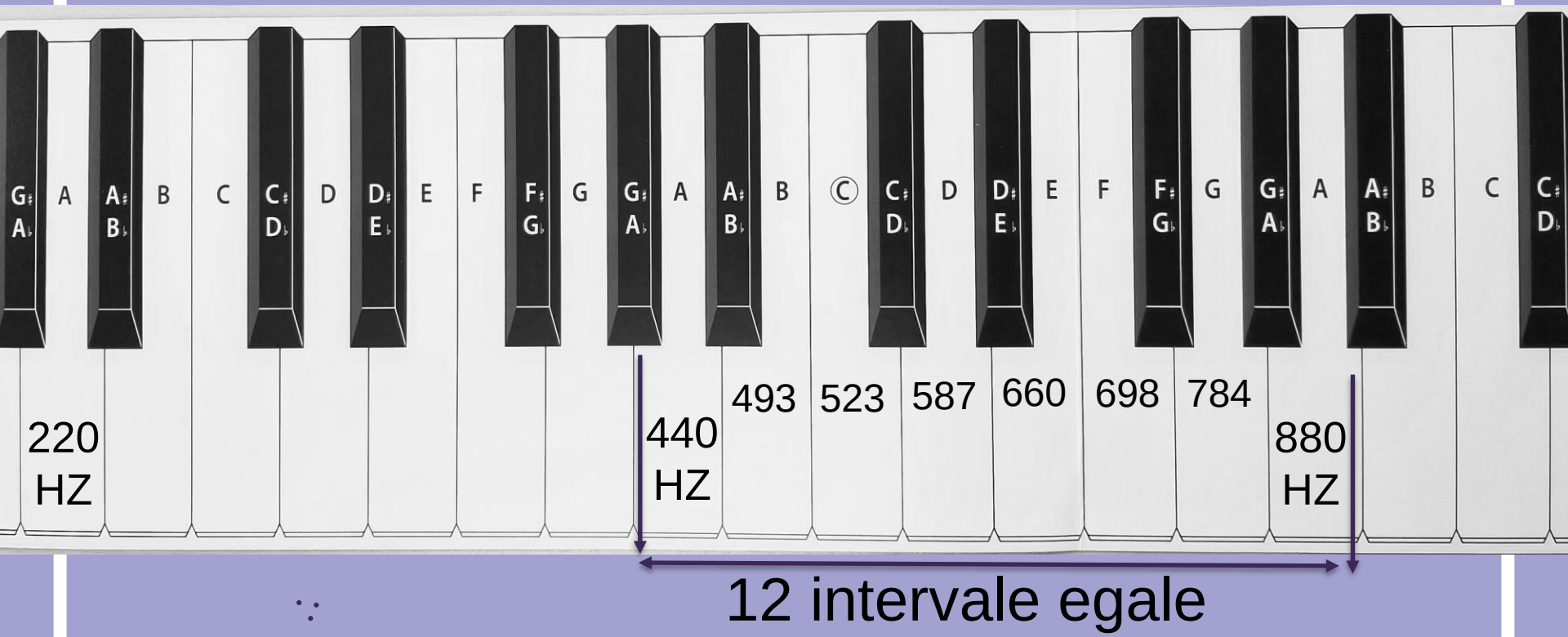


ACORDURI MINORE

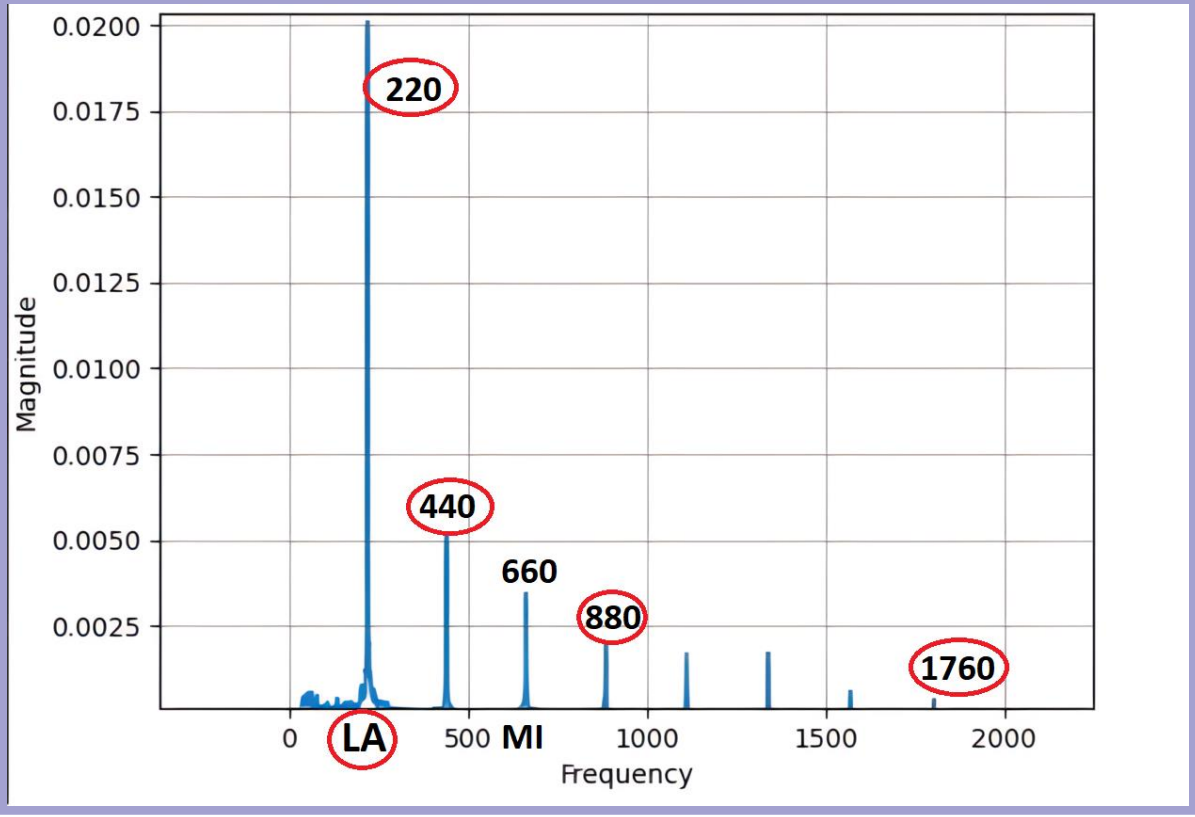


ANALIZA ÎN FRECVENȚĂ

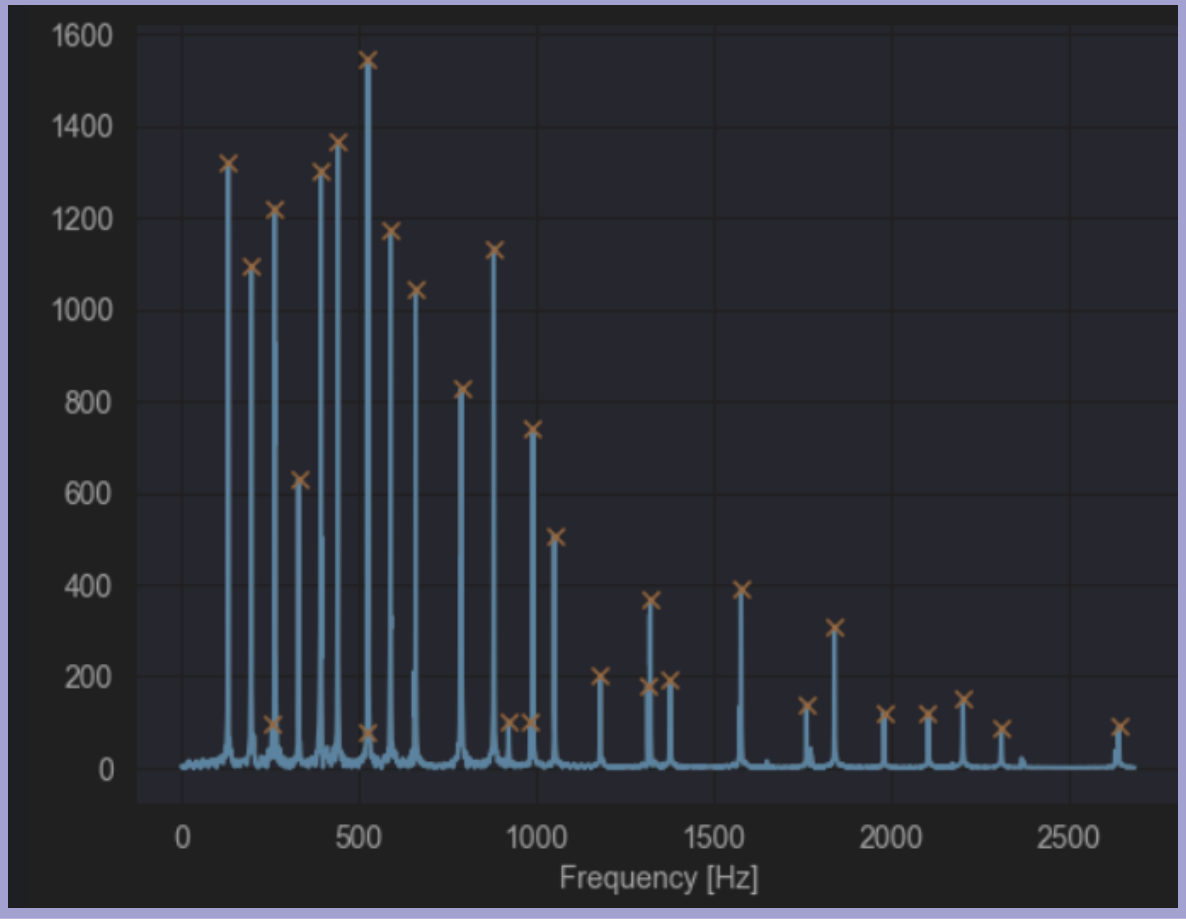
FRECVENȚA NOTELOR



NOTA “LA” ÎN FRECVENȚĂ



ACORD ÎN FRECVENȚĂ



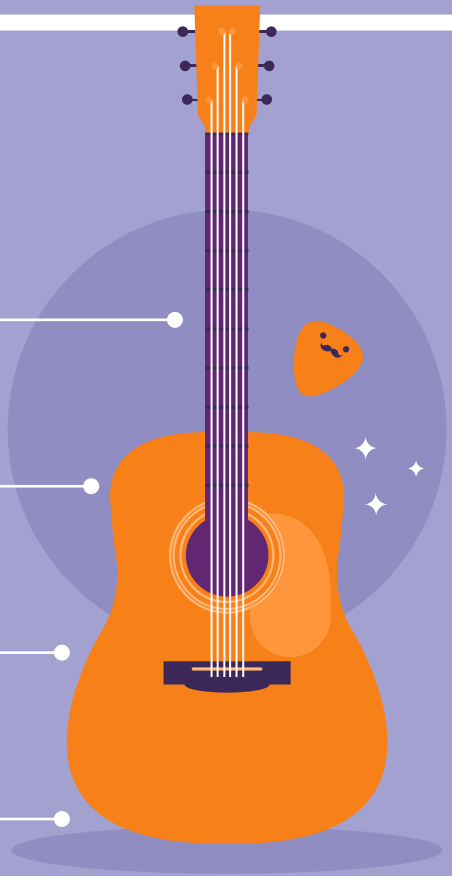
ANALIZA ARMONICĂ

min este 8 --> fiecare rând are cel puțin 8 valori armonice

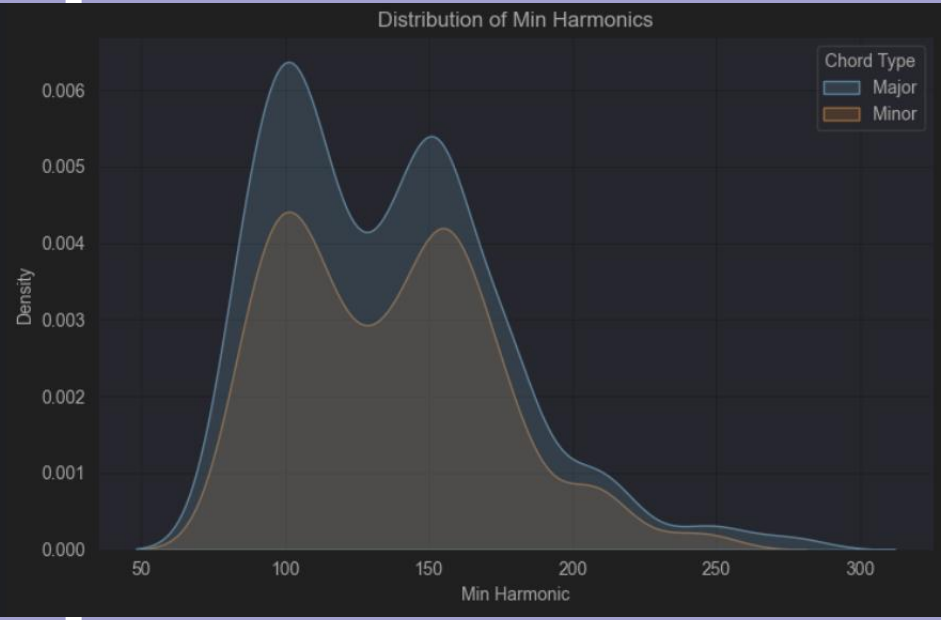
max este 38 --> ultima coloană va fi "Armonica 38".

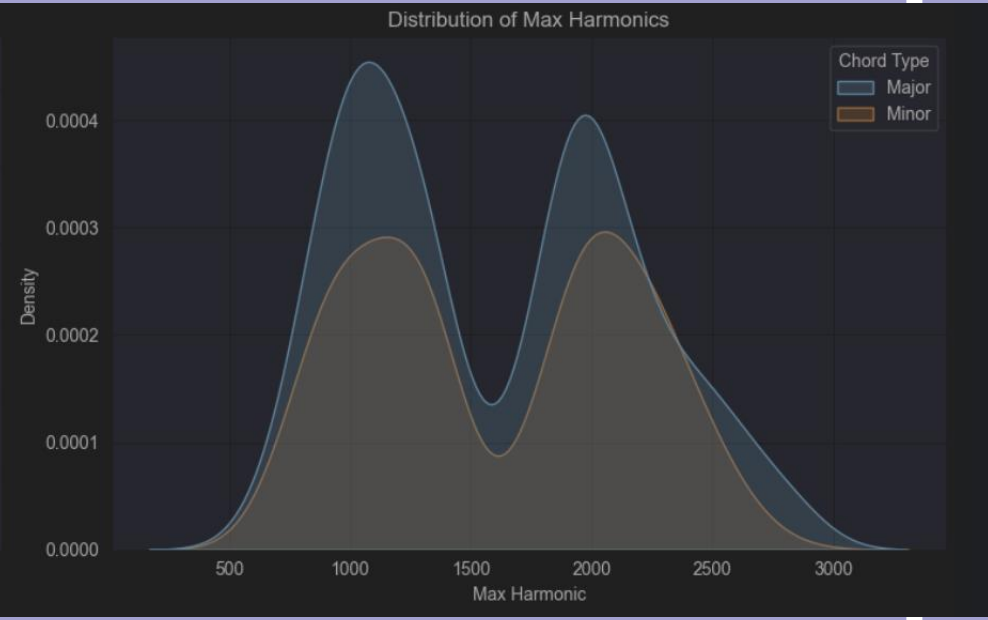
deoarece armonicele sunt ordonate, valorile lipsă vor crește cu fiecare coloană.

valoarea medie a numărului de armonice este 20



DISTRIBUȚIILE ARMONICELOR MINIME SI MAXIME





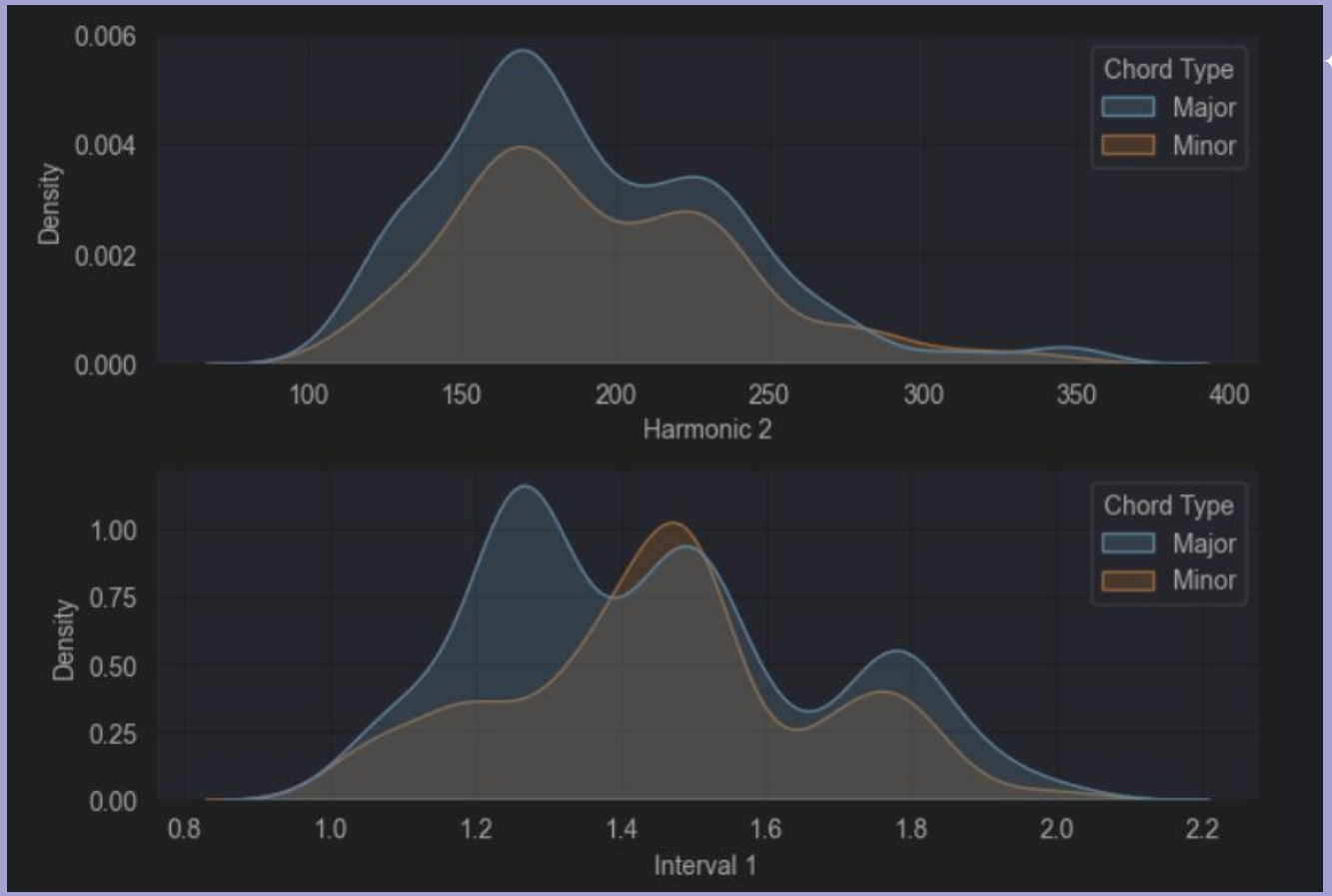
Diferența dintre Major și Minor provine din intervale

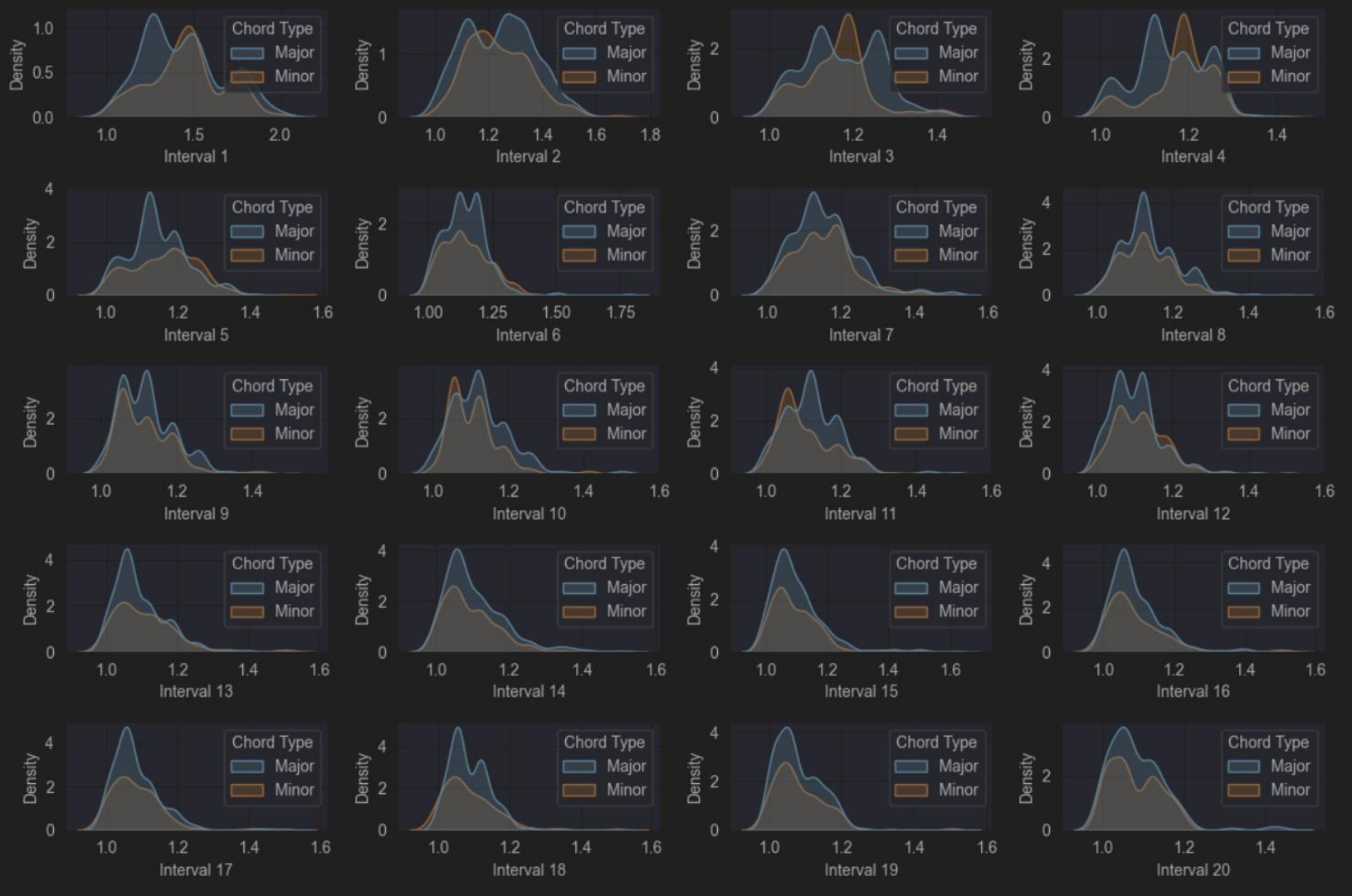
DISTRIBUȚIE

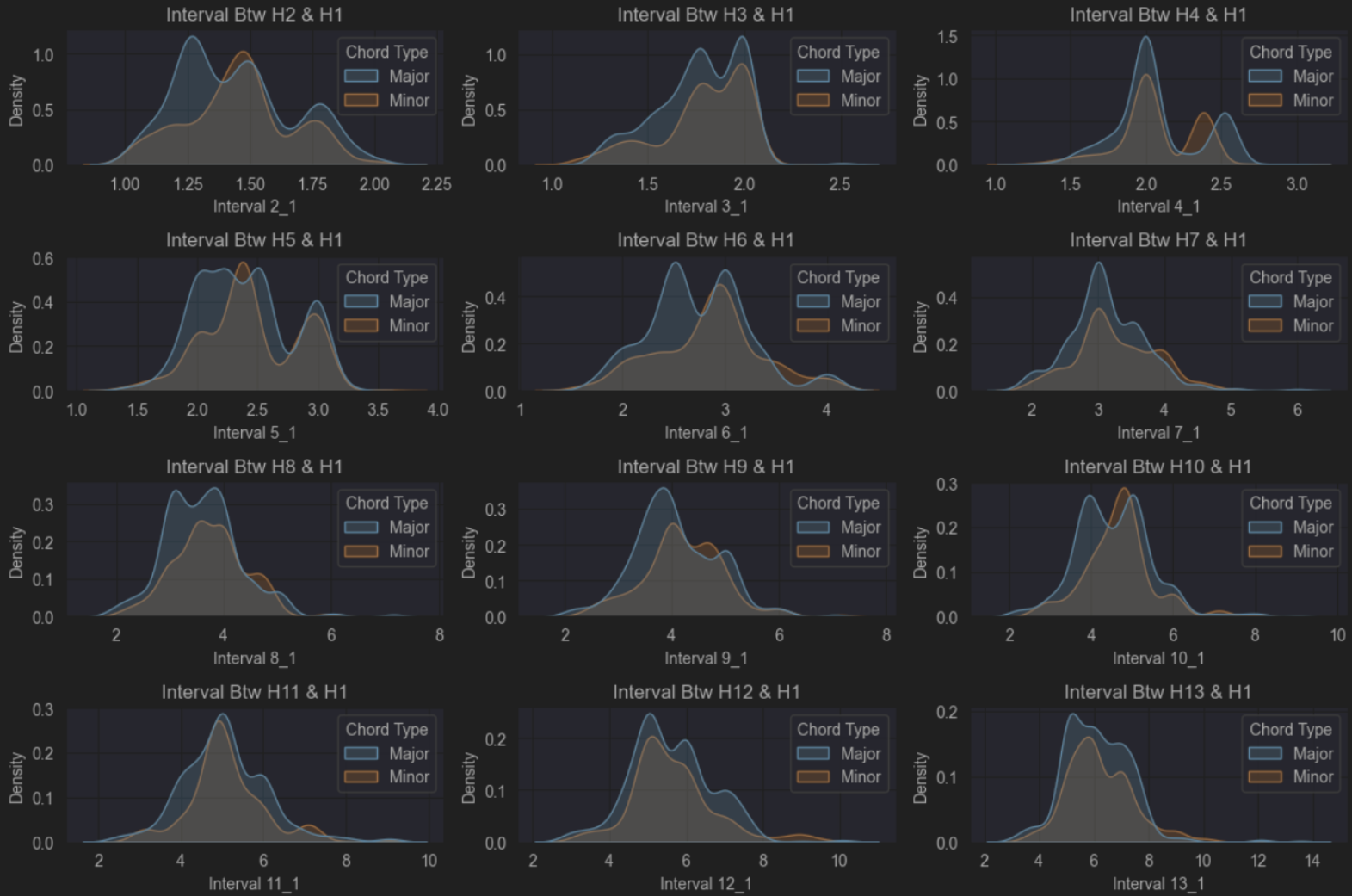
ARMONICA 2

ARMONICA 2

ARMONICA 1




Density
Chord Type
Major
Minor
Interval 1
Interval 2
Interval 3
Interval 4
Interval 5
Interval 6
Interval 7
Interval 8
Interval 9
Interval 10
Interval 11
Interval 12
Interval 13
Interval 14
Interval 15
Interval 16
Interval 17
Interval 18
Interval 19
Interval 20


Interval Btw H2 & H1
Density
Interval 2_1
Chord Type
Major
Minor
Interval Btw H3 & H1
Interval 3_1
Interval Btw H4 & H1
Interval 4_1
Interval Btw H5 & H1
Interval 5_1
Interval Btw H6 & H1
Interval 6_1
Interval Btw H7 & H1
Interval 7_1
Interval Btw H8 & H1
Interval 8_1
Interval Btw H9 & H1
Interval 9_1
Interval Btw H10 & H1
Interval 10_1
Interval Btw H11 & H1
Interval 11_1
Interval Btw H12 & H1
Interval 12_1
Interval Btw H13 & H1
Interval 13_1

DATELE PENRU MODEL

Interval 1

Interval 2

Interval 3

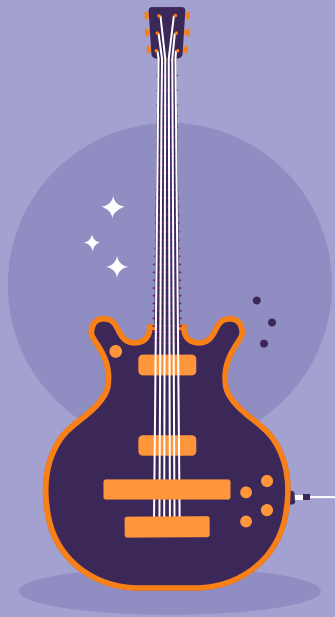
Interval 4

Interval 4_1

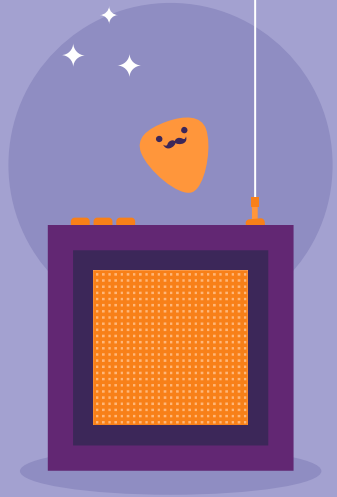
Interval 5_1

Interval 6_1

ALGORITMI UTILIZAȚI



- Random Forest
- Decision Tree
- KNeighbors Classifier
- Gradient Boosting Classifier



03

REZULTATE

Gradient Boosting Classifier

0.93

93	13
6	146

KNeighbors Classifier

0.83

87	19
24	128

Random Forest

0.91

93	13
10	142

Decision Tree

0.91

93	13
11	141

MULȚUMESC!

ÎNTREBĂRI?


slidesgo